Sexual orientation data in probability surveys: Improving data quality and estimating core population measures from existing New Zealand survey data

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This report was commissioned by Official Statistics Research, through Statistics New Zealand. The opinions, findings, recommendations and conclusions expressed in this report are those of the author(s), do not necessarily represent the views of Statistics New Zealand, or the Ministry of Social Development, and should not be reported as those of Statistics New Zealand, or the Ministry of Social Development. Official Statistics Research takes no responsibility for any omissions or errors in the information contained here.
Abstract
There is an increasing awareness amongst policy makers, service providers, and community organisations of the need for official statistics on sexual orientation. Principal information needs are apparent in the broad categories of enumeration, discrimination, and social well-being. As a result, the Official Statistics System of New Zealand (OSS) has commenced collecting sexual orientation data in some official probability surveys. A number of official statistical agencies in other countries have collected sexual orientation data for some time, providing valuable knowledge and experience in this area.

The OSS is not currently guided in its collection of sexual orientation data by an overarching conceptual and measurement framework, and this poses a potential risk to the quality of data collected. In addition, the lack of reliable denominator data makes it difficult for the OSS to validate drawn samples. The Ministry of Social Development established the Sexual Orientation Data Collection Study (SODCS), in close collaboration with Statistics New Zealand and the Ministry of Health, with the dual aims of developing robust conceptual and measurement frameworks to improve the quality of sexual orientation data collected in New Zealand and estimating core population measures from existing New Zealand survey data on sexual orientation. Independent researchers and statisticians were commissioned to conduct the study on behalf of the Ministry of Social Development.

A multi-source, multi-method research approach was taken. First, we reviewed and analysed the existing body of conceptual and methodological literature in the area. Second, we held focus groups and key informant interviews with takatāpui, fa'afafine, lesbian, gay, and bisexual individuals, as well as producers and consumers of official statistics. Third, we analysed and modelled sexual orientation data from existing official New Zealand surveys. Throughout the project, we drew on the expertise of a 14-member advisory board and additional experts, including producers of official statistics.

The SODCS has produced four specialist reports (Appendices 1-4), and the key findings from each of these are summarised in the current document. SODCS Report 1: Sexual Orientation Conceptual Framework is a guiding conceptual document for sexual orientation data collection in the OSS. The conceptual framework discusses the culture and gender frames of sexual orientation in New Zealand, the three key conceptual components of sexual orientation (ie, sexual attraction, sexual behaviour, and sexual identity), sexual orientation as a continuum, and fluidity of sexual orientation. Finally, a working definition for sexual orientation as a statistical topic and definitions for the three key measurement concepts (sexual attraction, sexual behaviour, and sexual identity) are proposed.

SODCS Report 2: Issues in Sexual Orientation Measurement and Data Collection discusses prominent methodological issues in relation to sexual orientation as an official statistic. These include the conceptualisation and definition of sexual orientation, the design of sexual orientation questions, size and demographic distribution of sexual minority populations, sampling populations defined by sexual orientation, survey mode, misreporting and non-responding, and acceptability of sexual orientation survey items. The report outlines strategies for addressing the methodological issues discussed.

SODCS Report 3: Current Best Practice in Sexual Orientation Data Collection makes recommendations about the praxis of collecting sexual orientation data, drawing on the findings and conclusions of the conceptual and measurement frameworks. This document includes preliminary sexual orientation questions and statistical classification standards for sexual orientation which could potentially be used as a starting point for further development of sexual orientation data standards and classifications.

Official Statistics Research Series, 2010-2
www.statsphere.govt.nz
SODCS Report 4: Sexual Orientation Data in New Zealand Probability Surveys - Technical Report assesses the potential of existing New Zealand survey data to improve current estimates of sexual minority populations. Based on careful analysis of currently available data, we conclude that these are of limited suitability for this purpose. Potential sampling strategies to increase sexual minority sub-samples are explored. We also investigate characteristics of refusals, don’t know, other; and missing responses in existing New Zealand survey data for the purpose of determining the percentage of these response types likely to have been elicited from heterosexual and sexual minority respondents respectively. A robust statistical model for the estimation of population characteristics of sexual minority population groups is presented, which includes adjustments for the misreporting and non-response phenomena.

Principal conclusions from the SODCS are that:

- The conceptual framework developed by the SODCS and presented here provides a solid foundation for improving the quality of sexual orientation data collected in the OSS.
- The identified measurement and data collection issues relating to sexual orientation data are all amenable to resolution to a degree that would ensure the collection of timely, accurate, reliable, comparable, and high-quality sexual orientation data in New Zealand; the SODCS recommends strategies to address each of these issues.
- An important further step will be to develop standards for sexual orientation as a statistical topic; the SODCS presents some of the key information and tools needed to produce such a statistical standard.
- The preliminary sexual attraction, sexual behaviour, and sexual identity questions developed by the SODCS could potentially be used as standard questions by the OSS, pending further testing, development, and trialling along the lines suggested. The approach taken by the Office for National Statistics (United Kingdom) could guide this process.
- Although sexual attraction and sexual behaviour data are needed to address certain information needs, significant additional development of the proposed preliminary questions on sexual attraction and sexual behaviour is needed before these can be included in OSS surveys. A conceptually sound, pre-tested sexual identity question tailored to the New Zealand and OSS contexts is available, and would require only minor additional testing and development before being fully fit for use in OSS surveys. As demonstrated in the United Kingdom, sexual identity questions can be effectively included in the demographic core of official surveys to provide data on a range of key information needs related to sexual orientation.
- Sexual orientation data collection should aim to meet the best practice standard of collecting data on all three measurement concepts (sexual attraction, sexual behaviour, and sexual identity). However, prioritisation of the sexual identity concept for inclusion in OSS surveys (possibly in the demographic core) represents an acceptable transitional step until data on all concepts can be collected. To overcome the limitations associated with the prioritisation of a question on sexual identity, the OSS would then need to concurrently work towards standard sexual attraction and sexual behaviour questions for OSS use and establishing a statistical standard for the sexual orientation statistical topic, eventually achieving the best practice of collecting data on all three measurement concepts at the earliest possible point in time.
- The approach to producing robust estimates of populations defined by sexual orientation developed by the Office for National Statistics (United Kingdom) is
an appropriate model for use in the OSS. That is, development and implementation of standard sexual orientation questions in large-scale OSS surveys and, in turn, pooling data from sexual minority samples to achieve large enough data sets for robust analysis and imputation. In addition, the SODCS proposes a model for adjusting data to account for misreporting and non-responses, based on current best practice in this area.

Keywords
Sexual orientation, conceptual framework, measurement, data collection, probability survey, small area estimation.
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Citation


Published by

Statistics New Zealand
Tatauranga Aotearoa
Wellington, New Zealand

ISSN 1177-5017 (online)
ISBN 978-0-478-35360-0 (online)
Acknowledgements

The sponsors of this study were:

- Ministry of Social Development: Ryan Orange (General Manager, Medium Term Strategy Unit) and Katherine Baxter (previously General Manager, Social Participation and Inclusion)
- Statistics New Zealand: Conal Smith (Manager, Social Conditions)
- Ministry of Health: Warren Lindberg (Group Manager, Public Health Operations) and Associate Professor Barry Borman (previously Manager, Public Health Intelligence)

The support of a key stakeholder, the Ministry of Health (Maria Cotter, Team Leader, Non Communicable Diseases Policy), is also acknowledged.

The members of the study’s advisory board who generously shared their knowledge and expertise and reviewed research products at key points were:

- Associate Professor Diane Binson (Department of Medicine, University of California, San Francisco)
- Dr. Kristie Carter (Research Fellow, Health Inequalities Research Programme, Department of Public Health, School of Medicine & Health Sciences, University of Otago)
- Dr. Nicole Coupe (Research Fellow, Whāriki Research Group, Centre for Social and Health Outcomes Research and Evaluation (SHORE)/Te Rōpū Whāriki, Massey University)
- Dr. Mark Henrickson (Senior Lecturer/Researcher, Massey University)
- Professor Prue Hyman (Gender & Women’s Studies, Victoria University)
- Lyn Kaye (Senior Research Methodologist, Collection Methods, Solutions, Standards and Capability, Statistics New Zealand)
- Ross Mackay (Principal Advisor, Social Sector Strategy, Ministry of Social Development)
- Associate Professor Willi McFarland (Department of Epidemiology and Biostatistics, University of California, San Francisco; and Director, HIV/AIDS Statistics and Epidemiology, San Francisco Department of Public Health)
- Deborah Potter (Project Manager, Social Conditions, Statistics New Zealand)
- Dr. Paul Reynolds (Co-Director, Te Atawhai o te Ao: Independent Māori Institute for Environment & Health)
- Professor B. R. Simon Rosser (HIV/STI Intervention & Prevention Studies Program, School of Public Health, University of Minnesota)
- Dr. Peter Saxton (Senior Researcher, New Zealand AIDS Foundation)
- Associate Professor Randell Sell (School of Public Health, Drexel University)
- Helen Stott (Older and Working Age People Research and Evaluation, Centre of Research and Evaluation, Ministry of Social Development)

Robert Templeton (Principal Technical Specialist, Statistics, Health and Disability Intelligence, Ministry of Health) for facilitating access to Ministry of Health data and his analysis of unit record data in discussion with the research team.

Agencies and individuals, who provided valuable support and input on drafts:

- Statistics New Zealand: Conal Smith and Harry Smith
• Ministry of Health: Maria Cotter and Warren Lindberg
• Te Puni Kōkiri

We would like to thank all the focus group participants and individuals interviewed as part of the study for their contributions and for making time to participate in the study.

We particularly acknowledge Gabi Rosenstreich (previously Senior Policy Analyst, Ministry of Social Development), who played a key role in the initiation of the research project and contributed much to its design and the early stage of its implementation.

Finally, our thanks also extend to the three experts who agreed to provide peer-review for this report:

• Professor M. V. Lee Badgett (Director, Center for Public Policy & Administration, University of Massachusetts Amherst; and Research Director, Williams Institute, University of California Los Angeles School of Law)
• Professor Dan A. Black (Harris Graduate School of Public Policy Studies, University of Chicago)
• Professor Charles F. Turner (Professor of Applied Social Research, City University of New York; and Senior Consultant, Program in Health and Behaviour Measurement, Research Triangle Institute, City University of New York)
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1 Introduction

1.1 Background
In response to the identified need to address conceptual, measurement, and data collection issues in relation to sexual orientation, the Ministry of Social Development established the Sexual Orientation Data Collection Study (SODCS), together with co-sponsors Statistics New Zealand and the Ministry of Health. External researchers and statisticians were commissioned to independently conduct the study on behalf of the Ministry of Social Development. The study was granted competitive funding from the Official Statistics Research (OSR) programme administered by Statistics New Zealand. The stated purpose of the OSR scheme is to improve methodologies for official statistics and to increase statistical capability in the state sector.

1.2 Objectives
The key aim of the SODCS was to provide a sound theoretical and methodological basis for improving the coverage, reliability, and quality of sexual orientation data collected in New Zealand and made available to the OSS. The specific aims of the SODCS were to help build capability to collect and analyse robust and high quality data on sexual orientation in New Zealand by:

- developing a coherent and theoretically robust conceptual framework to guide the measurement of sexual orientation in New Zealand
- developing a framework for the robust and effective collection of sexual orientation data in OSS probability surveys
- assessing the capability of existing New Zealand OSS to provide reference data for sexual orientation
- developing a model for estimating gay, lesbian, and bisexual population groups in order to provide reference data for public sector information needs and to inform the development of sampling strategies for surveys.

1.3 Methodology

Literature Review and Analysis
A multi-method, multi-source research approach was used, beginning with a systematic and comprehensive search of academic literature and government publications which was undertaken by the Ministry of Social Development Knowledge Services on behalf of the research team. Searches were carried out across several social science databases, using a broad range of key words to identify literature on the definition and measurement of sexual orientation and the collection of sexual orientation data in probability surveys. The literature search identified 95 books, book chapters, journal articles, discussion papers, and technical reports on these topics. The resulting bibliography was sent to members of the SODCS advisory board for review and comment. The advisory board, comprising national and international experts in the field of sexual orientation data collection, identified 14 additional key papers. Altogether, the applied search strategies identified 109 academic and government papers.²

1 Any combination of: sexual orientation, sexual identity, sexual behaviour, sexual attraction, lesbian, gay, bisexual, homosexual, homosexuality, heterosexual, heterosexuality, takatāpui, takataapui, two-spirit and sampling, sample, probability, opportunity, random, data collection, measurement, data source, Census, representative, general population, population-based, epidemiological, demographic, geographic, geography, distribution, prevalence, morbidity, mortality, data analysis, statistical model, base line data, validity.

2 The annotated bibliography is available from the Ministry of Social Development on request.
This extensive body of research literature was reviewed for the purpose of identifying key conceptualisations, as well as measurement and data collection issues, relating to the construct of sexual orientation, along with strategies for dealing with these and empirical evidence on implementation.

**Focus Groups and Interviews**

Feedback was sought on draft versions of SODCS Report 1: Sexual Orientation Conceptual Framework (Appendix 1), SODCS Report 2: Issues in Sexual Orientation Measurement and Data Collection (Appendix 2) and SODCS Report 3: Current Best Practice in Sexual Orientation Data Collection (Appendix 3) via focus groups and interviews. Sexual minority stakeholders (ie, takatāpui, fa’afafine, lesbian, gay, and bisexual people) were consulted through one key-informant interview and focus groups in Auckland and Wellington (with four and five participants respectively). These consultations helped ensure that the findings of the SODCS were informed by experiential knowledge and views about the conceptualisation and measurement of sexual orientation. Key-informant interviews with four producers and consumers of official statistics were also conducted to ensure the appropriate consideration of OSS requirements and constraints. Findings from these interviews and focus groups were summarised (Summary of Focus Groups and Interviews, Pega, 2009) and informed further development of the SODCS.

**Expert Advice**

The 14-member SODCS advisory board provided on-going peer-review and technical advice throughout the development of the key SODCS documents. Several individuals from the Ministry of Social Development, Statistics New Zealand, and Te Puni Kōkiri also reviewed and commented on draft versions of the key SODCS research products.

**Data Analysis**

The viability and quality of existing New Zealand official sexual orientation statistical data from the New Zealand Health Behaviours Surveys (HBS) on Drug Use (HBS-D; Ministry of Health, 2003) and Alcohol Use (HBS-A; Ministry of Health, 2004) and Te Rau Hinengaro – The New Zealand Mental Health Survey (MHS; Ministry of Health, 2006) were assessed. These surveys were examined in terms of the definitions of sexual orientation concepts applied, question design, sample size, sampling design, frames, survey response, item non-response rates, and survey modes, amongst other factors. The assessment concluded that the existing New Zealand survey data were not fit for the purpose of developing robust break-downs and estimates of sexual minority populations due to the presence of several conceptual and data collection issues.

**Data Modelling**

Existing sexual orientation data were modelled in three ways. First, using a set of four-way tables of the sexual orientation question, sex, age, and a given socio-demographic variable (eg, education, ethnicity, income, occupation) all the **other,**

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3 For a definition of ‘sexual minority population’, ‘takatāpui’, and ‘fa’afafine’ see Glossary (p. 40).

4 The Summary of Focus Groups and Interviews report (Pega, 2009) is available from the Ministry of Social Development on request.
don’t know, missing, and refusal responses to the sexual orientation question were examined to determine whether respondents who made these responses were more likely to belong to the sexual minority population or to the heterosexual population (on the basis of sex, age, and socio-demographic variables). Second, the research team looked at trying to define a stratification for targeting sexual minority individuals based on socio-demographic variables. For this purpose, logistic regression models were fitted to the Health Behaviours Surveys (HBS-D, 2003; HBS-A, 2004) data. Finally, statistical models used internationally to estimate misreporting on sexual orientation items were assessed. These are similar to the logistic regression models discussed above. A model for adjusting sexual orientation data for misreporting and non-response was developed.
2 Current Status of Sexual Orientation Data Collection

2.1 Rationale

Policies, Strategies, and Services

Government agencies, service providers, and community organisations need to be able to access timely, accurate, reliable, comparable, and high-quality sexual orientation data in order to quantify, prioritise, and address the issues affecting populations defined by sexual orientation. However, there is currently little official New Zealand data available on sexual orientation, limiting the ability of policy makers and other stakeholders to develop appropriate policies and strategies to effectively address issues relating to sexual orientation.

Several issues relating to sexual orientation that government agencies, service providers, and community organisations might want to address have already been identified. There is considerable New Zealand and international evidence that members of sexual minority populations (ie, people with minority sexual attractions, sexual behaviours, and/or sexual identities) are disadvantaged across a range of social wellbeing, health, and economic indicators. For example, there is robust evidence that sexual minority groups experience higher rates of suicide, physical and verbal assault, bullying, victimisation, depression, alcohol use, tobacco smoking, and other drug dependence, and more workplace discrimination and impediments to career progression, in comparison to the heterosexual population (eg, Ministry of Health, 2006; Ministry of Social Development [MSD], 2006; Statistics New Zealand [SNZ], 2008).

Thus, there is a clear need for information on sexual orientation in the broad areas of enumeration, discrimination, and social well-being (SNZ, 2008). These are just a few examples of where the need for sexual orientation data has been identified; it is anticipated that data on sexual orientation will have wide utility across a range of policy and programme development areas.

Legislative Requirements

New Zealand legislation guarantees non-discrimination on the basis of sexual orientation through legislation such as the 1993 Human Rights Act and the 2004 Civil Union Act. In addition, the 2007 Yogyakarta Principles on the Application of International Human Rights Law in Relation to Sexual Orientation and Gender Identity affirm the binding international legal standards with which all member states of the United Nations must comply in respect to the provision of human rights for populations defined by sexual orientation. The monitoring of outcomes relating to the provisions made in national and international legislation necessitates access to comparable, high-quality sexual orientation data.

2.2 Official Statistics Systems and Official Data

All official social statistics are required to have a high degree of relevance (ie, to meet user needs) and to be able to inform decision-making in relation to improving New Zealand’s social wellbeing. Specifically, official social statistics must:

• ‘address issues of enduring concern to government departments, local authorities, businesses, and to the general public
• be useful for improving knowledge about New Zealand’s population
• inform decision making relating to New Zealand’s social well-being
• provide an accurate reflection of the population of interest
• provide information that will help inform and evaluate policy
• be a trusted source
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- be publicly acceptable
- be accurate and of high quality.'

(SNZ, 2008, pp. 5-6).

With regard to sexual orientation data, Statistics New Zealand has indicated particular interest in being able to determine the size of sexual minority populations (ie, enumeration) and the demographic distribution of these populations. Pre-requisites for this include consideration of the refinement of measurement concepts, identification and strategies for dealing with issues around the aggregation/disaggregation of sexual orientation data, strengths and limitations of particular survey modes, and issues around public acceptability of questions on sexual orientation. These issues are addressed in the individual SODCS reports (see Appendices 1-4).

2.3 Sexual Orientation Data Collection in Official Statistics Systems

Internationally
Steps to include sexual orientation data in official surveys have been taken in several countries. Producers of official statistics in Canada and the United States have collected sexual orientation data for some time, starting in the early 1990s (Sell, n.d.; Taylor, 2008a). The United Kingdom Office for National Statistics has recently begun collecting standard sexual orientation data in the Integrated Household Survey (comprising six, large-scale household surveys) following an intensive two-year programme to develop, test, and trial sexual orientation questions (Aspinall & Mitton, 2008; Betts, 2008; 2009; Betts, Wilmot, & Taylor, 2008; Hand & Betts, 2008; Joloza, Traynor, & Haselden, 2009; Malagoda & Traynor, 2008; Office for National Statistics [ONS], 2008; Taylor, 2008a, b; Taylor & Ralph, 2008; Traynor, 2008; Wilmot, 2007). Statistics Norway is also currently actively considering how best to collect sexual orientation data (Taylor, 2008a).

New Zealand
Closer to home, the OSS (through the Ministry of Health) has commenced collection of official sexual orientation data by including sexual orientation questions in the New Zealand Health Behaviours Surveys on Drug Use in 2003 (HBS-D) and Alcohol Use in 2004 (HBS-A) as well as in Te Rau Hinengaro – The New Zealand Mental Health Survey in 2006 (MHS).

Statistics New Zealand is currently reviewing and updating the OSS with regards to social statistics in a process known as the Programme of Official Social Statistics (POSS). This programme aims to provide a coherent system of official social statistics across the government sector. As part of this programme (specifically the Review of Culture and Identity Statistics), Statistics New Zealand is considering the inclusion of sexual orientation as an official social statistic (SNZ, 2008). Hence, Statistics New Zealand has supported the documentation and prioritisation of sexual orientation information needs (relative to other information needs) across government.

Data Limitations and Gaps
Sexual orientation data collected in New Zealand to date are of limited utility stemming primarily, in our view, from the lack of a standard conceptualisation (including definitions) of sexual orientation and its component constructs. In practice, current measures of ‘sexual orientation’ assess aspects of sexual attraction, sexual behaviour, and sexual identity, each of which (as will be shown) represents a separate construct relating to, but not fully defining, sexual orientation. Data from
these measures therefore capture discrete populations, which often have significant areas of non-overlap. Thus, current measures of sexual orientation cannot, by their nature, yield comprehensive data on sexual orientation. There are also limitations in current surveys around the question formats and response categories for sexual orientation questions. Sampling issues and a lack of probability data on sexual attraction in particular are further limitations. With these issues in mind, the SODCS aimed to develop a suitable conceptual framework, including working definitions of the sexual orientation topic and its measurement concepts, and to identify best practice relating to the measurement of sexual orientation and the collection of sexual orientation data in surveys in the New Zealand context.
3 Summary of Key SODCS Findings

3.1 SODCS Reporting Structure
Given its comprehensive scope, the SODCS was carried out in two phases. In the initial phase, SODCS Report 1: Sexual Orientation Conceptual Framework (Appendix 1) was developed in order to provide the theoretical basis for the research, and SODCS Report 2: Issues in Measurement and Data Collection in particular (Appendix 2). Findings from these two reports were in turn used to inform SODCS Report 3: Current Best Practice in the Collection of Sexual Orientation Data (Appendix 3) which outlines best practice in conceptualising and measuring sexual orientation, and collecting sexual orientation data. During the second phase of the SODCS, existing New Zealand sexual orientation data collected as part of official surveys were analysed and modelled (as described above). The results of these analyses and modelling were compiled in SODCS Report 4: Sexual Orientation Data in New Zealand Probability Surveys - Technical Report (Appendix 4). Findings from the technical report have also been incorporated in the initial three reports where appropriate. The current document is the final report of the SODCS. Findings from the four specialist reports are summarised and the conclusions are presented. Finally, a set of recommendations based on the combined findings of the SODCS is provided.

3.2 SODCS Report 1: Sexual Orientation Conceptual Framework
Overview
This section summarises the findings from the Sexual Orientation Conceptual Framework (Appendix 1). It is envisaged that the framework will serve as a conceptual guide for future sexual orientation data collection in the OSS. The Sexual Orientation Conceptual Framework considers the following:

- culture and gender-related frames of sexual orientation
- key conceptual dimensions of sexual orientation
- working definitions of the statistical topic of sexual orientation and the associated measurement concepts

Culture and Gender-Related Frames of Sexual Orientation
At the broadest conceptual level, both culture and gender frame the way in which sexual orientation is conceptualised.

In terms of culture, Māori, New Zealand European, Pacific, Asian, and other cultural paradigms differ in their conceptualisation of sexual orientation, and these cultural dimensions have implications for the collection of sexual orientation data. Sexual orientation concepts have been in use by Māori both in contemporary times and historically, with takatāpui (takatāpui wahine, takatāpui tāne) being a sexual identity specific to Māori (Aspin, 2005, 2008; Aspin & Hutchings, 2008; Henrickson, 2006a; Hutchings & Aspin, 2007; Murray, 2003, 2004; Te Awekotuku, 1991). New Zealand Europeans are familiar with sexual orientation as a concept and frequently adopt common Western sexual identity labels. In general terms, while sexual orientation might not be a familiar concept amongst Pacific people, same-sex behaviour is relatively common amongst young, unmarried men and there are social identities related to male same-sex sexual relationships (eg, Samoan fa'afafine) (Schmidt, 2001; Worth, 2001). People from Asian backgrounds might also not traditionally have an equivalent sexual orientation concept, but same-sex attraction and behaviour is
not uncommon amongst this group (Henrickson, 2006b). As in other life domains, new migrants tend to adopt the sexual orientation concepts of the host culture; however, the extent to which this occurs depends on several factors including country of origin and level of acculturation to the host culture (Croom, 2000; Savin-Williams & Cohen, 2007; Zea, Reisen, & Diaz, 2003). As these examples illustrate, cultural conceptualisations of sexual orientation vary to some degree and need to be taken into consideration when developing measures of sexual orientation.

Dimensions such as gender, gender role, sex role, and gender identity also impact on the conceptualisation of sexual orientation by various groups. For example, there are gender differences in how men and women conceptualise sexual orientation (Golden, 1994, as cited in Gonsiorek, Sell, & Weinrich, 1995; Golden, 1996, as cited in Martin & Knox, 2000), and adherence or non-adherence to gender-typical roles can influence conceptualisations of sexual orientation (Schmidt, 2001). Similarly, amongst some groups (such as Pacific males), whether an individual takes an active or passive role during (same-sex) sexual behaviour can be a deciding factor for the conceptualising of an individual’s sexual orientation (eg, active role during sexual activity can lead to adoption of a heterosexual identity; passive role during sexual activity can lead to adoption of a sexual minority identity such as fa'afafine) (Gonsiorek et al., 1995; Schmidt, 2001; Zea et al., 2003). Finally, gender identity plays an important role in that transgender people conceptualise their sexual orientation differently depending on whether this is predicated on their (biological) sex or their gender identity (Austin, Conron, Kerith, Patel, & Freeder, 2006; Betts et al., 2008; Schmidt, 2001; Smith, van Gooren, Kuiper, & Cohen-Kettenis, 2005).

Conceptual Dimensions of Sexual Orientation

There are several key conceptual dimensions of sexual orientation. First, there is widespread consensus that the umbrella construct of sexual orientation encompasses three key concepts: sexual attraction, sexual behaviour, and sexual identity (Brogan, Frank, Elon, & O’Hanlan, 2001; Martin & Knox, 2000; Saewyc et al., 2004; Savin-Williams, 2006). Other concepts such as sexual fantasy or sexual desire are sometimes used to describe aspects of sexual orientation in the literature, but are not central to the conceptualisation of sexual orientation for official data collection purposes.

At first glance it may appear that one concept (eg, sexual identity) could be inferred from another (eg, sexual behaviour), whereas this is in fact not the case, and individuals often do not respond consistently across these three domains. For example, while many women who have sex with women identify as lesbian or bisexual, others identify as heterosexual. The multi-component nature of sexual orientation (ie, sexual attraction, behaviour, and identity) has implications for measurement as it means that no one measure can accurately differentiate populations defined by these three different key measurement concepts.

A second conceptual issue with implications for the measurement of sexual orientation is the notion of sexual orientation as a continuum rather than a set of mutually exclusive categories (Savin-Williams, 2006). Debate about definitional and classification criteria for both-sex attracted, both-sex behaved, and bisexual-identified populations have now advanced the field to the point of understanding sexual orientation as being continuous, rendering dichotomous (heterosexual/homosexual) or other simple categorisation schemes inaccurate or even meaningless (Diamond, 2008; McLean, 2007). Aside from greater conceptual accuracy, viewing sexual orientation as a continuum allows for greater flexibility and inclusiveness of individuals. Further research is likely to clarify whether asexuality (defined as the

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5 For a definition of ‘gender identity’ see Glossary (p. 40).
absence of sexual attraction; Bogaert, 2004) can be included as an extension of the sexual orientation continuum.

Finally, there is growing evidence that changes in sexual orientation occur over time and social context, potentially resulting in significant sexual orientation fluidity (in much the same way that ethnicity can be fluid). Several phenomena and processes explain and underlie this fluidity of sexual orientation. First, differing levels of certainty about one’s sexual orientation and differences in the extent of sexual orientation exploration are both factors that can result in changes in sexual orientation over time (Savin-Williams, 2001; Thompson & Morgan, 2008; Worthington, Navarro, Savoy, & Hampton, 2008). Second, there are individuals who choose not to label their sexual orientation, challenging traditional sexual orientation categories (Savin-Williams & Cohen, 2007). Third, some individuals adopt an alternative socio-political sexual identity (eg, ‘queer’⁶), rendering traditional and rigid classifications of sexual orientation inaccurate (Warner, 2004). Fourth, the emergence of new sexual orientation categories, particularly amongst dynamic youth populations, indicates increasing fluidity of sexual orientation (and increasing social acceptability of this), along with a merging of sexual orientation, with inter-related gender, gender identity, and gender role dimensions (Savin-Williams, 2001; Savin-Williams & Cohen, 2007; Thompson & Morgan, 2008).

Definitions of the Sexual Orientation Topic and Measurement Concepts

Given that the construct of sexual orientation is defined by three key measurement concepts, we propose that sexual orientation should be treated as a statistical topic, with three underlying measurement concepts: sexual attraction, sexual behaviour, and sexual identity. Based on our analysis of the literature and our understanding of OSS requirements, we propose working definitions for the statistical topic of sexual orientation and the associated measurement concepts (see Table 1, p. 17).

Best Practice Implications

In the context of official data, sexual orientation should be treated as a statistical topic with three associated key measurement concepts: sexual attraction, sexual behaviour, and sexual identity. Conceptually sound definitions for sexual orientation, sexual attraction, sexual identity, and sexual behaviour need to be established.

The three sexual orientation measurement concepts (sexual attraction, sexual behaviour, and sexual identity) should be recognised as being conceptually distinct. The vital categories of these concepts are listed and described in detail in the SODCS conceptual framework, providing guidance for further question development. Sexual attraction, sexual behaviour, and sexual identity should always be measured separately and never combined in a single question. In recognition of the fluidity of sexual orientation (attraction, behaviour, and identity), reporting frames for sexual orientation questions need to be clearly stated in questions (eg, ever, in the last five years or in the last year).

<table>
<thead>
<tr>
<th>Statistical Topic</th>
<th>Proposed Working Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual Orientation</td>
<td>Sexual orientation is defined by three key concepts:</td>
</tr>
</tbody>
</table>

⁶ For a definition of ‘queer’ see Glossary (p. 40).
sexual attraction, sexual behaviour, and sexual identity. The relationship between these components is that sexual orientation is based upon sexual attraction and that sexual attraction can result in various sexual behaviours and the adoption of sexual identities. The three key concepts are related, but not necessarily congruent continuous variables, each of which can independently change over time and by social context.

<table>
<thead>
<tr>
<th>Measurement Concept</th>
<th>Proposed Working Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual Attraction</td>
<td>“Attraction towards one sex or the desire to have sexual relationships or to be in a primary loving, sexual relationship with one or both sexes” (Savin-Williams, 2006, p. 41).</td>
</tr>
<tr>
<td>Sexual Behaviour</td>
<td>“Any mutually voluntary activity with another person that involves genital contact and sexual excitement or arousal, that is feeling really turned on, even if intercourse or orgasm did not occur” (Laumann, Gagnon, Michael, &amp; Michaels, 1994, p. 67).</td>
</tr>
<tr>
<td>Sexual Identity</td>
<td>“Personally selected, socially and historically bound labels attached to the perceptions and meanings individuals have about their sexuality” (Savin-Williams, 2006, p. 41).</td>
</tr>
</tbody>
</table>

Cultural and gender perspectives on sexual orientation need to be taken into account whenever sexual orientation questions are being developed. In particular, Māori preferences for sexual identity categories, Pacific conceptualisations of sexual orientation (including the Samoan concept of fa‘afafine) and Asian conceptualisations of sexual orientation need to be considered. Similarly, youth perspectives need to be taken into account. With respect to gender perspectives, transgender individuals’ conceptualisations of sexual identity, the basis on which transgender individuals respond to questions around sexual attraction, sexual behaviour, and sexual identity, and how sexual attraction towards, and sexual behaviour with, transgender people would be conceptualised by potential survey respondents are all areas requiring consideration. Further research will be needed to obtain the additional information required regarding these culture and gender perspectives.


Overview
This section summarises SODCS Reports 2 and 3: Issues in Measurement and Data Collection (Appendix 2) and Current Best Practice in Sexual Orientation Data Collection (Appendix 3) respectively. SODCS Report 2: Issues in Sexual Orientation Measurement and Data Collection is intended to be used as a framework for guiding the measurement of sexual orientation and the collection of timely, accurate, reliable, comparable, and high-quality sexual orientation data in New Zealand.

This framework discusses key measurement and data collection issues in the following areas:

- question design
- population size
- demographic distribution
Question Design

General considerations in the design of survey questions on sexual orientation include ensuring that terms used are widely understood in the target population and the extent to which measures used will enable cross-study and international comparisons. The design of a question or set of questions to assess sexual orientation in probability surveys is largely determined by, and dependent on, the question’s underlying conceptual basis.

A range of question formats have been developed, both in New Zealand and internationally (see Appendix 4, p. 4; Betts, 2008; Sell, n.d.; Taylor, 2008a). These differ with respect to the use of preambles and enhanced items, question stems, response categories, and definitions. Nevertheless, some questions have been trialled and used successfully in official surveys for some time (Office for National Statistics [ONS], 2008; Taylor, 2008a). On the basis of the available evidence, including pre-testing with a small number of takatāpui, fa'afafine, lesbian, gay, and bisexual people and consumers and producers of official statistics, the SODCS has adapted these well-established questions to better fit the New Zealand context. We propose preliminary sexual attraction, sexual behaviour, and sexual identity questions for standard application in New Zealand official surveys, pending further testing, development, and trialling (see Appendix 2, p. 37).

There is consensus that assessment of sexual orientation should optimally include measures of sexual attraction and sexual behaviour and sexual identity (ie, three items), together with specified reporting periods, in order to fully capture the sexual orientation construct. Research has not yet established the optimal order of a suite of questions on the three concepts; this area requires further attention. The placement of a sexual orientation question relative to other questions in a survey is also of importance. Office for National Statistics (United Kingdom) research suggests that sexual orientation (identity) items are appropriately placed amongst questions on other, similar core demographic variables (ONS, 2008).

7 Enhanced items allow respondents greater freedom to report a minority sexual orientation by making them feel more at ease, as well as increasing respondents’ recall of past same-sex sexual attractions, behaviours, and identities (Kontula, 2004). An example of an enhanced item is: ‘In past surveys many men have reported that in some point in their life they have had some type of sexual experience with other males. This could have happened before adolescence, during adolescence, or as an adult.’ (p. 222)
Best Practice Implications

The use of question preambles and enhanced survey items for sexual orientation questions needs to be tested to determine the extent to which these might enhance disclosure of minority sexual attraction, sexual behaviour, and sexual identity.

We provide sample questions for measuring sexual attraction (see Appendix 3, p. 29), sexual behaviour (p. 29), and sexual identity measurement concepts (p. 31), for use in individual and household interviewing, and for personal and telephone survey administration. As noted above, the questions we recommend are based on items used in official surveys internationally, and are intended as a starting point for further testing, development, and trialling in New Zealand.

Both cognitive testing and pilot testing with interviewer feedback are recommended for these questions. This testing should target sexual minority populations to assess respondents' willingness to disclose minority sexual attraction, sexual behaviour, and sexual identity, as well as groups (such as Pacific people, rural people, older people, and people with strong religious affiliations) who Statistics New Zealand research has suggested might be less accepting of questions regarding sexual orientation data. The results of this preliminary testing will inform the development of a final set of sexual orientation items for use in official surveys in New Zealand.

Sexual attraction, sexual behaviour, and sexual identity questions should not be located after items that filter them in unintended ways (eg, questions on sexual abuse or religion). While the placement of sexual attraction and sexual behaviour questions requires further investigation, based on currently available evidence it can be concluded that sexual identity questions should be placed in close proximity to related core demographic items (eg, items on marital status or ethnicity).

Population Size

Population prevalence estimates of sexual minority populations have been made internationally, both to provide baseline information to inform policy-decisions, and to aid in the design of appropriate probability sampling strategies. However, prevalence estimates tend to be inconsistent across studies. Reasons for this are likely to include inconsistent measurement variables (ie, use of different measurement concepts and operational definitions), use of different survey modes, as well as varying rates of disclosure/non-disclosure, amongst other potential sources of measurement error (Black, Gates, Sanders, & Taylor, 2000).

Prevalence figures cannot be accurately derived from the only available (indirect) sexual orientation data from the Census - data on same-sex cohabitating couples - as this does not include sexual minority individuals who are not cohabiting, thereby omitting a large proportion of the sexual minority population, and leading to undercounts (Badgett & Rogers, 2003; Klement & Simpkin, 2004; Prestage et al., 2008). However, large-scale probability samples have been used to estimate population prevalence figures more robustly (eg, Laumann et al., 1994; Sell, Wells, & Wypij, 1995). Some studies have increased the accuracy of the estimates obtained through utilising statistical techniques, such as imputing data to control for misreporting and non-responses (Berg & Lien, 2006; Fay, Turner, Klassen, & Gagnon, 1989; Izazola-Licea, Gortmaker, De Gruttola, Tolbert, & Mann, 2000; Rogers & Turner, 1991).

There are currently no reliable prevalence estimates of the sexual minority sub-population for the New Zealand general population. The Office for National Statistics (United Kingdom) approach to achieving robust prevalence estimates is to collect sexual orientation (identity) data in several large-scale surveys, enabling the agency to pool these data so as to conduct robust analyses on a large sexual minority sample (ONS, 2008). In our view, this approach constitutes a reliable and transferable model.

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Best Practice Implications
Collection of timely, accurate, reliable, comparable, and high-quality probability survey data on sexual orientation is required to improve prevalence estimates for sexual minority populations in New Zealand. Sexual orientation data need to be collected in several large-scale surveys, using well-designed and tested, standardised sexual orientation questions (eg, questions developed on the basis of the preliminary questions proposed by the SODCS). These survey data can then be pooled to achieve large enough samples of sexual minority populations to robustly calculate population prevalence figures. The process of estimation needs to include strategies for dealing with misreporting and non-responses (eg, through applying the model developed by the SODCS).

Demographic Distribution
Robust evidence about the demographic distribution of sexual minority populations in New Zealand is urgently needed for benchmarking purposes. Demographic profiles of sexual minority populations are being produced from the most robust available data, both in New Zealand (eg, a geographic profile of men who have sex with men: Hughes & Saxton, 2006) and internationally (Black et al., 2000; Guerra, n.d.; Ramos & Gates, 2008a, b, c; Romero, Baumle, Badgett, & Gates, 2007a, b). These can be used to guide the construction of stratified probability-sampling approaches to increase the size of sexual minority samples and can act as a reference in evaluating the representativeness of a drawn probability-sample.

In the absence of direct sexual orientation data from the census, the SODCS has produced an initial demographic profile of sexual minority populations from the most robust national and international evidence currently available (see Appendix 2, p. 74). The profile demonstrates that there is now conclusive evidence that sexual minority populations are concentrated in urban centres, and potentially micro-clustered in selected high-density neighbourhoods. Other demographic variables are less well explored, although there is some emerging, but as yet inconclusive, evidence of differences between populations defined by sexual orientation in terms of age, education, ethnicity, gender, religiosity, and socio-economic status.

Best Practice Implications
High-quality sexual orientation data are required in order to revise and improve the initial demographic profile produced by the SODCS to the point where it can be used to reliably inform, for example, the use of disproportionately stratified sampling techniques (based on socio-economic variables). Estimates of the socio-demographic distributions of sexual minority populations need to take misreporting and non-response phenomena into consideration, and adjust for these wherever possible.

Sampling
Past research on sexual minorities has often appeared flawed due to sampling biases. Probability sampling can overcome the possible selection biases of convenience samples recruited through non-representative settings (eg, mental health institutions, prisons, gay bars, and gay/lesbian social and political organisations) (Binson, Blair, Huebner, & Woods, 2007; Rothblum, 2007). Furthermore, findings from probability samples have the advantage of being more generalisable to the survey population.

To date, research on sexual minority populations has frequently taken one of three probability-sampling approaches:
Sexual orientation data collection in probability surveys: Improving data quality and estimating core population measures from existing New Zealand survey data

- Probability sampling the general population which includes sexual minority and heterosexual respondents. This permits comparative analysis and generalisation of the findings, although one consideration may be that distributions of sexual minority populations may potentially differ from those of general populations (as is the case for geographic residency).
- Oversampling of sexual minority populations in general population surveys by applying stratified sampling designs (often at the level of geographic distribution and urbanisation). This targeting strategy depends upon the availability of robust demographic information.
- Screening a probability sample for eligible (sexual minority) respondents. Telephone screening tools have been developed and effectively used in the United States (Meyer & Colten, 1999; Meyer, Rossano, Ellis, & Bradford, 2002), but screeners for face-to-face surveys are not yet available. Screening for sexual minority respondents is a way of cost-effectively increasing sample size, yet lacks heterosexual comparison groups, and findings cannot be generalised beyond the sampling frame.

Best Practice Implications

Official sexual orientation data are most likely to be collected as part of general population surveys across a range of topics. Preliminary assessment of the usefulness of disproportionately stratified sampling based on existing New Zealand survey data has not been promising. Nevertheless, in our view improved knowledge about the demographic profile of sexual minority populations will provide further insights to inform the feasibility of using disproportionately stratified sampling approaches in the future.

Screening is a promising sampling strategy for improving the size of sexual minority samples. Telephone screening for sexual minority respondents is feasible, and well-tested screeners are available. While the potential of face-to-face screening has not been systematically investigated to-date, such screening would also be valuable for OSS household surveys, if shown to be feasible. The use of screening methods would lead to mixed-methods surveys, with their concomitant disadvantages; however, these challenges have already been successfully addressed in OSS surveys that have screened for ethnic minorities. Even if targeting or screening is not pursued, pooling of sexual minority samples drawn as part of general population surveys can be carried out to achieve a large enough sample to ensure sufficient statistical power for subsequent analyses.

Aggregation/Disaggregation of Data

Meaningful and fine-grained disaggregation of sexual orientation data requires collection of rich data on both sexual orientation and relevant socio-demographic characteristics in the first instance. In addition, sexual minority sub-samples ought to attain large enough sample sizes to ensure there is sufficient statistical power to carry out the required analyses. Data from different sexual minority populations should not be aggregated in analyses, and research findings should be presented separately for different groups defined by sexual orientation. For example, data from gay, lesbian, and bisexual identified respondents should not be aggregated, if they can be meaningfully presented separately. Data from a defined sexual minority population should also be disaggregated by socio-demographic parameters of interest to advance the knowledge-base on aspects of social wellbeing for sexual minorities. In a similar vein, data from other, uncertain, don’t know, and prefer not to say response options ought not be combined with data from other categories, but analysed separately to the extent this is possible.

Best Practice Implications

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Preliminary statistical classifications for sexual attraction, sexual behaviour, and sexual identity are proposed for use as a starting point for further development (see Appendix 3, p. 46). Application of these will guide appropriate aggregation and disaggregation of sexual orientation data collected.

Survey Modes
Various survey modes afford differing degrees of survey credibility, privacy, and confidentiality. As with other sensitive concepts, all of these may significantly impact on the disclosure of stigmatised sexual orientations (Catania, Gibson, Chitwood, & Coates, 1990; ONS, 2008). However, official sexual orientation data have been effectively collected using a range of survey modes.

There is a strong body of evidence from the Office for National Statistics (United Kingdom), indicating that sexual orientation (identity) can be robustly collected through computer-assisted self-interviewing (CASI; Taylor, 2008b; Taylor & Ralph, 2008). This mode is potentially preferred by young people, but practical limitations might make it difficult to use this mode in official surveys, and self-administration might impose an additional temporal burden on respondents (Taylor, 2008b; Taylor & Ralph, 2008). The Office for National Statistics is currently collecting sexual orientation (identity) data using computer-assisted telephone interview (CATI) and computer-assisted personal interview (CAPI) modes (ONS, 2008). If CATI is used, questions designed to ensure privacy of responding need to be used; and with this in mind, SODCS proposes questions for CATI based on the Office for National Statistics questions. Sexual orientation data can also be collected in CAPI mode, in surveys where household members are interviewed in parallel or concurrently, as long as concealed showcards are used.

Best Practice Implications
There is little evidence about which survey modes are best suited for collecting official data on sexual attraction and sexual behaviour, but CASI, CAPI, and CATI have all been used effectively in the collection of sexual identity data in United Kingdom official surveys. CASI, however, might be less practicable in OSS surveys, as this mode is currently rarely used in the OSS. CATI and CAPI, however, are both commonly used in OSS surveys and can be used to collect official sexual orientation (identity) data, as long as questions which ensure the privacy of telephone responses are used with CATI, and concealed showcards are used with CAPI.

Misreporting and Non-Response
The phenomenon of misreporting (intentionally false responses) poses a serious challenge to the quality of sexual orientation data obtained, and has implications for the robustness of subsequent analyses and interpretation of the findings. Misreporting can occur when more socially acceptable response options are selected instead of providing truthful information (i.e., social desirability bias), causing systematic underreporting of information, which is perceived to be sensitive and potentially stigmatising (e.g., minority sexual orientations). Due to the nature of social desirability bias, it is difficult to determine the extent of intentional misreporting. However, New Zealand research findings suggest that sexual minority people are generally willing to disclose their sexual orientation (SNZ, 2003), and Office for National Statistics (United Kingdom) research concluded that interviewer protocols and survey administrator training enhanced disclosure by ensuring professional question administration (2008).

Non-responses (not answering or omitting a question) are directly observable and can be easily quantified. Office for National Statistics (United Kingdom) research concluded from five trials of sexual orientation (identity) questions that these questions had no discernible effect on overall survey response rates (Malagoda &
Traynor, 2008; ONS, 2008; Taylor, 2008b; Taylor & Ralph, 2008; Traynor, 2008). Equivalent evidence is however not available for sexual attraction and sexual behaviour questions from New Zealand. For this reason, response rates should closely be monitored in OSS trials of sexual orientation questions. Sexual orientation items have achieved very low item non-response rates in official New Zealand surveys (eg, 0.05% for the sexual attraction/identity item and 0.18% for the sexual behaviour question in the 2006 Te Rau Hinengaro – The New Zealand Mental Health Survey; see Appendix 4, p. 8). This indicates that item non-response is unlikely to be a significant concern at present.

Reasons for misreporting of sexual orientation and non-responses to sexual orientation questions are multiple, complex, and under-researched. However, they are related to the context, format, and wording of a sexual orientation question, as well as survey (and administrator) credibility, privacy, confidentiality, and survey mode. Respondent and interviewer effects also play a part in misreporting and non-response rates.

Best Practice Implications
There is a lack of evidence on misreporting rates, because these are, by nature, difficult to accurately quantify. However, statistical models have been developed to adjust for misreporting of sexual orientation, including the model developed by the SODCS and presented in Appendix 4 (p. 16). While misreporting presents a considerable challenge to the collection of sexual orientation data, a general willingness of sexual minority people to disclose their sexual orientation has been observed. In addition, the establishment of interviewing protocols and survey administrator training are likely to lead to further decreases of misreporting. However, additional research into the extent of this phenomenon in New Zealand would be desirable.

According to Office for National Statistics (United Kingdom) research findings, the inclusion of sexual orientation (identity) questions in official surveys has no discernible effect on survey response rates. Item non-response rates have been found to be surprisingly low in those official New Zealand surveys which have assessed sexual orientation (identity and behaviour), implying that non-responses do not constitute a significant challenge to the collection of sexual orientation data in New Zealand. However, until further data confirming these initial findings are available, non-response rates should be closely monitored whenever sexual orientation items are included in official surveys. A model to adjust data for misreporting and non-responses fit for use in the OSS has been developed by the SODCS (see Appendix 4, p. 16).

Acceptability/Disclosure
Considerable progress has been achieved over the last two decades in New Zealand in legal, policy, and social areas relating to sexual orientation and this has been accompanied by increasing social acceptability of sexual minority orientations. Research findings suggest that New Zealand is more accepting of minority sexual orientation than the United Kingdom and the United States (Dickson, Paul, & Herbison, 2003), both of whom collect official sexual orientation data. Low non-response rates for sexual orientation items included in official surveys in New Zealand further demonstrate the likely acceptability of such questions. Young people in New Zealand have been found to disclose minority sexual orientation at higher rates than the general adult population, indicating that acceptability will increase further over time. Statistics New Zealand focus group research (2003) suggests that sexual minority people are generally willing to answer sexual orientation questions honestly, but also identified some population groups that might potentially be less
accepting of sexual orientation questions (ie, Pacific people, older people, rural people, and people with strong religious affiliations).

Findings in the literature suggest that initiatives which actively encourage sexual minority members to disclose their sexual minority orientation in official surveys may result in increases in disclosure rates. For example, the United States statistics department collaborated with sexual minority community organisations to deliver a campaign which successfully increased disclosure rates of same-sex couples in the ‘unmarried partner’ category in the 2000 United States Census (Badgett & Roberts, 2003).

**Best Practice Implications**

There appears to be widespread acceptance of minority sexual orientations amongst the New Zealand general population and also moderate to high acceptance of the inclusion of sexual minority questions in OSS surveys. However, the acceptability of sexual orientation questions also needs to be tested with those population groups that might be less accepting.

Public education campaigns designed to increase disclosure rates amongst sexual minority groups and decrease non-response rates amongst less accepting groups may be useful. However, cost/benefit analyses would be needed to ascertain the feasibility of these.

### 3.4 SODCS Report 4: Sexual Orientation Data in New Zealand Probability Surveys - Technical Report

**Overview**

This section summarises the findings from our analysis and modelling of New Zealand survey data on sexual orientation as reported in *SODCS Report 4: Sexual Orientation Data in New Zealand Probability Surveys - Technical Report* (Appendix 4).

The technical report:

- examines the potential of existing survey data to improve population prevalence estimates
- discusses sampling strategies
- explores the characteristics of refusals, don’t know, other; and missing responses in existing New Zealand survey data
- proposes a model for misreporting and non-response

**Potential of Existing Survey Data to Improve Population Prevalence Estimates**

The quality of the existing sexual orientation data from OSS surveys was assessed, using a framework based on realism, randomisation, and representativeness. This included an assessment of the sampling process (ie, frame bias and randomly chosen person); measurement process (ie, question asks concept as defined in the *SODCS Report 1: Sexual Orientation Conceptual Framework* (see Appendix 1, p. 32), question comprehensibility, interviewer bias, item non-response, and misreporting); and inference process (ie, target population, degree to which questions are assumption free, correct application of weights, and accuracy).

The assessment concluded that while the Health Behaviours Surveys (HBS-D 2003 and HBS-A 2004) used a moderately good, relatively conceptually sound measurement tool and achieved low item non-response for the sexual orientation (identity) question, they were challenged by frame bias (as with many telephone
surveys) and critically low survey response rates. In comparison, Te Rau Hinengaro - The New Zealand Mental Health Survey (MHS 2006) did not have apparent frame bias, achieved a sufficient level of survey response and a very low rate of item non-responses to its sexual orientation (attraction/identity and behaviour) questions, but used questions that did not meet conceptual standards (see Table 2 below). We concluded from our analyses that neither data set (HBS-D 2003 and HBS-A 2004; MHS 2006) was fit for the purpose of improving estimates of the prevalence and characteristics of sexual minority populations in New Zealand.

Table 2
Assessment of existing New Zealand survey data

<table>
<thead>
<tr>
<th>Assessment Criterion</th>
<th>Survey</th>
<th>Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sampling Process:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frame bias</td>
<td>present</td>
<td>not apparent</td>
</tr>
<tr>
<td><strong>Measurement Process:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Question design</td>
<td>moderately sound</td>
<td>not sound</td>
</tr>
<tr>
<td>Survey response rates</td>
<td>low (HBSD: 68%; HBSA: 59%)</td>
<td>sufficient (73%)</td>
</tr>
<tr>
<td>Item non-response rates</td>
<td>low (sexual identity: 0.5%)</td>
<td>very low (sexual attraction/identity: 0.05%; sexual behaviour: 0.18%)</td>
</tr>
<tr>
<td><strong>Inference Process:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design effect</td>
<td>high design effect</td>
<td>moderate design effect</td>
</tr>
</tbody>
</table>

The potential of other New Zealand data to improve current prevalence estimates for sexual minority populations was also assessed. The Youth2000 survey of a large probability sample of secondary school students aged 13-18 (Le Brun, Robinson, Warren, & Watson, 2005) was found not to be applicable to the adult (and general) population due to using a school-based frame, possibly not controlling for non-responses considering that few low decile schools participated, and having relatively high (7.3%) refusal rates to the sexual orientation (attraction) question.

Data from the Christchurch Health and Development Study (Fergusson, Horwood, & Beautrais, 1999; Fergusson, Horwood, Ridder, & Beautrais, 2005) and the Dunedin Multidisciplinary Health and Development Study (Dickson et al., 2003), both longitudinal birth cohort studies, were not included in this analysis. Their lack of representativeness of the New Zealand population (ie, under-representation of Māori and other minority population groups) means there are difficulties generalising findings from these studies without making a range of assumptions, and there is also no practical sampling approach for cross-sectional studies. Participants in these studies are in effect trained respondents used to making personal disclosures so that non-response rates could be expected to be very low. That is, participants in these studies may be more likely to disclose sexual minority status than participants drawn at random from the general population.

Our overall conclusion is that there are currently no (official or non-official) data which can be used to robustly estimate the population prevalence of sexual minority populations in New Zealand; the available national prevalence estimates are not sufficiently reliable. To improve prevalence estimates, conceptually sound and well-designed questions will need to be implemented in several large scale surveys and these survey data pooled across surveys and/or years, over a period for which sexual orientation is considered relatively stable.
**Sampling Strategies**

The Health Behaviours Surveys (HBS-D 2003 and HBS-A 2004) and Te Rau Hinengaro - The New Zealand Mental Health Survey (MHS 2006) show that it is feasible to include sexual orientation (behaviour and identity) questions in OSS surveys, considering the very low refusal and non-response rates (0.05% - 0.50%) achieved. This is supported by the findings of the Office for National Statistics (United Kingdom) which concluded on the basis of a two-year program of question development, testing, and trialling that the collection of official sexual orientation (identity) data is feasible (2008). However, due to the presumed small sample size of sexual minority populations, targeting strategies are required to enhance sample sizes. The analyses conducted found that socio-demographic stratification is likely to lead to only mild gains in this respect, although this finding might have been caused by the insufficient quality of the sexual orientation data used, preventing socio-demographic distribution of sexual minority populations from being established. In OSS surveys, screening for sexual minority populations in telephone surveys is feasible and face-to-face screening is promising. The disadvantage of screening is that it requires mixed mode data collections, although New Zealand has significant experience dealing with this, for instance with respect to ethnicity.

In summary, sexual orientation questions can be asked with low refusal rates (active or passive) in OSS surveys; targeting may need more than just socio-demographic frame construction; and screening may be quite feasible, especially if restricted to areas with a high density of sexual minority people.

**Characteristics of Refusals, Don’t Know, Other, and Missing Responses in Existing New Zealand Survey Data**

We investigated a range of socio-demographic variables in four-way tables and used pair category collapsing to see which other categories refusals, don’t know, other, and missing categories were closest to. In the Health Behaviours Surveys (sexual identity question), the other, don’t know, and missing category responses were closer to one of the gay/lesbian/bisexual category responses than to the heterosexual category responses. However, refusals were less clear. In Te Rau Hinengaro - The New Zealand Mental Health Survey (sexual orientation/attraction question), other, refusal, and not sure category responses had a weaker association with sexual minority category responses.

**Model Adjusting for Misreporting and Non-Response**

A statistical model was developed to adjust data for misreporting and non-response (see Appendix 4, p. 16), taking into account similar models produced overseas (Berg & Lien, 2006; Fay et al., 1989; Izazola-Licea et al., 2000; Rogers & Turner, 1991). The misreporting and non-response model represents a form of propensity modelling (ie, functions are logistic regressions). The model exploits the fact that heterosexual and sexual minority populations are differently distributed socio-demographically by imputing missing responses to either the heterosexual or sexual minority category response, hence adjusting for non-response, and by imputing for misreporting, also on the basis of socio-demographic variables in the four response groups (ie, reports heterosexual and is heterosexual; reports heterosexual and is sexual minority; reports sexual minority and is sexual minority; reports sexual minority and is heterosexual).

When applied internationally, similar models have often shown a significant increase in prevalence, sometimes doubling simple sexual minority prevalence figures produced, and arriving at more robust figures. The developed model can be used to adjust OSS data for misreporting and non-response, as tested with the currently existing OSS data on sexual orientation. However, the model is only useful if socio-
demographic variables that differentiate between heterosexual and sexual minority populations are available.
4 Discussion

4.1 Sexual Orientation Data Collection

The collection of timely, accurate, reliable, comparable, and high-quality sexual orientation data in OSS surveys is feasible. There is evidence that acceptability levels in New Zealand are sufficiently high to include sexual orientation questions in official surveys. Sexual orientation, and its associated measurement concepts, can be conceptualised and measured as a robust statistical topic, and high-quality sexual orientation data obtained, if appropriate data collection procedures (such as interviewer training) are implemented. International findings show that the inclusion of sexual orientation questions in official surveys appears to have no discernible impact on overall survey response rates, and that item non-response rates for sexual orientation questions are not dissimilar to those for other sensitive questions.

In the context of the OSS, sexual orientation is best conceptualised as a statistical topic linked to three key measurement constructs; sexual attraction, sexual behaviour, and sexual identity. The sexual orientation conceptual framework (Appendix 1) produced by the SODCS can potentially be used to guide the OSS in the collection of sexual orientation data. The framework sets out how sexual orientation and the key measurement concepts can be defined and conceptualised as robust and useful measurement concepts in the New Zealand context, tailored to OSS requirements and constraints. There are some important issues and knowledge gaps around cultural understandings of sexual orientation and the inter-relationship between sexual orientation and gender identity that need to be addressed and resolved in order to further develop the proposed preliminary sexual orientation survey items, guaranteeing the highest possible level of question acceptability, as well as accuracy of the sexual orientation data collected. However, the current body of international evidence around the measurement of sexual orientation is sufficiently robust to conceptualise sexual orientation as a statistical topic and begin sexual orientation data collection in the OSS.

From the existing body of methodological evidence, the SODCS identified a range of issues related to the measurement of sexual orientation and the collection of sexual orientation data. As discussed, these fall under the areas of question design, population size, demographic distribution, sampling, data aggregation/disaggregation, survey mode, misreporting and non-response, and acceptability. Based on the existing evidence, together with findings from our analysis and modelling of existing New Zealand survey data, we have proposed strategies to effectively address these measurement and data collection issues, and ensure the collection of timely, accurate, reliable, comparable, and high-quality sexual orientation data across the OSS (see Appendix 2).

The SODCS applied the conceptual standards developed in the SODCS Report 1: Sexual Orientation Conceptual Framework (Appendix 1) and the measurement and data collection standards developed in the SODCS Report 2: Issues in Sexual Orientation Measurement and Data Collection report (Appendix 2) to assess the sexual behaviour and sexual identity questions that have been used in official surveys in New Zealand (Appendix 4). On the basis of this assessment, it was concluded that these questions had significant conceptual limitations, leading to concerns about the quality and utility of the existing sexual orientation data. The SODCS concluded that there is a need for the development of conceptually sound questions in order to obtain high-quality, meaningful data.

Due to the need for sexual orientation information across a range of policy contexts, it would be preferable for official sexual orientation data to be requested as a standard demographic variable rather than asking about sexual orientation in isolation. There is currently insufficient New Zealand and international evidence on
the placement of sexual attraction and sexual behaviour questions in official surveys for the SODCS to make definitive recommendations regarding the precise placement of these questions. However, the SODCS recommends that the OSS, in the event that collection of sexual identity data is temporarily prioritised until data on all three measurement concepts is obtained on a standard basis (see below), collects sexual identity data as part of the socio-demographic information in the demographic core of official surveys. This recommendation is based on clear evidence from the Office for National Statistics (United Kingdom) that sexual identity questions should not be made to stand out, but should be grouped with similar questions on other social identities. This is the praxis that the Office for National Statistics has implemented across all components of the Integrated Household Survey (six household surveys).

Sexual orientation questions have been included in official surveys since the 1990s (United States), and the Office for National Statistics (United Kingdom) now includes sexual identity questions in the demographic core of several household surveys, demonstrating that acceptability is no longer considered to be a barrier for the collection of sexual orientation data. In New Zealand, homosexuality was decriminalised over 20 years ago (1986 Homosexual Law Reform Act), non-discrimination on the basis of sexual orientation is guaranteed by the 1993 Human Rights Act, and same-sex couples can register as a couple under the 2004 Civil Union Act. These legislative advances mirror increasing public acceptance of sexual minority individuals and populations in New Zealand. This growing acceptance is also reflected in the low sexual orientation item non-response rates in official surveys to date (HBS-D, HBS-A, and MHS). Further evidence of the acceptability of sexual orientation questions can be observed in the 58% increase in reported same-sex cohabitation in the New Zealand Census between 1996 and 2001 (Hyman, 2003). Acceptability of survey assessment of sexual orientation is particularly high amongst young people, as shown in the high percentage of sexual minority orientations reported in national, random surveys of this population.

4.2 Population Enumeration and Demographic Characteristics
The SODCS found that existing official sexual orientation survey data are of insufficient quality to produce robust population prevalence (and size) estimates for populations defined by minority sexual attraction, sexual behaviour, and sexual identity. This means that estimates of population prevalence and size currently need to rely on the only New Zealand probability surveys assessing sexual orientation, all of which are surveys of young people. The national-level Youth2000 study reported a prevalence rate of 8.8% for non-heterosexual students, using a sexual identity question (Le Brun et al., 2005). The Dunedin Multidisciplinary Health and Development Study found that 24.5% of females and 10.7% of males of a Dunedin birth cohort reported any same-sex attraction by age 26 (Dickson et al., 2003). In comparison, the Christchurch Health and Development Study found that by age 25, 12.5% of a Christchurch birth cohort reported any same-sex attraction, any same-sex behaviour, or a lesbian, gay or bisexual identity (Fergusson et al., 2005). However, as discussed previously, these figures cannot be generalised to the adult or general population due to sampling issues. These New Zealand figures are also not adjusted for misreporting and non-response and are therefore likely to underestimate the actual size of sexual minority populations to an unknown, but significant degree. However, these figures suggest that sexual minority populations constitute a significant population group, possibly comparable in size to the number of Asian or Pacific people in New Zealand for example.

The Office for National Statistics (United Kingdom) is currently undertaking a work programme to achieve sound sexual minority population estimates by collecting sexual orientation data across six large-scale surveys and producing estimates based on the achieved pool of sexual minority respondents. This programme

Official Statistics Research Series, 2010-2
www.statsphere.govt.nz
Sexual orientation data collection in probability surveys: Improving data quality and estimating core population measures from existing New Zealand survey data

constitutes the most robust approach to sexual orientation data collection developed to-date, and is a feasible model for the OSS. Estimates also need to include an adjustment of sexual orientation data for the non-response and misreporting phenomena; a suitable model for such adjustments has been developed by the SODCS (see Appendix 4, p. 16).

Due to data quality concerns, current official data on sexual orientation cannot be used to develop robust estimates of demographic characteristics of sexual minority populations in New Zealand. However, there is conclusive evidence from both New Zealand and international studies that sexual minority individuals tend to be clustered in urban areas with some particularly high-density neighbourhoods. There is also an ever-growing body of evidence on sexual minority population characteristics in terms of age, gender, education, ethnicity, religiosity, and socio-economic status.

4.3 Measurement and Data Collection Issues

The SODCS has reviewed a wide range of literature addressing the design of sexual orientation questions, including sexual attraction, sexual behaviour, and sexual identity questions that have been included in official surveys in Canada, the United Kingdom, and the United States. On the basis of this evidence, and guided by the conceptual standards developed in the conceptual framework, we have developed and pre-tested preliminary sexual attraction, sexual behaviour, and sexual identity questions tailored to suit the requirements and constraints of the OSS (see Appendix 2, p. 37).

The proposed sexual attraction and sexual behaviour questions require further development and, although similar questions have been implemented in surveys in the United States, to our knowledge they have not yet undergone systematic development, trialling, and implementation in official surveys. The proposed preliminary sexual identity question is a slightly modified version of the question recently developed, trialled, and implemented in United Kingdom official surveys (ONS, 2008). This question can be considered fit for use in OSS surveys after initial testing and trialling in New Zealand, with specific attention to the inclusion of response categories on Māori and Pacific concepts of sexual orientation.

In general, we estimate that an overall sample size of approximately $N = 30,000$ survey participants is needed for analyses of sexual minority sub-samples to have sufficient statistical power. Assuming that sexual minority populations are similar in size to the Asian or Pacific populations, as indicated by the best existing estimates, we conclude that sexual minority populations should be oversampled in official surveys. However, due to the lack of robust population prevalence estimates, reporting rates, and knowledge about the demographic distribution of sexual minority populations, it is difficult to conclusively suggest strategies that could be used to target sexual minority respondents at this point. Assuming the best current existing population estimates are reasonably accurate, disproportionate stratified sampling approaches could be effectively implemented in the OSS, considering that sexual minority populations are geographically clustered, for example. There is also evidence that telephone screening is feasible, whereas the feasibility of face-to-face screening in household surveys has yet to be determined.

In terms of question order, if all three measurement concepts are collected, additional research is required to examine the order in which sexual attraction, sexual behaviour, and sexual identity questions should be asked. Another important issue is that of question placement within surveys. Options such as inclusion in core demographic sections must be balanced against the possible use of an add-on module on sexual orientation. However, in official New Zealand and United Kingdom (Office for National Statistics) surveys, sexual orientation questions have been successfully administered as part of the demographic core.
The SODCS has developed preliminary statistical classifications for sexual attraction, sexual behaviour, and sexual identity on the basis of the proposed conceptual standards, demonstrating how data for sexual attraction, sexual behaviour, and sexual identity can be meaningfully aggregated and disaggregated.

On the basis of overseas evidence and our analysis of New Zealand survey data, we conclude that high-quality sexual orientation data can be collected in self-administered survey modes, as well as face-to-face and via telephone, as long as credibility, privacy, and confidentiality are ensured (eg, by the use of appropriate questions; and, in face-to-face surveys, by the use of concealed showcards). Proxy collection of sexual orientation data is not recommended under any survey conditions. Our analysis of existing New Zealand survey data indicates that face-to-face interviewing might lead to higher reporting rates and disclosure of sexual minority orientations than telephone surveys, although this needs further investigation, considering that in the United Kingdom both face-to-face and telephone surveys were considered effective survey modes for sexual orientation (identity) data collection in official surveys.

There have been concerns that the inclusion of sexual orientation questions in official surveys could negatively affect survey response rates, and that low response rates to sexual orientation questions could affect the quality of the resultant data. However, sexual identity and behaviour questions in three New Zealand official surveys and sexual identity questions in five survey trials conducted by the Office for National Statistics achieved very low to acceptably low item non-response rates. There was no observable effect on overall survey response rate in the five trials conducted by the Office for National Statistics, and no survey participants dropped out immediately after being asked the sexual orientation question in the Office for National Statistics surveys (Sexual Identity Project, United Kingdom). Consequently, the Office for National Statistics concluded that non-responses do not pose a threat overall survey response rates or to the quality of sexual orientation (identity) data collected in official surveys (2008). As noted above, the SODCS has developed strategies for modelling non-responses to achieve better estimates from sexual orientation data. Misreporting continues to be difficult to assess; however, we know from the literature that as acceptability grows, misreporting reduces correspondingly. We can assume that there is likely to be some level of misreporting, especially until sexual orientation questions have been administered for some time in official surveys and there is widespread acceptance. Misreporting must therefore be taken into consideration when analysing sexual orientation data. Several models for adjusting sexual orientation data for misreporting are available for use by statisticians.

In the event that sexual orientation data are collected in official surveys, the next milestone will be the development of a statistical standard for the sexual orientation topic. The SODCS has made recommendations in the following areas which could inform the development of such a statistical standard:

- working definitions for sexual orientation (statistical topic) and measurement concepts (sexual attraction, sexual behaviour, and sexual identity)
- description of conceptual dimensions
- description of measurement concepts
- preliminary questions
- preliminary statistical classifications

Subsequent to further development of the proposed definitions, sexual orientation questions, and statistical classifications, it is expected that Statistics New Zealand would be able to arrive at a robust statistical standard for sexual orientation without needing to access significant additional resources.
4.4 Prioritisation of Measurement Concepts for Data Collection

Based on the extant research evidence, our over-arching conclusion is that no single measurement concept (sexual attraction, sexual behaviour, or sexual identity) can provide adequate data on sexual orientation, and that all three key measurement concepts are required to obtain satisfactory data on the sexual orientation topic.

Data needs relating to sexual orientation have been identified in three broad categories: enumeration, social well-being, and discrimination. Information on enumeration of populations defined by sexual orientation requires that measures of all three main components of sexual orientation (ie, sexual attraction, sexual behaviour, and sexual identity) are obtained, as these three concepts define similar, but not necessarily congruent, population groups. It is important to note that measures of sexual attraction are likely to result in the largest count of sexual minority respondents in any given survey. Sexual behaviour questions are likely to identify a larger number of sexual minority respondents than sexual identity questions. Because the nature of the relationship between the concepts of sexual attraction, sexual behaviour, and sexual identity is not yet fully understood, it is not possible to make reliable inferences from data on a population group defined by just one measure of sexual orientation (eg, same-sex sexual attraction) to population groups defined by another measure of sexual orientation (eg, same-sex sexual behaviour or minority sexual identity).

The SODCS has provided a comprehensive outline of conceptual, measurement, and data collection issues in relation to sexual orientation and our conclusion, based on our findings, is that data on all three concepts (sexual attraction, sexual behaviour, and sexual identity) should ideally be collected in order to meet the full range of information needs. However, official statistics systems are constrained in their capacity to include new items in official surveys, not least by the need to balance the benefits of data collection with respondent burden. In light of this, sexual orientation data collection may in some instances be limited to measurement of a single concept (ie, sexual attraction, sexual behaviour, or sexual identity). It is relevant to note in relation to this, that the proposed sexual attraction and sexual behaviour questions will require additional development and trialling in the New Zealand context prior to use in official surveys. However, the sexual identity question, while further refinement is needed (eg, to include other culturally-appropriate sexual identities), is largely ready for immediate implementation. With these points in mind (data collection constraints and question readiness) we propose two possible approaches to the collection of sexual orientation data in instances when only one sexual orientation question can be included.

As an initial step, the OSS could opt to prioritise one concept across all official surveys. This would then become the foundation sexual orientation question to which other questions could be added when possible. In our view, the most appropriate concept for this purpose would be sexual identity. This is based on the fact that measurement and collection of sexual identity data is the best researched of the three concepts, with significant evidence from New Zealand (including the current SODCS) and the United Kingdom (Office for National Statistics). In fact, there is conclusive evidence from the Office for National Statistics that timely, accurate, reliable, comparable, and high-quality sexual identity data can be collected in official surveys, and that sexual identity questions can be included in the demographic core of surveys. Thus, a sexual identity question could be included in all official surveys, with questions pertaining to sexual attraction and sexual behaviour added, depending on survey type and purpose.

The main disadvantage of this approach, and it is a major disadvantage, would be the availability of data on only one concept, limiting the degree to which identified
information needs would be met. For example, in the area of enumeration, the population defined by minority sexual identity is the least numerous sexual minority population (compared with those defined by minority sexual attraction and by minority sexual behaviour), meaning that population estimates produced from sexual identity data would be likely to result in a significant undercount. However, as noted above, specific information needs could be addressed by adding standard attraction and/or behaviour questions in surveys as necessary. Sexual identity data would go a considerable way towards addressing the information needs that have been identified.

In general terms, implementation of a single question on sexual identity would be sufficient to meet information needs relating to discrimination on the basis of minority and inequalities in socio-economic domains, such as education and income. On the other hand, data on both sexual behaviour and sexual identity are needed to meet information needs in the area of sexual health, and measurement of sexual attraction, sexual behaviour, and sexual identity (ie, three questions) is needed to provide information relating to other important social well-being indicators such as mental health.

Sexual identity is also the most widely collected sexual orientation concept internationally, and this would ensure cross-country comparability of findings. Prioritisation of sexual identity would also guarantee consistent data across New Zealand official surveys, and data could be pooled for the purpose of producing core population estimates in a relatively short time. Given the current resource constraints, prioritising sexual identity would be in line with the actions of other countries to date and would make it possible to use well-established questions (adapted for the New Zealand context).

An alternative, and in our view, less preferable option, would be to prioritise questions on a survey-by-survey basis according to the purpose of the survey and the specific information required. One advantage of such a survey-by-survey prioritisation process would be the availability, over time, of data on all three sexual orientation concepts (assuming that all types of questions are used in different surveys). However, disadvantages of this process include difficulties determining the most appropriate concept to use in a given survey (especially for non-experts in the field) and issues concerning data comparability (eg, in production of core population estimates, international comparisons).

To reiterate, a conceptually sound, pre-tested sexual identity question tailored to the New Zealand and OSS contexts is available, and would require only minor additional testing and development before being fully fit for use in OSS surveys. As demonstrated in the United Kingdom, sexual identity questions can be effectively included in the demographic core of official surveys to provide data on a range of key information needs. On the other hand, although sexual attraction and sexual behaviour data are needed to address certain information needs, significant additional question development is needed before these preliminary questions can confidently be included in OSS surveys, or as part of a suite of sexual orientation questions. OSS experience with the administration of one sexual orientation concept (eg, sexual identity) question could lay the groundwork for the OSS to extend sexual orientation data collection to routinely include all three required measurement concepts within as short a timeframe as possible.
5 Conclusions

The SODCS undertook to develop conceptual and measurement frameworks which would provide a sound theoretical and practical basis for the collection of sexual orientation data in New Zealand. The SODCS also set out to provide estimates of sexual minority populations based on existing New Zealand survey data. This project was undertaken with a view to facilitating the collection of quality data to meet sexual orientation information needs in the areas of enumeration, social well-being, and discrimination.

On the basis of our comprehensive review of the available evidence (both in New Zealand and internationally) we conclude that timely, accurate, reliable, comparable, and high-quality sexual orientation data could be collected in New Zealand. The SODCS provides a sound conceptual basis and measurement and data collection framework for this purpose, and the recent experiences of the Office for National Statistics (United Kingdom) provide a relevant and timely precedent. The conceptual, measurement, and data collection issues we have identified are all amenable to resolution to a level that would ensure the accuracy and inclusiveness of sexual orientation data.

The sexual identity question we propose requires only minimal question development in order to be fully fit for use in OSS surveys. The preliminary sexual attraction and sexual behaviour questions proposed require some further item development, testing, and trialling. However, the Office for National Statistics has developed a suitable approach for the systematic development and trialling of sexual orientation questions.

With regard to enumeration, we conclude that it is not possible to produce robust sexual minority population estimates from current New Zealand survey data. The usefulness of the available data was limited, in part, by the lack of a standardised conceptual framework. The Office for National Statistics has developed, tested, trialled, and implemented standard sexual identity questions in six large-scale official United Kingdom surveys. These surveys will result in a large set of data on sexual orientation which will then be used to produce core population estimates, including population size and demographic distribution of sexual minority populations in the United Kingdom. It is our view that following a similar course of action would enable the OSS to produce robust national estimates of sexual minority populations for New Zealand.

The collection of data on sexual orientation should strive to meet the best practice standard whereby data on all three measurement concepts (sexual attraction, sexual behaviour, and sexual identity) are collected. Implementation of this will necessitate further development of the proposed questions, particularly those on sexual attraction and sexual behaviour, in official surveys in the New Zealand cultural context.

Prioritisation of the sexual identity concept for inclusion in OSS surveys (possibly in the demographic core) is an acceptable transitional step, until data on all three concepts can be collected. The proposed preliminary sexual identity question could be administered in OSS surveys with minimal additional time or effort. Although sexual identity data alone would not fully meet some information (and hence policy) needs in the areas of enumeration and social well-being, information needs covering a broad range of other identified information needs would be met. In surveys where data on sexual attraction or sexual behaviour were required, the preliminary sexual attraction and/or sexual behaviour questions proposed by the SODCS could be added (pending further testing, development, and trialling). To overcome the limitations associated with the temporary prioritisation of sexual identity in official surveys, the OSS would then need to concurrently work towards developing standard sexual attraction and sexual behaviour questions and establishing a statistical standard for the sexual orientation statistical topic, eventually achieving the best
practice of collecting data on all three measurement concepts at the earliest possible point in time.

To conclude, we propose that there is a strong evidence base for the introduction of at least one measure of sexual orientation in official surveys in New Zealand. In our view, a question on sexual identity could most easily be implemented in the short term, with an appropriate model being available in the form of the Office for National Statistics work in this area. Only when timely, accurate, reliable, comparable, and high-quality data on sexual orientation are available can we begin to identify and address the issues and inequalities of populations defined by sexual orientation.
6 Recommendations
The following recommendations are made on the basis of the SODCS findings (please refer to attached reports for detailed recommendations):

Conceptualisation of Sexual Orientation in the OSS
• Accept sexual orientation as a statistical topic with three key measurement concepts - sexual attraction, sexual behaviour, and sexual identity.
• Accept the SODCS Report 1: Sexual Orientation Conceptual Framework (Appendix 1) as the conceptual basis to guide sexual orientation data collection in the OSS.

Question Development, Testing, and Trialling
• Further develop the proposed preliminary sexual attraction, sexual behaviour, and sexual identity questions.
• Include cognitive testing with population groups of interest (sexual minority populations, populations that might be least accepting of the collection of sexual orientation data) as part of the question development.
• Trial developed questions in official surveys.
• Monitor non-response in question trials.
• Publish findings from the trials of sexual orientation questions.

Data Collection
• Develop interviewing protocols on the basis of those used by the Office for National Statistics (United Kingdom) and train survey administrators in the administration of sexual orientation questions.
• Collect data on sexual orientation in official surveys.
• Collect data on all three key measurement concepts (sexual attraction, sexual behaviour, and sexual identity).
• Collect data about one measurement concept from a (pooled) sample of N ≥ 30,000 survey participants to enable data analysis with sufficient statistical power.
• Collect sexual orientation data across all agencies producing official statistics to ensure that sexual orientation data on a range of relevant socio-demographic variables become available.
• Consider using screening questions where there are higher than average proportions of sexual minority populations or awareness/acceptability.
• Routinely report sexual orientation data.
• Provide subsidised access to unit-record sexual orientation data to consumers of official statistics.

Development of a Standard Set of Sexual Attraction, Sexual Behaviour, and Sexual Identity Questions for Use in Official Surveys
• Develop a standard order for a set of questions combining a sexual attraction and/or sexual behaviour and/or sexual identity question.

Development of a Statistical Standard for Sexual Orientation
• Include sexual orientation data as an official social statistic under the OSS.
Agree to statistical standards for the collection of sexual orientation data to ensure that the data obtained are timely, accurate, reliable, comparable, high-quality, and have a high degree of relevance and utility.

Use the following information and tools developed by the SODCS to guide standardisation:
- key conceptual dimensions of sexual orientation
- conceptual working definitions for sexual orientation, sexual attraction, sexual identity, and sexual behaviour
- proposed preliminary sexual attraction, sexual behaviour, and sexual identity questions
- preliminary classifications for sexual attraction, sexual behaviour, and sexual identity.

Determine the standard order in which a set of a standard sexual attraction and/or sexual behaviour and/or sexual identity question should be administered.

Prioritisation of Measurement Concepts
- If best practice of collecting data on all three measurement concepts is not immediately possible, prioritise inclusion of sexual identity as a temporary measure until all three measures can be included - this latter should occur as soon as possible.

Estimates of Sexual Minority Population Size and Demographic Distribution
- Produce estimates of population size and key demographic variables of sexual minority populations based on timely, accurate, reliable, comparable, high-quality data.
- Follow the Office for National Statistics (United Kingdom) approach - that is, question development and trialling, followed by implementation of a set of standard sexual orientation questions, or a prioritised sexual orientation question, in a number of surveys with large sample sizes (preferable \( N \geq 30,000 \)) to achieve a large enough sample of sexual minority individuals to conduct robust data analysis and modelling.
- Use robust methods to produce official estimates of population size and demographic distribution from official sexual orientation data, including adjustments of the sexual orientation data for non-response and misreporting, using, or further developing, the method developed by the SODCS.
- Combine survey data on sexual orientation (over two or three year cycles) in order to achieve large sexual minority samples, given that sexual orientation is a relatively stable variable in the short term.
- If a prioritised standard question is included in the core, construct a meta-sexual minority sample (set of data from different surveys).
- Adjust data sets for misreporting and non-responses, using, or further developing, the method developed by the SODCS with further development of this if necessary.

Research Priorities
- Cultural understandings of sexual orientation with respect to Māori, Pacific, and Asian people.
- Issues concerning the intersection between gender identity and sexual orientation - such as how transgender people conceptualise their sexual
orientation and how sexual attraction and behaviour to transgender people is conceptualised.

- The order in which a set combining a standard sexual attraction and/or sexual behaviour and/or sexual identity question should be administered in official surveys to optimise data collection.
- The feasibility of screening for sexual minority respondents in face-to-face household surveys.
Glossary

CAPI – computer-assisted personal interview
CATI – computer-assisted telephone interview
CASI – computer-assisted self-administered interview

Fa’afafine – Fa’afafine is a Samoan term that literally means ‘like a woman’. Fa’afafine is often used to refer to people born male who express feminine gender identities in a range of ways, but is sometimes used more broadly to refer to all Pacific people who do not identify with or live according to common understandings of their birth gender. Sometimes the term ‘third sex’ is used. Other similar Pasifika terms include Fakaleiti (Tongan), Akava’ine (Cook Islands Māori), Fiafifine (Niuean), Vaka sa lewa lewa (Fijian).

Gay – Gay can refer to homosexual/same-sex attracted women and men, but is more often used in relation to males. Note: In this report, the term ‘gay’ refers to same-sex oriented men, or to the ‘gay’ sexual identity.

Gender Identity – Gender identity is an aspect of identity that can be understood as the psychological sex. It is an individual’s internal sense of being male or female or something other or in between. It may or may not correspond to a person’s physical sex. One’s sexual orientation cannot be assumed on the basis of their gender identity.

Intersex – Intersex people are born with any of a number of physical variations that means they do not fit expectations of either male or female physical sex (eg, they have genitals that are atypical, XXY chromosomes, etc). Intersex anatomy is not always visible at birth, and may become apparent at puberty, later or not at all. Surgery is performed on some intersex infants and children to physically align them with the sex they are assigned. This practice is criticised, particularly by intersex people. A child’s sex assignment may not match the gender identity the person develops as they grow up. This can mean that some intersex people can face gender identity issues similar to a transgender person.

Lesbian – Lesbian is used exclusively in relation to homosexual/same-sex attracted women. Note: in this report, the term ‘lesbian’ refers to same-sex oriented women, or to the ‘lesbian’ sexual identity.

MSD – Ministry of Social Development (New Zealand)

ONS – Office for National Statistics (United Kingdom)

OSS – Official Statistics System (New Zealand)

OSR – Official Statistics Research (New Zealand)

POSS – Programme of Official Social Statistics (New Zealand)

Queer – Queer has been used as a derogatory term for gay and lesbian people in particular. Although some people continue to reject the term, it has recently been reclaimed and used in a positive sense by some to describe sexual orientation and/or gender identity or gender expression that does not conform to heteronormative expectations. It is sometimes used as an umbrella term for same-sex attraction and gender/sex diversity, including but not exclusive to people who are gay, lesbian, bisexual, transgender, takatāpui, fa’afafine, intersex or somewhere in between. This is more common among youth. It is sometimes used to express rejection of

8 The definitions for fa’afafine, gender identity, intersex, queer, takatāpui, and transgender are from the Ministry of Social Development’s Selected GLBTI Definitions document (2008).
traditional gender categories and distinct sexual identities such as lesbian, gay, bi, and straight (heterosexual).

**Sexual minority population** – Population groups defined by minority sexual attraction, minority sexual behaviour, and/or minority sexual identity.

**SNZ** – Statistics New Zealand

**SODCS** – Sexual Orientation Data Collection Study

**Takatāpui** – The traditional meaning of takatāpui is ‘intimate companion of the same sex’. Many Māori people have adopted this term to describe themselves, instead of or in addition to terms such as lesbian, gay, bisexual, queer or trans. It refers to cultural and sexual/gender identity. Also spelt takataapui.

**Transgender** – The term transgender is used by different groups in different ways. It is often used as a catch-all umbrella term for a variety of people who feel that the sex they were assigned at birth is a false or incomplete description of themselves. Transgendered people may or may not use some form of medical intervention to better align their physical sex with their gender identity, and may or may not have any interest in such a procedure. Gender reassignment services are some times called gender realignment by trans people. They include but are not limited to hormone treatment and surgeries, such as mastectomy and genital reconstruction. The term transgender can include a number of sub-categories, including, among others, transsexuals, cross-dressers, transvestites, gender queer and consciously androgynous people.

The adjective ‘trans’ is increasingly preferred as a general term, for example ‘trans person’. If a gender term is also used, this refers to the person’s gender identity, eg, a ‘trans man’ was born in a body defined as female but identifies as male.
References


Appendix 1: SODCS Report 1: Sexual Orientation Conceptual Framework

Sexual Orientation Data Collection Study

Report 1:

Sexual Orientation Conceptual Framework

Frank Pega

July 2009
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Executive summary

Introduction

There is currently little New Zealand population data available on sexual orientation, limiting the ability of policy-makers to quantify the issues affecting populations defined by sexual orientation and to develop measures to adequately address the health and social needs of these groups.

Government agencies, service providers, and communities need to be able to access timely, accurate, and high-quality sexual orientation data in order to develop appropriate policies and strategies to address issues relating to sexual orientation. However, until such data are available it is difficult to accurately quantify, prioritise, and address issues associated with sexual orientation.

Members of sexual minority populations (ie, people with minority sexual attractions, sexual behaviours, and/or minority sexual identities) are disadvantaged across a range of social well-being, health, and economic indicators.9 For example, there is robust national and international evidence that sexual minority groups experience higher rates of suicide, physical and verbal assault, bullying victimisation, depression, alcohol use, smoking, other drug dependence, and more workplace discrimination and impediments to career progression in comparison with the heterosexual population.

New Zealand legislation guarantees non-discrimination on the basis of sexual orientation through the Human Rights Act of 1993, and the Civil Union Act of 2004 which allows civil union registrations for both opposite-sex and same-sex couples. Furthermore, the Yogyakarta Principles on the Application of International Human Rights Law in Relation to Sexual Orientation and Gender Identity of 2007 affirm the binding international legal standards with which all member states of the United Nations must comply in respect to the provision of human rights for populations defined by sexual orientation. In addition, sexual orientation has also become a relevant topic for public policy in New Zealand and internationally, with legislative provisions having been anchored in government policy. The monitoring of outcomes relating to the provisions made in national and international legislation, and public policy, requires access to timely, accurate, and high-quality sexual orientation data.

There is a clear need for information on sexual orientation in the broad areas of enumeration and demographic characteristics, discrimination, social well-being, and health. These are just a few examples of where the need for sexual orientation data has been identified; it is certain that data on sexual orientation will have wide utility across a range of policy and programme development areas.

Sexual orientation data collection in official statistics systems

Steps to include sexual orientation data in official surveys have been taken in several countries. For example, producers of official statistics in Canada and the United States have collected sexual orientation data for some time, starting in the early 1990s. The United Kingdom Office for National Statistics (ONS) has recently begun collecting standard sexual orientation data in six, large-scale household surveys.

9 For a definition of ‘sexual minority populations’ see Glossary (p. 56).
following an intensive two-year programme to develop, test, and trial sexual orientation questions. Statistics Norway is also currently actively considering how best to collect sexual orientation data. Closer to home, the Ministry of Health has commenced collection of official sexual orientation data, including sexual orientation questions in the New Zealand Health Behaviours Surveys on Drug Use (2003) and Alcohol Use (2004), as well as in Te Rau Hinengaro – The New Zealand Mental Health Survey conducted in 2006. Hence, valuable national and international knowledge and experience in the area of collecting official data on sexual orientation is currently available.

Statistics New Zealand is currently part-way through a process of reviewing and updating the Official Statistics System (OSS). This process, known as the Programme of Official Social Statistics (POSS), was initiated in 2003 and its main objective is to provide a coherent system of official social and population statistics across the government sector. As part of this programme, Statistics New Zealand is considering the inclusion of sexual orientation as an official social statistic as part of the upcoming Review of Culture and Identity Statistics. In view of this, Statistics New Zealand has supported the documentation of sexual orientation information needs (relative to other information needs) across government.

All official social statistics are required to have a high degree of relevance (i.e., to meet user needs) and to be able to inform decision-making in relation to improving New Zealand’s social wellbeing. Specifically, official social statistics must:

- address issues of enduring concern to government departments, local authorities, businesses, and to the general public
- be useful for improving knowledge about New Zealand’s population
- inform decision making relating to New Zealand’s social well-being
- provide an accurate reflection of the population of interest
- provide information that will help inform and evaluate policy
- be a trusted source
- be publicly acceptable
- be accurate and of high quality

(Statistics New Zealand [SNZ], 2008, pp. 5-6).

With regard to sexual orientation data, Statistics New Zealand has indicated particular interest in being able to determine the size of sexual minority populations (i.e., enumeration) and their demographic distribution. Pre-requisites for this include consideration of the refinement of measurement concepts, issues around the aggregation/disaggregation of sexual orientation data, advantages of particular survey modes, and issues around public acceptability of questions on sexual orientation. These issues are addressed in this report, in as far as they relate to the conceptualisation of sexual orientation.

**Sexual Orientation Data Collection Study (SODCS)**

In response to the identified need to address conceptual and data collection issues in relation to sexual orientation, the Ministry of Social Development established the Sexual Orientation Data Collection Study (SODCS), together with co-sponsors Statistics New Zealand and the Ministry of Health. External researchers and statisticians were commissioned to independently conduct the study on behalf of the Ministry of Social Development.
The study was granted competitive funding from the Official Statistics Research (OSR) scheme administered by Statistics New Zealand. The stated purpose of the OSR scheme is to improve methodologies for official statistics and to increase statistical capability in the state sector.

The key aim of the SODCS is to provide a sound theoretical and methodological basis for improving the coverage, reliability, and quality of sexual orientation data collected in and available to the OSS. Specific aims of SODCS are to support the capability to collect and analyse robust, high quality data on sexual orientation in New Zealand by:

- developing a coherent and theoretically robust conceptual framework to guide the measurement of sexual orientation in New Zealand
- developing a framework for the robust and effective collection of sexual orientation measures in OSS probability surveys
- assessing the capability of existing New Zealand official statistics to provide reference data for sexual orientation
- developing a model for the estimation of gay, lesbian, and bisexual population groups that can provide reference data for public sector information needs and inform the development of sampling strategies for surveys.

Research findings have been collated into four reports, of which the current paper, referred to as SODC Report 1: Sexual Orientation Conceptual Framework is the first. This framework underpins SODCS Report 2: Issues in Sexual Orientation Measurement and Data Collection, SODCS Report 3: Current Best Practice in Sexual Orientation Data Collection, and SODCS Report 4: Sexual Orientation Data in New Zealand Probability Surveys: Technical Report. Findings from all four specialist reports are brought together in the final SODCS report (Sexual orientation data in probability surveys: Improving data quality and estimating core population measures from existing New Zealand survey data), with recommendations for improving the collection of official sexual orientation survey data in New Zealand.

The Sexual Orientation Conceptual Framework sets the scene for the development of robust measures of sexual orientation, which will have a high degree of applicability and utility in the New Zealand context, and for dealing with key measurement issues. In this sense, it is envisaged that the framework could be used to guide the development of a statistical standard for sexual orientation.Thematically, the framework has three chief objectives: first, to describe the conceptual dimensions of sexual orientation; second, to provide working definitions for the sexual orientation topic and the associated measurement concepts; and third to recommend measurable concepts of sexual orientation.

The Sexual Orientation Conceptual Framework draws on theoretical and methodological evidence from key academic and official reports, as well as information from focus groups and interviews with a small number of takatāpui, fa’afafine, lesbian, gay, and bisexual key informants, as well as consumers and producers of official statistics, which were conducted as part of the SODCS.\(^\text{10}\) This

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\(^\text{10}\) For definitions of ‘takatāpui’ and ‘fa’afafine’ see Glossary (p. 55).
evidence was used as the basis for the development of a sound conceptualisation of sexual orientation that is tailored to the constraints and requirements of New Zealand’s OSS and is suitable for application in official surveys.

The complexities and limitations around the measurement of sexual orientation, while not insurmountable, are acknowledged throughout the conceptual framework, and the SODCS as a whole. As with similarly fluid and multi-dimensional constructs (eg, ethnicity), it is noted that data collected provide only a snapshot of individuals’ sexual orientation status at a particular point in time. Associated issues, such as reporting biases (which generally result in under-reporting of sexual minority orientations), the need for culturally and gender appropriate response options, and the wide range of socio-political perspectives on sexual orientation are factored into the Sexual Orientation Conceptual Framework.

Notwithstanding the above, in our view, the value of being able to access data on populations defined by sexual orientation in New Zealand far outweighs any potential limitations of such data (while acknowledging that these need to be addressed as far as is practicable). Inclusion of sexual orientation questions in official surveys would enable estimates of the size of sexual minority populations to be made, and demographic characteristics such as age distribution, ethnicity, and geographic location to be ascertained. This information will then be available for use in survey planning, as well as for outcomes monitoring and to inform policy and programme planning across a range of relevant areas.

**SODCS: Sexual Orientation Conceptual Framework**

The Sexual Orientation Conceptual Framework describes how cultural and gender-related perspectives frame the conceptualisation of sexual orientation, discusses the conceptual dimensions of sexual orientation, and proposes working definitions of the key sexual orientation concepts.

*Culture and gender-related frames of sexual orientation*

At the broadest conceptual level, both culture and gender frame the way in which sexual orientation is conceptualised. In terms of culture, Māori, New Zealand European, Pacific, Asian, and other cultural paradigms differ with respect to their conceptualisation of sexual orientation, and these cultural dimensions have implications for the collection of sexual orientation data. Sexual orientation concepts have been in use by Māori both in contemporary times and historically, with takatāpui (wahine, tāne) being a sexual identity specific to Māori. New Zealand Europeans are familiar with sexual orientation as a concept and frequently adopt common Western sexual identity labels. In general terms, amongst Pacific people, while sexual orientation might not be a familiar concept, same-sex behaviour is relatively common amongst some young, unmarried men, and there are social identities related to male same-sex sexual relationships (eg, the fa'afafine of Samoa). People from Asian backgrounds might also not traditionally have an equivalent sexual orientation concept although segments of this population engage in same-sex behaviour. As in other life domains, new migrants tend to adopt the sexual orientation concepts of the host culture; however, this depends on several factors including country of origin, and level of acculturation to the host culture. As these examples illustrate, cultural conceptualisations of sexual orientation vary widely and need to be taken into careful consideration.

Dimensions such as gender, gender role, sex role, and gender identity also impact on the conceptualisation of sexual orientation by various groups. For example, there
are gender differences in how men and women conceptualise sexual orientation, and adherence or non-adherence to gender-typical roles can influence conceptualisations of sexual orientation, amongst Pacific people for example. Similarly, amongst some groups, such as Pacific males, gender is a deciding factor in the conceptualisation of sexual orientation; that is, whether an individual takes an active or passive role when engaging in (same-sex) sexual behaviour. Finally, gender identity is an important factor with respect to the conceptualisation of sexual orientation, with transgender people conceptualising their sexual orientation to others either in relation to their (biological) sex or their gender identity.11

**Conceptual dimensions**

There are several key conceptual dimensions relating to sexual orientation. First, there is widespread consensus that the umbrella concept of sexual orientation encompasses three key concepts: sexual attraction, sexual behaviour, and sexual identity. Other concepts such as sexual fantasy or sexual desire are sometimes used to describe aspects of sexual orientation, but are not central to the conceptualisation of sexual orientation for official data collection purposes.

While at first glance it may appear that one concept (eg, sexual identity) could be inferred from another (eg, sexual behaviour), this is in fact not the case, and individuals often do not respond consistently across these three domains. For example, while many women who have sex with women identify as lesbian or bisexual, some identify as heterosexual. The multi-component nature of sexual orientation has implications for measurement as it means that no one measure can accurately differentiate populations defined by three key different measurement concepts.

A second conceptual issue which has implications for the measurement of sexual orientation is the notion of sexual orientation as a continuum rather than as a set of mutually exclusive categories. First, discussions about definitional and classification criteria for both-sex oriented populations have advanced the field to a point where sexual orientation is understood to be a continuous concept, rendering dichotomous (heterosexual/homosexual) or other simple categorisation schemes inaccurate or even meaningless. This conceptualisation of sexual orientation as a continuum, allows for greater flexibility and inclusiveness. For example, asexuality (ie, absence of sexual attraction) can be included as an extension of the sexual attraction continuum.

Finally, the notion that sexual orientation can be fluid over time and social context, rather than fixed is discussed. There is growing evidence of changes in sexual orientation over time and social context, which can potentially result in a significant degree of sexual orientation fluidity (in much the same way that ethnicity can be fluid). Several phenomena and processes explain and underlie this fluidity of sexual orientation. First, differing levels of certainty about one’s sexual orientation and individual differences in the extent of sexual orientation exploration are two factors that can result in changes in sexual orientation over time and social context. Second, there are individuals who choose not to label their sexual orientation, challenging traditional sexual orientation categories. Third, some individuals adopt an alternative socio-political sexual identity (eg, ‘queer’) rendering classification norms and rigid classifications of sexual orientation inaccurate.12 Fourth, the emergence of new

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11 For definitions of ‘gender identity’, ‘transgender’, and ‘intersex’ see Glossary (pp. 55).

12 For a definition of ‘queer’ see Glossary (p. 55).
sexual orientation categories, particularly amongst dynamic youth populations, indicate increasing fluidity of sexual orientation (and increasing social acceptability of this), along with a merging of aspects of sexual orientation, gender, gender identity, and gender role dimensions.

**Definitions of sexual orientation**

Given that the umbrella concept of sexual orientation is defined by three key measurement concepts, we propose that sexual orientation should be treated as a statistical topic, with three measurement concepts: sexual attraction, sexual behaviour, and sexual identity. The following working definitions for the statistical topic of sexual orientation and the associated measurement concepts are proposed:

<table>
<thead>
<tr>
<th><strong>Statistical Topic</strong></th>
<th><strong>Proposed Working Definition</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual Orientation</td>
<td>Sexual orientation is defined by three key concepts: sexual attraction, sexual behaviour, and sexual identity. The relationship between these components is that sexual orientation is based upon sexual attraction and that sexual attraction can result in various sexual behaviours and the adoption of sexual identities. The three key concepts are related, but not necessarily congruent continuous variables, each of which can independently change over time and by social context.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Measurement Concept</strong></th>
<th><strong>Proposed Working Definition</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual Attraction</td>
<td>“Attraction towards one sex or the desire to have sexual relationships or to be in a primary loving, sexual relationship with one or both sexes” (Savin-Williams, 2006, p. 41).</td>
</tr>
<tr>
<td>Sexual Behaviour</td>
<td>“Any mutually voluntary activity with another person that involves genital contact and sexual excitement or arousal, that is feeling really turned on, even if intercourse or orgasm did not occur” (Laumann, Gagnon, Michael, &amp; Michaels, 1994, p. 67).</td>
</tr>
<tr>
<td>Sexual Identity</td>
<td>“Personally selected, socially and historically bound labels attached to the perceptions and meanings individuals have about their sexuality” (Savin-Williams, 2006, p. 41).</td>
</tr>
</tbody>
</table>
1 Introduction

There is currently little New Zealand population data available on sexual orientation, limiting the ability of policy-makers to quantify the issues affecting populations defined by sexual orientation and to develop measures to adequately address the health and social needs of these groups.

Government agencies, service providers, and communities need to be able to access timely, accurate, comparable, and high-quality sexual orientation data in order to develop appropriate policies and programmes to address issues relating to sexual orientation. However, until such sexual orientation data are available it is difficult to accurately quantify, prioritise, and address issues associated with sexual orientation.

While the rights of sexual minority populations are protected in law and public policy, there is growing evidence of disparities in social well-being outcomes for these groups in comparison with the heterosexual population. Members of sexual minority populations (i.e., people with minority sexual attractions, sexual behaviours, and/or minority sexual identities) are disadvantaged across a range of social wellbeing, health, and economic indicators. For example, there is robust national and international evidence that sexual minority groups experience higher rates of suicide, physical and verbal assault, bullying victimisation, depression, alcohol use, smoking, other drug dependence, and more workplace discrimination and impediments to career progression in comparison with the heterosexual population (Ministry of Social Development [MSD], 2006). However, without the necessary official data it is difficult to precisely determine needs in order to develop policies and programmes to address inequalities in these areas.

New Zealand legislation guarantees non-discrimination on the basis of sexual orientation through the Human Rights Act of 1993, and the Civil Union Act of 2004 which allows civil union registrations for both opposite-sex and same-sex couples. Furthermore, the Yogyakarta Principles on the Application of International Human Rights Law in Relation to Sexual Orientation and Gender Identity of 2007 affirm the binding international legal standards which all member states of the United Nations must comply with in respect to the provision of human rights for populations defined by sexual orientation.

In line with legislative progress, sexual orientation has become a relevant topic for public policy, both in New Zealand and internationally. The following recent examples of national policy development are amongst those that have clear implications for sexual minority populations:

- changes in income support benefit entitlements for same-sex couples living together (Work and Income)
- changes relating to adoption and family law
- re-working of health and education policies to acknowledge and include a wide range of family structures
- a range of roll-on effects from Civil Union legislation

(SNZ, 2008, p. 8).

The monitoring of outcomes relating to the provisions made in national and international legislation and public policy requires access to timely, accurate, comparable, and high-quality sexual orientation data.

Government agencies have identified a clear need for information on sexual orientation in the broad areas of enumeration and demographic characteristics,
discrimination, and social well-being and health (Ministry of Health, 2006; MSD, 2006; SNZ, 2008). These are just a few examples of where the need for sexual orientation data has been identified; it is certain that data on sexual orientation will have wide utility across a range of policy and programme development areas.

1.1 Sexual Orientation Data Collection Study (SODCS)

As described in detail in the next chapter, Statistics New Zealand (2008) supports the view that sexual orientation potentially meets the criteria for an official social statistic, assuming that methodological concerns can be adequately dealt with. In response to the need to address the conceptual, measurement, and data collection issues in relation to sexual orientation identified by Statistics New Zealand (2008), the Ministry of Social Development established the Sexual Orientation Data Collection Study (SODCS) through a collaborative project with co-sponsors Statistics New Zealand and the Ministry of Health. External researchers and statisticians were commissioned to independently conduct the study on behalf of the Ministry of Social Development. The study was granted competitive funding from Official Statistics Research (OSR) scheme, under the auspices of Statistics New Zealand. The stated purpose of the OSR scheme is to improve methodologies for official statistics and to increase statistical capability in the state sector.

The key aim of SODCS is to provide a sound theoretical and methodological basis for improving the coverage, reliability, and quality of sexual orientation data available to the Official Statistics System (OSS). Specific aims of SODCS are to build capability to collect and analyse robust, high quality data on sexual orientation in New Zealand by:

- developing a coherent and theoretically robust conceptual framework to guide the measurement of sexual orientation in New Zealand
- developing a framework for the robust and effective collection of sexual orientation data in OSS probability surveys
- assessing the capability of existing New Zealand OSS to provide reference data for sexual orientation
- developing a model for estimating gay, lesbian, and bisexual population groups in order to provide reference data for public sector information needs and to inform the development of sampling strategies for surveys.

In order to achieve these objectives, the SODCS was implemented in two phases. The Sexual Orientation Conceptual Framework was developed during the initial phase of the study and provides the theoretical basis for the subsequent reports. During the second phase of the SODCS, existing New Zealand sexual orientation data collected as part of official surveys were analysed. Data from these official surveys were analysed and their potential to improve current estimates of the population size and demographic profile of sexual minority populations in New Zealand assessed. Findings from these analyses and modelling of OSS data were integrated in the second set of key documents produced by the SODCS. The SODCS final report (Pega, Gray, & Veale, 2010) provides an overview of the project’s findings and is accompanied by four detailed, specialist reports.
1.2 Sexual Orientation Conceptual Framework

The Sexual Orientation Conceptual Framework synthesises cutting edge theoretical and methodological evidence and uses this as the basis for the development of a sound conceptual framework of sexual orientation. The framework takes into account the requirements and constraints of the OSS, especially those of the POSS. The overarching aim of the Sexual Orientation Conceptual Framework is to act as the basis for and support the measurement of sexual orientation and the collection of timely, accurate, reliable, comparable, and high-quality sexual orientation data in the OSS.

This report reviews the role of sexual orientation data collection in official statistics systems, in New Zealand and internationally, and describes the methodology used in developing the conceptual framework. Following this, culture and gender frames of sexual orientation are discussed. Next, conceptual dimensions of sexual orientation are outlined. The key concepts of the sexual orientation topic (i.e., sexual attraction, sexual behaviour, and sexual identity) are discussed. The notions that sexual orientation is best conceptualised as a continuum, and that sexual orientation can be fluid over time and social context, are described. Finally, definitions of the statistical topic (sexual orientation) and of the three key measurement concepts (sexual attraction, sexual behaviour, and sexual identity) are proposed within the context of the OSS.
2 Sexual orientation data collection in official statistics

This chapter introduces the Official Statistics System (OSS) of New Zealand and defines statistics and surveys. It then describes Statistics New Zealand’s current consideration of sexual orientation as a potential official social statistic, followed by a discussion of the requirements and constraints of the OSS. Finally, the collection of official sexual orientation data in New Zealand and in other countries is reviewed.

2.1 New Zealand’s Official Statistics System

The government has a responsibility to provide official statistics and to maintain their long-term sustainability. Production of official statistics is guided mainly by the Statistics Act of 1975. However, the Privacy Act of 1993, the Official Information Act of 1982, and the Public Records Act of 2005 also have implications for the collection and dissemination of statistical information. The United Nations Fundamental Principles of Official Statistics of 1994 is another important source of guidance.

Statistics New Zealand “leads New Zealand’s Official Statistics System. It has primary responsibility for the collection, processing, maintenance, quality assurance, analysis, and dissemination of social, economic and environmental statistics”. While around seventy agencies, including the Ministry of Social Development and the Ministry of Health, provide official statistics, the majority are produced by Statistics New Zealand. The Ministry of Social Development “has primary responsibility for the collection and dissemination of statistics on the payment of New Zealand superannuation and a range of income support and employment services. It also administers databases on student allowances and loans, veterans and war pensions, and a range of subsidies”. The Ministry of Youth Development and the Office for Disability Issues (both contained within the Ministry of Social Development) also contribute official statistics. The Ministry of Health “is the government’s principal agent and adviser on health and disability” and is one of the larger providers of official statistics.

Following the review of New Zealand’s Official Statistics System (OSS) in 2005, a portfolio of key official statistics (Tier 1 statistics) that are, “important in their own right and, consequently, need to be produced, analysed and released to high statistical standards” was identified. Principles and protocols were developed to ensure these Tier 1 statistics were of a high standard and met legal requirements. These protocols have been promulgated to government departments and require that Tier 1 statistics:

- are essential to government decision making
- are of high public interest
- need to meet public expectations of impartiality and high statistical quality
- require long-term continuity of data
- provide international comparability in a global environment or meet international statistical obligations
- align with Tier 1 statistics principles and protocols

Official statistics provide information for government departments (and others) to use in policy making decisions, as well as measures of New Zealand’s, “economic, social

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13 Unless otherwise noted, all information contained in sections 2.1 and 2.2 has been taken directly from the following SNZ website: www.statisphere.govt.nz.
and environmental situation”. In practical terms, official statistics are used to, “inform debate, research and decision making” processes.

2.2 Statistics and surveys

Official statistics are defined in Section 2 of the Statistics Act 1975 as statistics derived by government departments from:

- statistical surveys
- administrative and registration records, and other documents from which statistics are, or could be, derived and published regularly

Official statistics comprise all statistics produced by government departments and can be collected through surveys or compiled from administrative records collected by government agencies in their daily work. Official statistics are valued for their: relevance, integrity, quality, coherence, and accessibility. Considerations such as efficiency (of the official statistics agency), protection of respondent information (ie, privacy, confidentiality, data storage), and minimisation of respondent load (eg, data are collected only when the expected benefits of a survey exceed the cost to providers) are also important. Maximising the use of existing sources of information and international participation in statistical developments are encouraged.

A statistical survey is defined in the Statistics Act as, “a survey of […] the public of New Zealand, whereby information is collected from all persons in a field of inquiry or from a sample, by a Government Department […] for the purpose of processing and summarising by appropriate statistical procedures and publishing the results of the survey in some statistical form”.

The following reports refer to ‘official’ surveys, as well as to ‘probability’ and ‘non-probability’ surveys. By ‘official surveys’ we mean any survey undertaken by or on behalf of the OSS. By ‘probability survey’ we mean any survey in which every member of a sample population (eg, same-sex oriented women or gay identified men) has the same opportunity to participate and is randomly selected from the sample population. By ‘non-probability’ survey we mean any survey in which a sampling strategy is applied such that a selection of individuals within the population of interest does not have an equal opportunity to participate.

2.3 Sexual orientation as a potential official social statistic

The potential for inclusion of sexual orientation as an official social statistic is being considered by Statistics New Zealand under the Programme of Official Social Statistics (POSS)14. POSS aims to develop the capability to provide quality statistics on social well-being outcomes across the following domains: population, housing, safety and security, economic standard of living, knowledge and skills, health, paid work, culture and identity, social connectedness, human rights, and physical environment. The potential inclusion of sexual orientation data is being considered under the Review of Culture and Identity Statistics15.

A 2008 Statistics New Zealand discussion paper was published as “a first step to evaluate the need for statistics about the gay, lesbian and bisexual (GLB) population in the context of the Official Statistics System” and was carried out “prior to the consultation process for the Review of Cultural Identity Statistics” (p. 4). In this discussion paper, Statistics New Zealand scoped available information on populations defined by sexual orientation, reviewed information needs relating to sexual orientation (falling into the three broad areas of enumeration, social wellbeing, and discrimination), and discussed key measurement issues, especially with regard to concepts and technical feasibility (ie, population size, mode, and public acceptability). Key recommendations included:

- monitoring statistical developments in the collection of GLB [gay, lesbian, and bisexual] data internationally
- collaborative investigation of some of the identified methodological issues
- production of a GLB analytical report that brings together existing data to establish better information and to evaluate current data quality.

(text in brackets added; SNZ, 2008, p. 4).

Statistics New Zealand actively supports research into methodological issues pertaining to conceptual, measurement, and data collection issues (such as the SODCS) and views this work as a necessary step in the consideration of sexual orientation as a potential official social statistic (SNZ, 2008). It was envisaged that the SODCS would begin to address some of the areas for further work indicated by the Statistics New Zealand analysis of sexual orientation as a statistical topic (2008, p. 13) which included advice to:

1. Document and prioritise GLB information needs (relative to other information needs) across government as part of the Review of Cultural Identity Statistics.

2. Investigate the production of a GLB analytical report using existing data in order to make current information more available and to evaluate current data quality.

3. Support or directly undertake research into the identified methodological issues.

4. Monitor work on the topic by the Ministry of Social Development and the Ministry of Health, most notably the results from the Mental Health Survey and the Sexual Health Survey.

5. Continue to monitor international work and look at the potential to collaborate with other national statistical offices.

### 2.4 OSS social statistics requirements

In order for sexual orientation to become an official statistic it must meet the requirements and standards of the OSS. Statistics New Zealand has formulated specific criteria for determining the suitability of a potential statistic for inclusion in the OSS. In the words of Statistics New Zealand, “Official social statistics must be relevant by providing information that meets user needs in coverage, content and
Sexual Orientation Data Collection Study Report 1:
Sexual Orientation Conceptual Framework

detail. More specifically, official statistics must inform decision making relating to New Zealand’s social well-being. To achieve this, the official statistics must:

- address enduring issues of widespread interest to Government departments,
- local authorities, businesses, and to the general public
- be useful for improving knowledge about New Zealand’s population
- inform decision making relating to New Zealand’s social well-being
- provide an accurate reflection of the population of interest
- provide information that will help inform and evaluate policy
- be a trusted source
- be publicly acceptable
- be accurate and of high quality

(SNZ, 2008, pp. 5-6).

Several OSS constraints are relevant to sexual orientation data collection. These include the OSS requirement to consider the temporal and psychological burden that the inclusion of sexual orientation questions in official probability surveys will put on survey respondents. The OSS also faces financial constraints which require balancing of the need for the collection of sexual orientation data against the need for collection of data on other topics. Finally, the OSS is required to collect concepts which span cultural understanding.

2.5 Sexual orientation concepts and information needs

In terms of the application of sexual orientation data, several government agencies have identified data needs relating to sexual orientation in three broad categories: enumeration, social well-being, and discrimination (eg, Ministry of Health, 2006; MSD, 2006; SNZ, 2008). Statistics New Zealand, in particular, has discussed the different information needs in some detail (2008). Consumers of official statistics, such as researchers and non-governmental organisations, have identified similar data needs, particularly around enumeration and social well-being (eg, Sell & Becker, 2001; New Zealand AIDS Foundation, 2003).

Although there has been little scientific discussion to date concerning which concepts of sexual orientation are most applicable to specific information needs, general predictions can be made about which sexual orientation measurement concepts will fulfil key information needs identified for New Zealand.

2.5.1 Enumeration

Information on enumeration of populations defined by sexual orientation requires that data on all three key concepts of sexual orientation (ie, sexual attraction, sexual behaviour, and sexual identity) are obtained, as these describe discrete dimensions of sexual orientation and the data obtained will differ across the population groups. Based on previous findings, measures of sexual attraction are likely to result in the largest count of sexual minority respondents in any given survey. Sexual behaviour questions, in turn, are likely to identify a larger number of sexual minority respondents than are sexual identity questions. Because the nature of the inter-relationships between the concepts that make up sexual orientation is not yet fully understood, it is not possible to make reliable inferences about a particular sexual orientation population group (eg, same-sex sexual attraction) from a population group.
defined by another concept of sexual orientation (e.g., same-sex sexual behaviour, or same-sex sexual identity). That is, it would be erroneous to expect that individuals will respond to all three measures of sexual orientation in a consistent manner, when in actuality a significant proportion of individuals do not. The expectation that responses will be similar for an individual belies an inaccurate assumption and in fact attraction, behaviour, and identity frequently differ. Thus, data obtained from a measure assessing one particular concept of sexual orientation cannot be used to infer data obtained from other key concepts of sexual orientation.

2.5.2 Discrimination
Information needs related to discrimination on the basis of sexual orientation are likely to be most appropriately met through data collected on sexual identity; particularly, considering that populations who have adopted a stigmatised sexual identity are the sexual minority groups most likely to be discriminated against in areas such as employment and housing. However, people who engage in same-sex sexual activities, and to a lesser degree those with same-sex sexual attractions, may also be the target of discrimination and harassment, indicating a potential need for data on sexual attraction and sexual behaviour.

2.5.3 Social well-being and health
Information relating to the social well-being of populations defined by sexual orientation is likely to require measurement of sexual attraction, sexual behaviour, and sexual identity. Key information needs in relation to social well-being include information on mental and sexual health variables, as well as socio-economic inequalities. For example, measurement of all three sexual orientation concepts would be required in order to obtain accurate information pertaining to mental health issues such as suicidality, substance use, and depression. One study comparing the utility of sexual identity measures versus sexual behaviour measures in research on alcohol use and alcohol-related problems concluded that measures of both concepts were required (Midanik, Drabble, Trocki, & Sell, 2007). Information needs in the area of sexual health, such as the need for sexual orientation information, related to the HIV and AIDS epidemics and sexually transmitted diseases, require measurement primarily of sexual behaviour and sexual identity. Information on inequalities in socio-economic domains, such as education, occupation, and income, by sexual orientation is likely to require sexual identity data.

2.5.4 Summary
This brief overview of how the three broad categories of information needs identified by producers and consumers of official statistics could be expected to relate to the three key measurement concepts of sexual orientation shows that collection of data on all three concepts is necessary in order to fully address the identified information needs. In other words, no single measurement concept can provide information which will sufficiently address all information needs concerning sexual orientation. However, it has also been shown that collection of data on any of the three concepts relating to sexual orientation will provide valuable data that can be used to address specific information needs identified by producers and consumers of official statistics.

2.6 Official sexual orientation data collection
The collection of direct sexual orientation data through official statistics systems is still in its formative stages. Currently, Statistics New Zealand and official statistics agencies in other countries do not include sexual orientation questions in their population censuses (Hughes & Saxton, 2006). However, Statistics New Zealand is
one of several official statistics agencies which have commenced investigating the feasibility of including a sexual orientation question in the census (General Register Office for Scotland, 2006; Office for National Statistics [ONS], 2006a, b; SNZ, 2003a, b; Statistics Canada, 2004).

Statistics New Zealand and official statistics agencies in several other countries (eg, Australia, Canada, Ireland, Spain, United Kingdom, United States, Uruguay) have collected indirect sexual orientation data (ie, data on same-sex relationships or same-sex cohabitation) through their population censuses (Birrell & Rapson, 2002; Black, Gates, Sanders & Taylor, 2007; Guerra, n.d.; Hyman, 2003; Klement & Simpkins, 2004). These census data on same-sex couples have been widely used, although their capacity to yield robust information on sexual orientation is limited (Badgett & Rogers, 2003; Black et al., 2007; Klement & Simpkins, 2004).

2.6.1 Sexual orientation data collection in New Zealand
The OSS has started collecting direct sexual orientation data through probability surveys. For example, the Ministry of Health collected sexual orientation data in the New Zealand Health Behaviours Surveys on drug use in 2003, and alcohol use in 2004, as well as in Te Rau Hinengaro – The New Zealand Mental Health Survey (2006). The figures derived from these studies are described in detail in SODCS Report 4: Sexual Orientation Data in New Zealand Probability Surveys: Technical Report (Gray, 2009).

2.6.2 Sexual orientation data collection in other countries
Official statistics systems in several countries have collected direct sexual orientation data in official probability surveys, predominantly health surveys, for some time. The United States Department of Health and Human Services and Department of Justice were the first producers of official statistics to include sexual orientation questions in their surveys. The official statistics system in the United States has now collected sexual orientation data in more than 35 surveys, starting with sporadic collections in the early 1990s and leading to regular collections since 2000 (Sell, n.d.; Taylor, 2008a).

Statistics Canada has collected sexual orientation data in official health surveys in 2003 and 2005, after carrying out initial pre-testing in 2002 (Taylor, 2008a). The Office for National Statistics (United Kingdom) is collecting sexual identity data in the Integrated Household Surveys (six large-scale household surveys) following completion of the Sexual Identity Project which ran from 2006 to 2008 and involved the systematic development, testing, and trialling of a sexual identity question for inclusion in official surveys (Aspinall & Mitton, 2008; Betts, 2008; Betts, Wilmot, & Taylor, 2008; Hand & Betts, 2008; Joloza, Traynor, & Haselden, 2009; Malagoda & Traynor, 2008; ONS, 2008; Taylor, 2008a, b; Taylor & Ralph, 2008; Traynor, 2008; Wilmot, 2007). Statistics Norway is currently developing a sexual orientation question suitable for use in official surveys (Taylor, 2008a).

16 The website www.gaydemographics.org compiles findings from analyses of same-sex cohabitation data from censuses in many countries (Guerra, n.d.).
3 Methodology

This chapter describes the objectives of the Sexual Orientation Conceptual Framework, as well as the research methodology used to develop the framework.

3.1 Objectives

One of the main objectives of the Sexual Orientation Data Collection Study (SODCS) has been to develop a Sexual Orientation Conceptual Framework to guide and support the future development of common frameworks, standards, and classifications in anticipation of sexual orientation being adopted as a social statistic in New Zealand. Thematically, the framework has three main objectives:

- to describe the conceptual dimensions of sexual orientation
- to develop working definitions for the sexual orientation topic and its measurement concepts
- to recommend measurable concepts of sexual orientation

In order to achieve these objectives, the Sexual Orientation Conceptual Framework synthesises cutting edge conceptual research evidence on sexual orientation, while tailoring these findings to the constraints and requirements of New Zealand’s OSS and considering their applicability for use in official probability surveys.

3.2 Research methodology

A multi-method, multi-source approach was used in the development of the Sexual Orientation Conceptual Framework:

3.2.1 Literature review and analysis
A systematic search of academic papers and official reports published in English since 1990 was conducted by the Centre for Social Research and Evaluation of the Ministry of Social Development on behalf of the research team. The search identified methodological literature on three topic areas:

- measurement and definition of sexual orientation;
- collection of sexual orientation data in probability surveys
- probability-sampling of populations defined by sexual orientation.

A broad range of key words was used across several, mostly social science, data bases. The library search identified 91 key academic papers and official reports, as well as four books, and the resulting bibliography was sent to the advisory board of

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17 Any combination of the following search terms: sexual orientation, sexual identity, sexual behaviour, sexual attraction, lesbian, gay, bisexual, homosexual, homosexuality, heterosexuality, heterosexual, heterosexuality, takatāpui, two-spirit and sampling, sample, probability, opportunity, random, data collection, measurement, data source, Census, representative, general population, population-based, epidemiological, demographic, geographic, geography, distribution, prevalence, morbidity, mortality, data analysis, statistical model, base line data, validity.
SODCS for review. The advisory board, comprising 14 national and international experts in the field, identified six additional key papers and one additional book for consideration and inclusion.18

The research literature was reviewed and a secondary analysis conducted, taking into account OSS requirements and constraints. Principal conceptual dimensions of sexual orientation were identified based on the findings in the research literature, and working definitions of the statistical topic of sexual orientation and the key measurement concepts were developed.

3.2.2 Focus groups and key-informant interviews
In order to ensure that takatāpui, fa'afafine, lesbian, gay, and bisexual perspectives were sufficiently taken into account in the development of the Sexual Orientation Conceptual Framework, two focus groups and a key-informant interview with individuals from these population groups were conducted.

Focus group participants were selected and recruited from the Ministry of Social Development’s existing network of contacts, using purposive sampling to ensure a diversity of perspectives on sexual orientation. To qualify for participation, individuals were required to identify as takatāpui, fa’afafine, lesbian, gay, or bisexual. Steps were taken to ensure that focus group participants reflected a diverse range of ages, genders, gender identities, and ethnicities, with particular emphasis placed on the representation of Māori, Pacific, Asian, new migrant, and transgender perspectives.

A question catalogue was developed that sought participants’ views on findings compiled in a draft version of the Sexual Orientation Conceptual Framework, and was worked through in the focus groups - creating an informal, semi-structured interviewing situation. Focus group sessions (each audio-taped and of 90 minutes duration) were held in Auckland and Wellington (four and five participants respectively) in November 2008.

As a Pacific perspective was absent in the focus groups with takatāpui, fa’afafine, lesbian, gay, and bisexual individuals, a fa’afafine perspective was sought separately in a supplementary key-informant interview. The fa’afafine key-informant was also selected and recruited through the Ministry of Social Development’s existing networks. Utilising the same question catalogue as in the focus groups, the supplementary key-informant interview (90 minutes, audio-taped) was conducted in Wellington in January 2009.

In addition, four key-informant interviews of 60 minutes duration were conducted with producers and consumers of official statistics, including members of staff from the Ministry of Social Development (November 2008), Statistics New Zealand (November 2008), and the Ministry of Health (February 2009). A second question catalogue tailored to key-informants’ perspectives was implemented, seeking participants’ views on findings compiled in a draft version of the Sexual Orientation Conceptual Framework. The principal goal of the key-informant interviews was to ensure that the OSS context was adequately taken into account in the development of Sexual Orientation Conceptual Framework, thereby ensuring the suitability of the framework for use in New Zealand.

18 The annotated bibliography is available from the Ministry of Social Development on request.
Data from the focus groups and key-informant interviews were analysed using thematic analysis (Braun & Clarke, 2006). Common themes in the data were identified. The small number of focus group participants and key informants and non-random sampling prohibits the identified themes from being considered as representative of common discourses amongst the populations represented. However, the identified themes provided the desired insight into the diversity of perspectives on the topic of sexual orientation concepts, measurement, and data collection.

Findings from the two focus groups and the supplementary key-informant interview with sexual minority stakeholders, as well as the key-informant interviews with producers and consumers of official statistics, were compiled in a separate report, the *Summary of Focus Groups and Interviews* (Pega, 2009c). This summary report included recommendations made on the basis of the views expressed by the takatāpui, fa’afafine, lesbian, gay, and bisexual individuals involved, as well as from the key-informant interviews with producers and consumers of official statistics about suggested amendments to the *Sexual Orientation Conceptual Framework*. The summary report was submitted to the Ministry of Social Development and distributed amongst the focus group participants and key-informants. The recommendations made in the report were implemented in the *Sexual Orientation Conceptual Framework* as it is presented here.

### 3.2.3 Expert advice

The 14-member advisory board of SODCS reviewed and provided feedback during the development of the *Sexual Orientation Conceptual Framework*. Comments and suggestions made by these national and international experts were incorporated in further development of the document and have informed this final version. Several individuals from the Ministry of Social Development and Statistics New Zealand also reviewed the document.

In addition, feedback was sought from Māori reviewers throughout the development of the *Sexual Orientation Conceptual Framework*. This included reviewers from the advisory board, reviewers independent of the study, and a review of the document conducted by Te Puni Kōkiri.

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19 The *Summary of Focus Groups and Interviews* report (Pega, 2009c) is available from the Ministry of Social Development on request.
4 Culture and gender-related frames of sexual orientation

Culture and gender need to be understood as frames for the conceptualisation of sexual orientation, both by individuals and by social groups who have a shared cultural understanding. With respect to culture, the key issues are that the concept that sexual orientation is innate has currency in some cultures, but not in others and that cultural groups use different concepts to describe sexual minority orientations. Sexual orientation may be conceptualised in terms of gender and gender roles, active/passive sex roles, and gender identity, in accordance with various gender frames.

It needs to be noted that, compared with other parts of the world, the scientific, conceptual study of sexual orientation is well-established in Western countries. The United States and the United Kingdom have a strong contemporary tradition of researching definitional and measurement issues concerning sexual orientation. The majority of publications on sexual orientation originate from these countries, meaning that the majority of available literature is biased towards, and dominated by, a Western cultural perspective.

The Sexual Orientation Conceptual Framework has been developed on the basis of the findings contained in this research literature, along with its (inevitable) associated biases. However, the framework prioritises New Zealand evidence, as well as evidence on non-Western, including indigenous, conceptualisations, wherever this is available. The following sections on cultural and gender frames of sexual orientation culminate in an overall framing of sexual orientation that spans the cultural understandings of sexual orientation of the diverse cultural groups found in New Zealand.

This chapter first describes the culture frames of sexual orientation, including Māori, New Zealand European, Pacific, Asian, and new migrant concepts. It then describes gender-related concepts as they relate to sexual orientation.

4.1 Culture frames of sexual orientation

Groups from different cultural backgrounds conceptualise sexual orientation in profoundly different ways (Gonsiorek, Sell, & Weinrich, 1995). This section outlines how the following sizeable New Zealand populations conceptualise sexual orientation: Māori, New Zealand European, Pacific (especially Samoan), Asian people, and recent migrants. The perspectives of adolescents are discussed, where information is available.

4.1.1 Māori

Historical context. While there is no extant research on measurement for Māori populations, sexual orientation is a traditional and familiar concept to Māori. There is a significant body of conceptual evidence on Māori perspectives towards sexual orientation, including studies that have examined sexual identity concepts unique to Māori. Drawing on findings from the Māori Sexuality Project, Aspin (2005, p. 1) described pre-colonial Māori perspectives on sexual orientation in this way:

[…] it is becoming clear that traditional Māori society accorded great importance to sexual diversity in all its manifestations. With regard to same sex relationships, there is mounting evidence that these were not only condoned but that they played an important role in
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the overall structure of Māori society. Evidence today suggests that people in same sex relationships were revered within their communities.

That European settlers introduced social stigma to same-sex and both-sex oriented indigenous persons during colonisation has been noted elsewhere (Saewyc, Skay, Bearinger, Blum, & Resnick, 1998). Colonisation has also had a strong impact on traditional Māori understandings of sexual orientation (Aspin, 2005). For example, Te Awekotuku (1991; 2001) demonstrated that traditional stories with Māori sexual minority protagonists were altered to suit Victorian heteronormative views by making them stories about relationships between heterosexual characters.

Current perspectives. Today, ‘takatāpui wahine’ and ‘takatāpui tāne’ identities have been reclaimed by many Māori as a way of identifying simultaneously as Māori and non-heterosexual (Aspin, 2005; 2008; Aspin & Hutchings, 2008; Hutchings & Aspin, 2007; Murray, 2003; 2004; Te Awekotuku, 1991). In an historic context, the term ‘takatāpui’ was understood to refer to an ‘intimate companion of the same sex’ (Aspin, 2005; Te Awekotuku, 1991). In contemporary usage, the term ‘takatāpui’ is commonly used to describe all non-heterosexual expressions of sexuality (Aspin, 2005). Henrickson (2006a) describes the management of sexual minority and indigenous identities amongst Māori, including sexual orientation labels such as ‘gay’, ‘lesbian’, and ‘bisexual’ which are not necessarily indigenous to Māori members of sexual minorities.

Research findings. The Male Call/Waea Mai, Tāne Ma survey (New Zealand’s first comprehensive study of men who have sex with men; New Zealand AIDS Foundation) conducted in the late 1990s found that while the majority of Māori survey participants claimed ‘gay’ and ‘homosexual’ identities, just under one-third of all Māori participants preferred ‘takatāpui’ as a marker of their identity (Aspin et al., 1998). Little empirical information about this sexual minority population is available to date, and some quantitative surveys have aggregated ‘takatāpui’ with those from other sexual identity categories, preventing the disaggregation of data. As this research demonstrates, sexual orientation terms which are standard amongst Western cultural groups may not be appropriate for indigenous sexual minority groups. This has led to suggestions that research needs to explore differences in both conceptual understandings and population variations of sexual orientation amongst indigenous groups, including different tribal groups (Saewyc et al., 1998).

Implications for measurement. Based on the extant literature, Māori survey respondents appear to be likely to report sexual attraction and sexual behaviour in ways very similar to non-Māori respondents. However, some Māori adopt a culture-specific sexual (takatāpui) identity, which indicates a need to include a ‘takatāpui’ response category in sexual identity questions. For some Māori, sexual identity is fluid over time and social context due to the management of a more complex and multiple set of social identities than non-Māori. This requires that questions on sexual identity measure respondents’ current sexual identity, in recognition that the response provided represents how respondents identify themselves at the present point in time. Also due to managing multiple identities, some Māori adopt multiple sexual identities, meaning that sexual identity questions should enable respondents to report more than one concurrent sexual identity.

For a definition of ‘heteronormativity’ see Glossary (p. 55)

Monette, Albert, and Waalen (2001, p.31; emphasis added) have assessed sexual identity amongst indigenous people in North America with the following question: ‘How do you presently identify yourself?’.
4.1.2 New Zealand European

Research findings. There is no previous research on the measurement of New Zealand European sexual orientation. However, the majority of conceptual research on sexual orientation refers to the British population or European settler populations residing in former British colonies, especially the United States, and could therefore be considered to have a high degree of generalisability to the New Zealand European context. As noted above, New Zealand European settlers brought with them their ideas about sexual orientation (Aspin, 2005; Te Awekotuku, 1991). One influential theory on how today's common Western conceptualisation of sexual orientation, with its division into heterosexual versus minority sexual orientation concepts, has emerged historically is presented in Foucault's three volume treatise, *The History of Sexuality* (1976; 1984a, b).

Although there is no specific conceptual research into this topic, it appears that New Zealand European conceptualisations of sexual orientation are closely aligned with common Western models and traditions of sexual orientation, especially those in other European populations residing in former settler colonies of the United Kingdom. The extent to which conceptualisations of people in the United Kingdom and British/European settler populations in former British colonies are generalisable to New Zealand European conceptualisations has yet to be established, but empirical evidence suggests that New Zealand Europeans have adopted similar sexual orientation concepts as other Western populations.

Implications for measurement. Based on the available evidence, New Zealand Europeans are likely to report sexual behaviour, sexual attraction, and sexual identity similarly to people from other Western and immigrant European populations. It may be helpful to confirm this assumption through research into New Zealand European conceptualisations of sexual orientation for the purpose of informing measurement of sexual orientation amongst this group.

4.1.3 Pacific

Research findings. While there is no previous research on the measurement of sexual orientation amongst Pacific people, there is an emerging body of New Zealand research on Pacific peoples' concepts associated with both predominantly male same-sex sexual relationships and gender liminality. Con*ncepts of sexual orientation. There appears to be no cultural equivalent to the (Western) concept of sexual orientation amongst Pacific cultures. In the Samoan language, for example, there are no equivalent terms for 'sexual orientation' and standard Western sexual identity categories (eg, 'gay' or 'homosexual'). This can be seen as an indication that the concept of sexual orientation is not native to these cultures. As Henrickson (2006a, p. 248) noted, "there are probably at least as many different ways of conceptualizing sexual identity around the Pacific as there are distinct cultures". The absence of a native sexual orientation concept amongst Pacific people constitutes a significant problem for the measurement of sexual orientation in New Zealand, given that a sizeable population group (ie, Pacific people) would be asked to report on a concept that might not be culturally relevant for them.

22 'Gender liminality' is a term often used in reference to the 'third gender' of many Polynesian cultures. It has previously been used to describe the specific gender identity and role that fa'aafafine of Samoa, fakaleiti of Tonga, and other third genders in Polynesia employ (Bresnier, 1997).
Concepts of same-sex relationships. There are, however, concepts in Pacific cultures that relate to same-sex sexual relationships and gender liminality (eg, fa'afafine of Samoa, fakaleiti of Tonga, aikāine of Hawai'i, and māhū of Tahiti; see Henrickson, 2006a; Schmidt, 2001). A fa'afafine-identified key-informant interviewed for the SODCS noted that while Samoan fa'afafine generally engage in same-sex sexual behaviour, the term ‘fa’afafine’ describes how a person feels within themselves, rather than with whom they engage in sexual acts (20.01.09). In illustration of this, the informant translated the term ‘fa’afafine’ according to a definition (coined by Fuimaono Karl Pulotu-Endemann) as referring to a ‘man with the spirit of a woman’ (20.01.09). In the key-informant’s experience, the term ‘fa’afatama’ (‘to be like a man’) denotes the female equivalent of fa’afafine and is accordingly associated with female same-sex relationships (20.01.09). However, fa’afatama are not as visible in Samoa as fa’afafine, although examples of prominent fa’afatama from Samoan history were cited (fa’afafine-identified key informant, 20.01.09).

Fa’aafine. There is emerging evidence about how gender-liminal Pacific people in New Zealand conceptualise sexual orientation. Worth (2001) analysed the conversation of eight South Auckland fa’aafine, who described their identity in terms of a complex interaction of sexual orientation and gender liminality:

Being fa’aafine in Auckland at the cusp of the new millennium not only articulates with global social and cultural processes and the politics of sex, gender and sexual orientation, but also with the Pacific Island diaspora to New Zealand, the effect of HIV and the emphasis it has placed on sex and safety amongst marginalized groups, and the effect of black American youth culture and drag personae such as Ru Paul, as well as an increasingly globalized gay culture.

As with Henrickson (2006a), Schmidt (2001) argues that fa’afafine identities, although historically not aligned with same-sex sexual orientations, are increasingly being re-interpreted in the light of Western ideas of sexual orientation and sexual identity. However, the concepts of sexual orientation, gender identity, and gender role tend to overlap somewhat amongst Pacific people in New Zealand. The SODCS key-informant reported that persons born in Samoa were more comfortable with adopting the ‘fa’afafine’ label than those born in New Zealand (20.01.09). For New Zealand-born Samoans, the fa’afafine identity was associated with males who dressed as women - usually drag queens and ‘working girls’. In the key informant’s view, New Zealand-born Samoans who did not dress as women were often not comfortable with the ‘fa’afafine’ label, and instead tended to adopt the Western labels of sexual orientation such as ‘homosexual’, ‘gay’, or, especially amongst younger New Zealand-born Samoans, ‘queer’. On the other hand, New Zealand-born Samoans who did dress as women often embraced the ‘fa’afafine’ label (key-informant, 20.01.09).

For the majority of fa’aafafine interviewed by Worth (2001), identification as ‘gay’ was not an option, although some informants saw such identification as a stage en route to another sexual identity. Findings from the study carried out by Statistics New Zealand (2003a) noted that Pacific focus group participants viewed the term ‘fafa’ (an abbreviation of ‘fa’afafine’) as a contemporary (Samoan) sexual identity marker. However, the fact that people from differing backgrounds have differing understandings of the ‘fa’afafine’ concept constitutes an important issue for measurement when considering the possible inclusion of such terms in response categories of sexual identity questions.
Young Pacific males. Same-sex sexual behaviour appears to be relatively common amongst young, unmarried Pacific males, but in general does not lead to identification as ‘gay’ or ‘bisexual’ or with a gender-liminal identity, as long as a male continues to act within the bounds of what is considered masculine behaviour (fa’afafine-identified focus group participant, 20.01.09). Schmidt (2001) reports that:

while heterosexuality in Samoa (inasmuch as such a concept exists) obviously can incorporate activities that would be read as homosexual in Western discourses, for Samoans it is the nature of the sexual act rather than the object which is the key factor.

The current evidence base is insufficient to draw conclusions about how sexual orientation is conceptualised amongst Pacific populations in New Zealand, or to make recommendations about whether and how sexual orientation could be accurately measured in this population group. In short, more work is needed in this area before a satisfactory proposal for collecting information on sexual identity can be developed for Pacific people.

Implications for measurement. Clearly, several conceptual issues need to be resolved before sexual orientation data can be collected robustly from the Pacific population:

- Pacific men and women appear to conceptualise and report sexual attraction in ways similar to respondents from most other cultures, but it is unclear how attractions towards gender-liminal individuals (such as fa’afafine and fa’afatama) would be reported.
- Pacific men appear to have a culturally unique understanding of sexual behaviour with gender-liminal males (eg, fa’afafine). Sex with a fa’afafine male is not conceptualised as sex with another man, but as sex with a woman. This means Pacific men who have sex with gender-liminal males will be likely to report this as opposite-sex sexual behaviour, leading to underreporting of same-sex sexual behaviour amongst Pacific men in surveys.
- Fa’afafine identities are socially complex and denote not only sexual orientation but also gender identity categories, gender roles, and active versus passive sex roles. It is noted that the concept of ‘sexual orientation’ does not traditionally exist in Pacific cultures, but has been introduced as the result of colonisation, exposure to Western culture, and globalisation of sexual minority culture.
- Fa’afafine constitute a very small subclass of (generally) same-sex behaved males, meaning that inclusion of this category will not impact significantly on enumeration of the total population of same-sex oriented individuals, but would serve only to document an aspect of disaggregation within that population.
- There may be other arguments supporting the inclusion of a ‘fa’afafine’ response category in sexual identity questions, for example, to ensure that men who identify with this group are not prompted to decline to answer the question if there is no category that represents them, as part of a wider strategy to ensure enumeration of the whole group.
4.1.4 Asian and new migrant populations

*Research findings.* There is no research on the measurement of sexual orientation of people from Asian backgrounds; however, there is evidence from the Lavender Islands Study on Asian conceptualisations of sexual orientation. Emerging evidence suggests that for people from (some) Asian cultures, sexual orientation is not a native concept. An Asian focus group participant of the SODCS pointed out that some people from Asian cultural backgrounds do not conceptualise sexual orientation in the same way as people from Western cultures (20.11.08). Supporting this notion, the Lavender Islands Study found that for some Asian immigrants “applications of Western categories of sexual identity (eg, ‘gay’, ‘lesbian’, ‘bisexual’) may have little or no meaning”, particularly if the individuals are recent immigrants (Henrickson, 2006b, p. 76). The absence of a native sexual orientation concept amongst people from Asian backgrounds could constitute a significant problem for the measurement of sexual orientation in New Zealand, given that a sizeable population group would be asked to report on a concept that might not be culturally relevant for them.

*Ethnic versus sexual identities.* Asian people residing in New Zealand appear to engage in a process of management of ethnic and sexual identities. For instance, a focus group participant who had recently immigrated to New Zealand from the South-East Asian region reported feeling much more comfortable identifying as ‘gay’ in the New Zealand cultural context than in the context of his culture of origin (20.11.08). Henrickson (2006, p. 76; text in brackets added) concluded from Lavender Islands Study data that:

> It appears probable that Asian-born LGBs [lesbians, gays and bisexuals] manage their sexual identity as only one aspect of the constellation of identities that they manage as new immigrants, and that sexual identity is not the most important signifier for Asian-born respondents.

Research on identity management amongst people of colour with minority sexual orientations in the United States provides important insights for equivalent processes that people from Asian and other non-European migrant backgrounds in New Zealand may be likely to undergo. Croom (2000) notes that, depending on social contexts, sexual minority people of colour may identify more strongly with either their sexual identity or their ethnic identity at particular times. The decision about which identity/identities are disclosed in a given situation might, for instance, be influenced by the societal values ascribed to the differing identities that same-sex oriented people of colour can claim. Some might feel a need to establish a primary identity or identification rather than to adopt a more complex, multi-faceted identity that integrates both sexual and ethnic minority identities. The process of identity management leads to some sexual minority people of colour being more fluid and flexible in their identity (Croom, 2000).

*Sexual identity.* Amongst migrant populations, it can be expected that increasing levels of acculturation of same-sex oriented persons are associated with increasing adoption of common sexual identity categories of the host culture (Zea, Reisen, & Diaz, 2003). Findings from the Lavender Islands Study showed that New Zealand-born Asian migrants were less likely to rate ethnic identity highly as an impact factor on their decision to adopt a sexual identity than were recent Asian immigrants (Henrickson, 2006b). Similarly, a United States study found that self-identification amongst Latino immigrants was influenced by the level of acculturation as determined by, “generation of immigration, country of origin, legality of immigrant status, and acculturative style” (Zea et al., 2003, p. 283). However, another study
found that some Asian-, African-, and Latino-American same-sex attracted young people equated adopting a sexual minority label such as ‘homosexual’ (that they perceived as being “associated with White decadence”), with “social suicide”, because such self-identification might be interpreted as a rejection of one’s own ethnic community (Savin-Williams & Cohen, 2007, p. 39).

**Implications for measurement.** Sexual minority persons from ethnic minority populations whose culture is family-centred, may not openly identify with their minority sexual orientation in front of their parents or other family members, due to a belief that such self-identification will be disruptive to established family dynamics (Croom, 2000; Zea et al., 2003). The Lavender Islands Study found that Asian lesbian, gay, and bisexual identified immigrants to New Zealand were less likely to report having disclosed their sexual orientation publicly and to close friends, compared to non-Asian migrants to New Zealand (Henrickson, 2006). Similarly, people from collectivistic cultures are less likely to view identification with a minority sexual orientation as an issue of self-definition and individual freedom than are people from individualistic cultures, tending instead to have negative perceptions of self-identification as creating an “overt separateness” of an individual from the cultural group (Croom, 2000; Zea et al., 2003, p. 284). These findings indicate that confidentiality survey responses are likely to be particularly important for Asian respondents in order to counteract social desirability response tendencies.

Further research into the conceptualisation of sexual orientation amongst people from Asian backgrounds is needed. It appears that Asian survey respondents will be likely to report sexual attraction and sexual behaviour in a manner similar to respondents from other cultures. For some Asians, as for other ethnic minority groups, sexual identity may be particularly fluid over time and social context due to the management of a more complex and multiple set of social identities, and this will necessitate questions on sexual identity referring to survey respondents’ present sexual identity. Also, due to managing multiple identities, some Asian people also adopt multiple sexual identities, meaning that sexual identity questions should allow multiple responses. Because people from collectivistic Asian cultures might be particularly susceptible to social desirability bias, sexual orientation cannot be assessed through proxy questions and survey respondents need to be able to answer the questions privately and confidentially.

### 4.2 Gender-related frames of sexual orientation

There are a number of gender-related concepts which influence how survey respondents conceptualise sexual orientation. These include: gender and gender roles, active and passive sex roles, and gender identity.

#### 4.2.1 Gender and gender roles

There is emerging evidence to indicate that men and women conceptualise minority sexual orientations differently, and that same-sex oriented men and women differ with respect to choice of self-identification. Amongst women, same-sex sexual attraction and behaviour tend to be less predictive of self-identification with common sexual identity labels than for men, for whom sexual behaviour and sexual attraction tend to be the central variables influencing the adoption of sexual identities (Golden, 1994, as cited in Gonsiorek et al., 1995; Golden, 1996, as cited in Martin & Knox, 2000).

For women in particular, choice of sexual orientation appears to be an important factor, with some lesbian women describing same-sex affect and political
perspectives as being central to their self-definition (Golden, 1994, as cited in Gonsiorek et al., 1995). Furthermore, women are more likely to endorse alternative, non-traditional, sexual identities (Savin-Williams & Diamond, 2000, as cited in Thompson & Morgan, 2008). For instance, when compared with young same-sex oriented men, young same-sex oriented women in Australia were more likely to report both same-and opposite-sex attraction, to report a bisexual identity, and to be uncertain about their sexual identity (Dempsey et al., 2001, as cited in Savin-Williams, 2001).

Pacific perspectives. In traditional clearly gender-segregated Polynesian cultures, gender roles appear to influence the adoption of social identities relating to sexual orientation. For instance, in the Samoan culture, the extent to which a biologically male person dresses in gender-atypical clothes and engages in gender-atypical labour tasks may determine whether they self-identify or are identified by others as fa'afafine. For instance, a study of the complex relationship between gender roles, gender identity, and sexual orientation amongst Samoan fa'afafine found that some fa'afafine reported knowing that they were fa'afafine because they would engage in female chores from an early age (Schmidt, 2001). Given that gender roles play a significant role in the identification of fa'afafine (by self and others), this factor might be of relevance for the measurement of sexual orientation of Pacific populations. Future research into concepts of sexual orientation should include an exploration of the part that gender roles play in Pacific people’s conceptualisation of sexual attraction, sexual behaviour, and sexual identity.

4.2.2 Active and passive sex roles
The way in which males who have sex with males view their sexual orientation may also be influenced by whether they engage in active or passive sex roles. Same-sex behaved males who take the active sex role (ie, penetrate their male sex partner) are sometimes not conceptualised as same-sex oriented, whereas same-sex behaved males who take the passive sex role (ie, are penetrated by their male sex partner) are conceptualised as same-sex oriented (Gonsiorek et al., 1995). For example, some same-sex behaved Latino men classify men who engage in passive sex with male partners as ‘gay’, while considering those who engage in active sex with male partners to be ‘men’ (Zea et al., 2003).

Pacific perspectives. In the New Zealand context, this conceptual issue is particularly relevant with respect to the measurement of sexual orientation amongst Pacific men. Research has shown that Samoan men might not adopt sexual minority identities although they have sex with fa'afafine, as long as they take the active sex role. Schmidt (2001) and a fa'afafine identified SODCS key-informant (20.01.09) both reported that non-fa'afafine men who had sex with fa'afafine did not consider themselves to be same-sex behaved or oriented, but thought of themselves as ‘straight’, as long as they conformed to the masculine role which included taking an active sex role in sex with fa'afafine.

Implications for measurement. The measurement implication of this issue is that amongst the sizeable population of Pacific men, non-gender liminal men who have sex with gender liminal males such as fa'afafine are unlikely to report their sexual behaviour with these gender liminal males as same-sex sexual behaviour and are unlikely to identify as other than ‘straight’/heterosexual’, as long as they are the ‘active’ sex partner. Research that investigates Pacific concepts of sexual orientation should include an exploration of the role that active and passive sex roles play in Pacific people’s conceptualisation of sexual attraction, sexual behaviour, and sexual identity.
4.2.3 Gender identity

While gender identity and biological sex are matched for the majority of people, this is not the case for a small, but significant, minority. Transgender individuals, for example, may have a gender identity which differs from their biological sex. While, like anyone else, transgender people can have a heterosexual, bisexual, homosexual or asexual sexual orientation (Smith, van Gooren, Kuiper, & Cohen-Kettenis, 2005), the collection of data on sexual orientation from this group can be complex, not least because questions regarding sexual attraction, behaviour, and identity are usually predicated on the sex of the respondent (e.g., same-sex, opposite-sex). Thus, the question of whether to base responses to questions of sexual identity on gender identity or biological sex is highly salient for transgender people. In this light, it is important to reiterate that a person’s sexual orientation cannot be assumed from their gender identity.

Transgender and fa'afafine individuals. To illustrate, it was noted earlier that fa'afafine may, at times, conceptualise their sexual orientation with reference to their biological sex and at other times with reference to their gender identity (Schmidt, 2001). Exploratory focus group research, conducted by the Sexual Identity Project of the Office for National Statistics, found that most focus group participants believed that transgender people would be able to identify with common sexual identity labels (Betts, Wilmot, & Taylor, 2008). However, these focus groups did not include transgender participants, and the Sexual Identity Project is planning to conduct further cognitive testing of the extent to which transgender people will be able to identify with common sexual identity markers.

Cognitive testing of sexual orientation questions amongst transgender adolescents in the United States concluded that they typically found it easy to answer sexual attraction questions, but opposed or voiced uncertainty about how to answer a question on sexual identity (Austin, Conron, Kerith, Patel, & Freeder, 2006). Transgender youth struggled with selecting from a list of traditional sexual identity labels, with choices being made in relation to their gender identity, or biological sex, and in other cases consideration being given to the ‘not sure’ or ‘bisexual’ options, partly to avoid having to make a decision as to whether to base their sexual identity on gender identity or biological sex (Austin et al., 2006). This is because, as noted above, the sexual identity response options we use are grounded in gender identity (individuals identify their sexual identity relative to their gender identity), and therefore these response options are not adequate for people who are unsure of their gender identity, are still becoming comfortable with it, or do not identify with either of the traditional gender identity categories (male or female).

Focus group findings. Participants in focus groups conducted as part of the SODCS asserted that given the small size of the transgender population, this issue is not likely to have a significant impact on surveys of the wider population (20.11.08; 25.11.08). Nevertheless, for surveys focusing on the broader ‘queer’ population, where transgender people make up a larger proportion of respondents, it may be preferable to use questions on sexual attraction in place of sexual identity.

Intersex. Intersex individuals are born with intermediate or an atypical combination of the biological characteristics that usually distinguish male from female (genetic and/or physical). As with transgender people, intersex people do not fit neatly into dichotomous, male/female conceptualisations of gender. This means that similar sexual orientation classification issues arise for intersex people with respect to sexual orientation as for transgender people. There is no extant research on how intersex people report their sexual orientation. However, with respect to measurement of sexual orientation in the OSS, the assumed small size of the intersex population in...
New Zealand means that these measurement issues are not likely to have a significant impact on surveys of the wider New Zealand population.

A further conceptual issue that has not yet been addressed in the measurement literature is how survey respondents report sexual attraction to and sexual behaviour with transgender and intersex people. Generally speaking, sexual attraction and sexual behaviour questions have not included response categories that would enable survey respondents to report these with regard to transgender and intersex people. While it could be assumed that the proportion of people who are attracted to or engage in sexual behaviour with transgender and or intersex people is likely to be small, research in this area is lacking. The inability to report attractions to and behaviour with transgender and intersex people is also an issue of accuracy – although likely to affect a (statistically) negligible percentage of the general population.

*Implications for measurement.* Before robust measurement tools for sexual attraction, sexual behaviour, and sexual identity can be finalised, further conceptual research is needed; firstly, into how transgender (and possibly intersex) people report their sexual attraction, sexual behaviour, and sexual identity; and secondly, into how respondents who are sexually attracted to and/or engage in sexual behaviour with transgender (and intersex) people report their sexual attraction, sexual behaviour, and sexual identity.
5 Conceptual dimensions of sexual orientation

The need to increase our understanding of the multi-dimensional nature and conceptual complexity of sexual orientation has resulted in much research. Although a range of conceptual issues continue to be debated, and evidence on some conceptual issues is still emerging, findings from these research efforts have considerably strengthened the conceptual basis of sexual orientation. The three main conceptual dimensions of sexual orientation described below have been consistently identified in theoretical and applied literature.

This chapter discusses these three conceptual dimensions of sexual orientation. Firstly, the key measurement concepts of sexual orientation (i.e., sexual attraction, sexual behaviour, and sexual identity) are described. A discussion of the sexual orientation continuum follows, including a review of conceptual research on bisexuality and asexuality. Finally, the fluidity of sexual orientation is described.

5.1. Key measurement concepts of sexual orientation

5.1.1 Sexual orientation as a multi-dimensional concept

The pioneering Kinsey reports (Kinsey, Pomeroy, & Martin, 1948; Kinsey, Pomeroy, Martin, & Gebhard, 1953) were conceptually ground-breaking in that they linked sexual orientation not exclusively to sexual behaviour, but also to the sexual identity and sexual attraction components of sexual orientation (Fish, 2006). While it is difficult to conceptualise any single component of sexual orientation (Friedman et al., 2004), consensus is building that an inclusive and multi-dimensional model of sexual orientation, including sexual attraction, sexual behaviour, and sexual identity, is needed in order to capture sexual orientation in its complexities (Brogan, Frank, Elon, & O'Hanlan, 2001; Martin & Knox, 2000; Saewyc et al., 2004; Savin-Williams, 2006). In line with this multi-dimensional approach, a number of large-scale probability surveys have assessed sexual attraction as well as sexual behaviour and/or sexual identity (e.g., Laumann et al., 1994; Sell, Wells, & Wypij, 1995; Smith, Rissel, Richters, Grulich, & de Visser, 2003; Wellings, Wadsworth, & Johnson, 1994).

Implications for measurement. One reason for this multi-concept, multi-measure approach is that respondents do not always respond consistently to questions on different concepts of sexual orientation; that is, a person might report same-sex-attraction and same-sex behaviour, but nevertheless identify as ‘heterosexual’ (Messiah & Mouret-Fourme, 1996; Laumann et al., 1994; Saewyc et al., 2004). Consequently, the prevalence of sexual attraction, sexual behaviour, and sexual identity vary as a function of inconsistencies in responding across sexual orientation domains (Savin-Williams, 2006). Generally speaking, more people report same-sex or both-sex sexual attraction than report same-sex or both-sex sexual behaviour, and those who report minority sexual identities generally make up the smallest group (Savin-Williams, 2006). For this reason, prevalence figures produced by measures recording separate concepts of sexual orientation are not directly comparable (Saewyc et al., 2004). The conceptual implication is that the three sexual orientation concepts capture distinctly different population groups and need to be assessed and reported separately in order to provide accurate data. Some studies have combined the members of different sexual minority groups defined by sexual attraction, sexual behaviour, and sexual identity in order to avoid the complexities of trying to differentiate between these categorizations (Fish, 2006). This practice is not appropriate for the measurement of sexual orientation either as an official statistic, or in non-official research, as it leads to inaccuracies. For
example, the term ‘non-heterosexual’ has often been used to describe aggregate groupings of sexual minority persons with the intention of inclusively referring to a wide range of sexual minority populations. This term is problematic for several reasons: (1) its meaning is not widely understood (Fish, 2006); (2) it masks the diversity of same-sex expression: it implicitly sets heterosexuality as a normative standard; (3) it describes people by what they are not; and, (4) it combines distinct population groups into one aggregate group. For these reasons, the term ‘non-heterosexual’ should not be used in the OSS; instead data for each distinct population group defined by the internationally agreed three sexual orientation concepts (sexual attraction, sexual behaviour, and sexual identity) should be collected and reported accordingly.

As previously noted, the need to study the inter-relationships between the three sexual orientation concepts has been asserted (eg, Lesbian, Gay and Bisexual Youth Sexual Orientation Measurement Work Group, 2003). Various empirical studies have measured all three sexual orientation concepts and reported the overlap between each of the populations (eg, Laumann et al., 1994; Sell et al., 1995). However, currently there is little research that explores the conceptual links between the three concepts.

5.1.2 Sexual attraction

**Definition.** Sexual attraction may be defined as, “attraction towards one sex or the desire to have sexual relationships or to be in a primary loving, sexual relationship with one or both sexes” (Savin-Williams, 2006, p. 41). The field of developmental psychology has described the emergence and relatively high degree of fluidity of sexual attraction amongst young people. For same-sex attracted adolescent boys and girls, sexual attraction that is consistent with adult sexual attraction appears to emerge first (prior to or during the early stages of puberty), whereas attractions that are inconsistent with adult sexual attraction appear to surface at a later point of pubertal development (Savin-Williams & Cohen, 2007). Various studies have found that the majority of same-sex attracted boys and girls reported having experienced opposite-sex attraction, sometimes prior to their attraction for members of the same sex (Savin-Williams & Cohen, 2007). The time at which adolescents experience a minority sexual attraction appears to be unrelated to the point at which they adopt a minority sexual identity, disclose their minority sexual orientation to others, or enter into a same-sex relationship (Savin-Williams & Cohen, 2007). For instance, a recently published longitudinal study provided confirmation that changes in sexual identity were not associated with significant changes in the level of same-sex or opposite-sex sexual attraction amongst a group of young women (Diamond, 2008). However, the same study found that lesbian-identified young women consistently showed higher levels of same-sex attraction over a ten year period than did ‘bisexual’-identified and ‘unlabeled’ women (Diamond, 2008). Across different cultures, adolescent women report being same-sex attracted at higher rates than adolescent men (Savin-Williams & Cohen, 2007).

**Measurement.** Sexual attraction is generally conceptualised as a continuous variable, with many sexual attraction questions taking the form of five-point semantic differential scales containing response categories such as ‘exclusively same-sex attracted’, ‘mostly same-sex attracted’, ‘equally same-sex and opposite-sex attracted’, ‘mostly opposite-sex attracted’, and ‘exclusively opposite-sex attracted’. It should be noted that the ‘mostly same-sex attracted’ and ‘mostly opposite-sex attracted’ categories mark quite distinct sub-populations, as has become particularly apparent in health-research (Thompson & Morgan, 2008).
Asexual/pre-sexual respondents. Whenever sexual attraction is measured in surveys, a small number of survey participants are likely to report that they are not attracted to anyone. For instance, about 1 percent of men and women participating in one population-based large-scale, survey (National Survey of Sexual Attitudes and Lifestyles; United Kingdom) said that they had never felt sexually attracted to anyone at all; that is, they were asexual (Bogaert, 2004). Storm (1980, as cited in Bogaert, 2004) has proposed a potentially useful sexual attraction-based conceptual model that incorporates an ‘asexual’ category. The model conceptualizes as ‘heterosexuals’ those individuals who are highly opposite-sex attracted; as ‘homosexual’ those who are highly same-sex attracted; as ‘bisexual’ those who are highly both opposite- and same-sex attracted; and as ‘asexual’ those who are neither opposite nor same-sex attracted.

Women, and people who are older, highly religious, from lower socio-economic backgrounds, or less educated are more likely to report experiencing no sexual attraction (Bogaert, 2004). Asexuality may also be more prevalent amongst adolescents and young people, given that they may have had little opportunity to develop sexual attractions; however, calling these individuals ‘pre-sexual’ might be a more suitable classification considering they are likely to develop sexual attractions over time (Bogaert, 2004). Higher levels of asexuality have also been observed amongst those with adverse health conditions and disabilities; although it has been suggested that public perceptions of people with certain illnesses, diseases, and disabilities as asexual (as well as impairments in sexual functioning associated with some conditions) might underlie the higher observed levels of asexuality amongst this population through a process of internalization (Bogaert, 2004). Despite not having experienced sexual attraction, a significant number of asexual people report a history of long-term intimate relationships (Bogaert, 2004), probably because a lot of asexual individuals still experience romantic (but not sexual) attraction towards men and/or women.

Implications for measurement. Besides the five standard response categories reflecting the continuous nature of sexual attraction (ie, exclusively opposite-sex attracted, mostly opposite sex attracted, equally attracted to men and women, mostly same-sex attracted, exclusively same-sex attracted), sexual attraction questions should include an appropriate response category to acknowledge the small but significant proportion of individuals who experience no sexual attraction either to men or women. As sexual attraction may change over time (Dickson, Paul, & Herbison, 2003), questions also need to include a reporting timeframe (eg, ‘over the lifetime’; ‘over the last five years’; ‘over the last year’).

5.1.3 Sexual behaviour
Definition. Sexual behaviour may be defined as, “any mutually voluntary activity with another person that involves genital contact and sexual excitement or arousal, that is feeling really turned on, even if intercourse or orgasm did not occur” (Laumann et al., 1994, p. 67). As would be expected, sexual behaviour is the predominant sexual orientation concept in the health and biological sciences (Savin-Williams, 2006) especially in studies relating to the HIV and AIDS epidemics.

Measurement. A key conceptual question is how to chunk continuous sexual behaviour into stable and recognizable categories and how to name these categories (Coxon, 1993). Sexual behaviour occurs in a non-random fashion across both time and space and is primarily chunked into sexual encounters or sessions. By definition, sessions consist of one or more sexual acts, ordered either sequentially or simultaneously. While there are
some acts which are physically impossible, painful or difficult to perform simultaneously, there is no logical or a priori reason why acts should occur in particular sequences or groups. Yet there are clearly distinct patterns of acts and these are, we suggest, culturally informed.

(Davies, 1994, p. 63).

Further definitional aspects of what constitutes a sexual encounter are the timing of an encounter, and the number, sex, and gender of sexual partners involved in an encounter. Davies has identified a wide range of sexual behaviours including, “masturbation, fellatio, anal intercourse, anilingus, anodigital insertion, anobrachial intercourse, lindinism (uroagnia), coprophilia, enemas, frottage, inter-femoral intercourse, corporal punishment, massage and deep kissing’ (1994, p. 62). While within certain cultural boundaries some acts are unquestionably sexual, others (eg, massage) may or may not be considered sexual in nature, depending on the context within which they occur, and the intent with which they are executed (Davies, 1994). However, it might not be acceptable to the general public to explicitly mention specific sexual behaviours in official surveys, even if there was a common understanding of the terms amongst a broad range of both heterosexual and sexual minority populations.

Gender and sexual acts. Sexual acts can be physically or psychologically gendered. Whereas some sexual behaviours (eg, penile penetration of the vagina) can only occur between a man and a woman, others (eg, penile penetration of the anus) can occur between a man and a woman as well as between a man and a man (Davies, 1994). In the latter case, the gender significance of the active/passive axis of sexual behaviour may remain when same-sex sexual behaviour is performed (Davies, 1994), with the effect that some ethnically defined populations (eg, Latino men who have sex with men) conceptualise sexual identity along the gendered sexual roles that they perform in same-sex sexual behaviour; that is, labelling of the ‘passive’ sex partner, but not the ‘active’ sex partner as ‘gay’ (Fish, 2006; Zea et al., 2003). However, this connotation is of a symbolic nature, given that the sexual actors can enhance, subvert, or transcend it (Davies, 1994).

Age and sexual activity. Another dimension of sexual behaviour that is commonly assessed, especially within the context of sexual and reproductive health issues, is the onset of sexual activity, or age of first sexual intercourse. For example, in the Analyse des Comportements Sexuels en France/Analysis of Sexual Behaviour in France (ACSF) Survey, individuals who exclusively engaged in same-sex behaviours over their lifetime initiated sexual activity at a significantly later age than did both those with opposite- and those with both-sex sexual behaviours over the lifetime (Messiah & Mouret-Fourme, 1996). In another study, same-sex attracted male adolescents differed from same-sex attracted female adolescents in that they reported initiation to sexual behaviour at an earlier age and in that they were more likely to experience same-sex sexual behaviour before opposite-sex sexual behaviour (Savin-Williams & Cohen, 2007).

Same-sex behaviour over the life span. Changes in the patterning of same-sex sexual behaviour over time have been described. For instance, the ACSF Survey found that over the lifetime, 4 percent of male participants reported having ever had sexual contact with partners of both sexes. Over the last five years, any same-sex sexual contact was recorded for 1.38 percent of men. Over the past year, 1.09 percent of men had engaged in same-sex sexual behaviour (Messiah & Mouret-
Fourme, 1996). The greater the reporting period over which same-sex sexual behaviour is assessed, the greater the population prevalence of same-sex behaved survey participants. Diamond’s 2008 study, cited earlier, investigated changes among same-sex oriented and “unlabeled” women, finding significant variability in sexual behaviour over time.

**Classification of sexual behaviour.** Often, researchers regard one incident of same-sex sexual behaviour as sufficient to justify allocating an individual to a ‘gay’, ‘lesbian’ or ‘bisexual’ category (Savin-Williams, 2006). However, this approach may be problematic for a number of reasons, and may disregard: (1) the specific social context within which the same-sex behaviour occurred; (2) differing understandings of what constitutes sexual behaviour; (3) whether the sexual behaviour was desired or enjoyable; and (4) the frequency of the sexual behaviour (Savin-Williams, 2006). In some cases, exclusively opposite-sex attracted, heterosexual-identified respondents might have same-sex sexual contact that could be described as ‘situational’ (eg, when opposite-sex partners are not available as for instance in all-girls boarding schools or male prisons; Kontula, 2004).

Classification of same-sex oriented populations according to sexual behaviour raises a number of challenges. Labels for sexual behaviours are often not standardised, despite early attempts to develop such standardisations (see Martin & Knox, 2000). For example, college students did not share a common understanding of the phrase ‘having had sex’ in one study (Sanders & Reinish, 1999, as cited in Brogan et al., 2001). Kontula (2004) has also cautioned against using terms such as ‘sex’ and ‘sexual conduct’ to describe sexual behaviour, arguing that survey participants are likely to have widely differing ideas about what behaviours qualify for a positive response. Hence, Kontula (2004) regards a broad definition of these terms as fundamentally important. A cognitive processing study supported these concerns, finding that sexual minority youth conceptualise ‘sex’ and ‘sexual intercourse’ very differently (Austin et al., 2006). The adolescents in this latter study preferred the use of ‘sexual contact’ as a more inclusive term which captured a range of sexual behaviours with same-sex as well as opposite-sex sex partners (Austin et al., 2006).

**People of colour.** The problems and inadequacies of a uni-dimensional approach to the measurement of sexual orientation in general have been described earlier (see p. 20). However, for studies on people of colour, behavioural definitions of sexual orientation, or definitions that do not require the participants to adopt a sexual minority label might be well-suited (Fish, 2006; Martin & Knox, 2000). In addition, a psychological study exploring same-sex sexual behaviour of male Latino migrants in the United States has theorised that repeated disempowerment and marginalisation have economic, social, and cultural effects which in turn profoundly impact on the sexual behaviour of this population (Zea et al., 2003). Once these negative experiences have been internalised, an individual (eg, a Latino man who has sex with men) might perceive his destiny, including his sexual behaviour, as being out of the realm of his control (Zea et al., 2003). As would be expected, in comparison with same-sex-, opposite-sex, and both-sex attracted individuals, asexual people report fewer sexual partners, later initiation to sexual contact if any, and lower frequencies of sexual activity (Bogaert, 2004).

**5.1.4 Sexual identity**

**Definition.** Sexual identity is the component of sexual orientation most frequently assessed in psychological and social science research to define sexual minority populations (Chung & Katayama, 1996; Fish, 2006; Savin-Williams, 2006), though a closer exploration of the meaning of the identity labels used and the extent to which
they reflect sexual attraction and behaviour is usually missing (Savin-Williams, 2006). Sexual identity may be defined as: “Personally selected, socially and historically bound labels attached to the perceptions and meanings individuals have about their sexuality” (Savin-Williams, 2006, p. 41).

**Self-identification.** Self-identification (sometimes alternatively termed ‘self-labelling’ or ‘coming out to self’) can be an important aspect of sexual orientation, whether it occurs during adolescence or in adulthood (Savin-Williams & Cohen, 2007). Yet, those self-labelling with sexual minority identities are fewer in number than both those who report being attracted to members of the same sex and those who engage in same-sex sexual behaviour, and are also not necessarily representative of these groups (Savin-Williams, 2006). For example, in an Australian sample about 4 percent of men who had engaged in sexual behaviour with other men reported a ‘heterosexual’ sexual identity (Van de Ven, Rodden, Crawford, & Kippax, 1997). Among same-sex behaved men from ethnic minorities, men who are married and bisexuals tend to be less willing to adopt a minority sexual identity label (Martin & Knox, 2000; Rothblum, 2007).

**Adolescents.** Adolescents of various sexual orientations, including uncertain or questioning, ‘queer’-identified adolescents, and transgender youth preferred to answer questions on sexual attraction rather than questions on sexual identity or behaviour. Transgender youth struggled with selecting a suitable label from a list of traditional sexual identity labels. As noted above, these youth reported making choices in relation to their gender identity or their biological sex, or considered the ‘not sure’ or ‘bisexual’ option, partly to avoid the need to make a decision about whether to identify in relation to their gender identity or biological sex (Austin et al., 2006).

In contrast with adolescents in the past, who often self-identified after adolescence or as young adults, it is not unusual amongst contemporary same-sex attracted adolescents to self-label in their early teenage years - while still attending school (Savin-Williams & Cohen, 2007). Male same-sex oriented adolescents appear to self-identify their minority sexual identities at an earlier age than same-sex attracted female adolescents (Savin-Williams & Cohen, 2007).

Amongst adolescent populations, where language and behaviour undergo rapid change, expression of sexual identities may be significantly more diversified than in previous generations (Savin-Williams, 2001). More than any other age group of same-sex oriented people, same-sex oriented adolescents constitute a highly diverse population group and adopt a wide range of sexual identities or create new labels respectively (Savin-Williams, 2001; Thompson & Morgan, 2008). In response, some have recommended that researchers investigating sexual minority youth avoid sexual identity labels altogether and instead rely on young people’s descriptions of their attractions and behaviours (Savin-Williams, 2001).

**Sexual identity terminology.** There is widespread agreement that the meaning of sexual identity terms are shaped by historic, social, cultural, philosophical, political, and legal contexts (Lesbian, Gay, and Bisexual Youth Sexual Orientation Measurement Work Group, 2003; Purdam, Wilson, Afkhami, & Olsen, 2008). The traditional sexual identity terms ‘homosexual’, ‘bisexual’, and ‘heterosexual’ have emerged over the last 100 or so years (Fish, 2006). The term ‘homosexual’ has traditionally been used to denote same-sex oriented men and women, but its use is problematic for several reasons:
Linguistically, the roots of the word ‘homosexual’ are problematic as it is a Latin and Greek hybrid, with ‘homo’ deriving from the Greek ‘homos’ (same), and not from the Latin ‘homo’ (man) as is commonly believed (Gonsiorek et al., 1995).

Since its earliest use, ‘homosexual’ has echoed with implications of sin, abnormality, and deviance. It continues to carry these negative connotations for many today, including sexual minority youth (Austin et al., 2006), leading some to criticise it as archaic (Fish, 2006; Gonsiorek et al., 1995).

Although ‘homosexual’ does not inherently reference gender, but rather same-sex sexual orientation (see above), it has been used at times to solely denote same-sex oriented men, excluding same-sex oriented women (Laumann et al., 1994).

Due to the term’s establishment in a time when sexuality was heavily medicalised and its regular use in research that pathologises sexual minorities, ‘homosexuality’ also has negative medical and clinical connotations (Fish, 2006; Gonsiorek et al., 1995; Laumann et al., 1994).

Use of ‘homosexual’. On the positive side, use of the term ‘homosexual’ to describe sexual minority populations has the advantage of having few implications with respect to the sexual identities that people hold and could thus be seen as more descriptive than other terms (Gonsiorek et al., 1995).

Focus group research conducted by UMR Research on behalf of Statistics New Zealand (2003a) sought the perspectives of individuals from a range of population groups in New Zealand about the use of ‘homosexual’. Focus group participants included six men identifying as ‘gay’ and four women identifying as ‘lesbian’, but did not include participants from several important sexual minority groups such as takatāpui, fa’afafine, and bisexual participants, or individuals who were not ‘out’. The small number and limited range of sexual minority focus group participants limit the conclusions that can be drawn from this study. Nevertheless, there was evidence that the term ‘homosexual’ was readily understood by a range of focus group participants, although some participants perceived it as being a label for same-sex oriented men only and not for same-sex oriented women (SNZ, 2003a). In the same focus group research, the majority of gay men opposed use of the term due to its negative, clinical connotations (SNZ, 2003a). Taken together, these criticisms make use of ‘homosexual’ problematic. On the other hand, the traditional terms ‘heterosexual’ and ‘bisexual’ retain wide currency, including in New Zealand (Gonsiorek et al., 1995; SNZ, 2003a).

Contemporary terms. Social and political movements grounded in the 20th century, including the rise of feminism and of gay and lesbian rights activism, have led to the emergence of contemporary sexual identity terms (Gonsiorek et al., 1995; Fish, 2006). These include ‘gay’, ‘lesbian’, ‘same-sex’, and ‘straight’. In an Australian study the term ‘gay’ was more commonly adopted by young same-sex oriented men than by older same-sex oriented men, while the reverse was observed for the ‘homosexual’ label (Van de Ven, Rodden, Crawford, & Kippax, 1997). The terms ‘gay’ and ‘lesbian’ can be seen as descriptive of socially and politically specific contemporary sexual identities and hence have the disadvantage of emphasising self-identification with a politically loaded social identity with which many similarly sexually oriented people do not identify or even associate (Gonsiorek et al., 1995; Laumann et al., 1994).

The aforementioned Statistics New Zealand focus group study also investigated preferences for sexual orientation terms amongst groups of research participants
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(SNZ, 2003a), concluding that the majority of the six ‘gay’-identified male participants voiced a preference for ‘gay’ as an identity marker, and the majority of the four ‘lesbian’-identified female participants preferred the term ‘lesbian’ (SNZ, 2003a). However, in the same study, participants from other population groups thought that ‘gay’ was too colloquial and referred to the derogatory use of the word amongst adolescents. Both gay and lesbian focus group participants, as well as participants from other population groups, viewed the term ‘same-sex’ as a more neutral identity marker than either ‘gay’ or ‘lesbian’ that could well be used to positively describe same-sex attracted men and women, including ‘gay’-identified men and ‘lesbian’-identified women. While ‘straight’ as a more recent term used to denote an opposite-sex sexual orientation has often been used in studies world-wide, participants of the New Zealand focus group discounted it for being overly conversational and informal (SNZ, 2003a).

Political perspectives. “Each of the sexual orientation labels carries a political history and, in making such identity choices, participants may be acknowledging a particular political positioning” (Purdam et al., 2008, p. 129). As noted above, terms such as ‘queer’ and ‘dyke’ are philosophically and politically coloured. The Te Rēo Māori term ‘takatāpui’ echoes with connotations of political struggle and marginalisation, as members of both indigenous New Zealand Māori and sexual minorities (Murray, 2003, 2004). With the increasing emergence of sexual orientation as a relevant dimension in public policy and legislation, sexual identities have also developed legal associations (Purdam et al., 2008).

Self-reporting of sexual identity. Self-reported sexual identity has been the measure most frequently used to define gay men and lesbian women (Fish, 2006). It is clear that (sexual) identities should be self-reported, but never assigned or ascribed, so that the meanings of the identity can be determined by the person who reports the identity, and the power of definition rests with the respondent of a survey, not the survey administrator (Plumb, 2001; Fish, 2006). This definitional preference might mirror a politically motivated movement emerging from lesbian and gay rights movements, in which sexual minorities increasingly claim contemporary minority sexual orientation labels such as ‘gay’, ‘lesbian’, and ‘bisexual’ (Fish, 2006). Some find sexual identity insufficient for most research purposes, but acknowledge that sexual identity information provides potentially important insights (eg, Plumb, 2001).

Common understandings and biases. One of the problems associated with defining and categorising sexual minorities in reference to self-reported sexual identities is that understandings of what allows for membership in a specific group (defined by sexual identity) differ widely between respondents. For example, “the term lesbian has not been universally accepted among lesbians themselves: older lesbians sometimes have preferred to use ‘gay woman’ to describe themselves while some black women have felt that the word ‘lesbian’ marginalized their experiences because of its origins in the Greek island of Lesbos” (Fish, 2006, p. 96). This highlights the dilemma that, because of identity politics, the use of certain sexual orientation terminology can potentially lead to the exclusion of marginalised minorities of same-sex oriented populations (eg, disabled, low socio-economic status, or working class same-sex oriented populations, and same-sex oriented people of colour) from survey research, if self-identification along given response categories is used as an assessment tool (Fish, 2006). Another common criticism is that assessing identity to determine sexual orientation is likely to result in an over-sampling of same-sex oriented people who are most visible, confident, and gay-/lesbian-/bisexual-community attached (Fish, 2006). Another bias is that same-sex attracted adolescents who self-identify with a minority sexual identity might experience same-sex attraction at a greater intensity or frequency than those same-sex attracted youth
who self-identify as heterosexual (Savin-Williams, 2005, as cited in Savin-Williams & Cohen, 2007).

5.1.5 Other concepts
Although sexual attraction, sexual behaviour, and sexual identity are the sexual orientation concepts most extensively used, several additional concepts have also been used. However, often these are most relevant for particular research contexts and are not as applicable for official measurement purposes as the three main measurement concepts discussed here. Other sexual orientation concepts sometimes used in the research literature include sexual/erotic desire/sexual fantasy; sexual/romantic relationship; partner cohabitation, attachment to same-sex oriented or identified communities, and degree of ‘outness’, and these are briefly described below.

**Sexual/erotic desire/fantasy.** A sexual/erotic fantasy/desire refers to deliberate mental imagery or patterned thought that the actor considers erotic. It can have the goal of enhancing or creating sexual motivations or feelings (eg, sexual arousal) and can last for various lengths of time.

**Sexual/romantic relationship.** A sexual/romantic interpersonal relationship between two or more persons can be described in terms of romantic, sexual, or non-romantic close relationships. Terms such as ‘primary relationships’ are also used (Henrickson Neville, Jordan, & Donaghey, 2007).

**Partner co-habitation.** Various studies include a measure of survey respondents’ partnership status (eg, Henrickson et al., 2007; Messiah & Mouret-Fourme, 1996). Following legal changes permitting same-sex couples to enter into officially registered partnerships (eg, civil unions in New Zealand) or to marry before common-law (eg, Canada), categories mirroring these changes have been included in population censuses in some countries, enabling same-sex couples to indicate their cohabitation and/or relationship status. Consequently, sexual orientation data on cohabitation and relationship status have become available for analysis, constituting an important (measurement) component of sexual orientation. These data are limited, however, in that they only produce data on the partnered sub-population of sexual minority populations, disqualifying this measure as a proxy for sexual orientation.

**Attachment to and involvement with same-sex oriented communities.** Some studies have assessed sexual minority participants’ membership in same-sex (eg, lesbian) social or political organizations (see Brogan et al., 2001); or their lesbian/gay-community attachment (eg, Henrickson et al., 2007; Van de Ven et al., 1997). This variable has commonly been used in health research, for instance, in the context of developing social marketing campaigns to encourage up-take of HIV prevention behaviours. In addition, same-sex community attachment could be seen as a protective factor, provided that associations with these communities increase the availability of social resources and support.

**Degree of self-identification or identification to others.** In theoretical models of sexual orientation/identity development, self-identification has been conceptualised as an important developmental step and some research has assessed survey participants’ degree of ‘outness’ (Brogan et al., 2001). That such conceptualisation is problematic has been discussed above, and the variable is used increasingly less often. However, one example where assessment of degree of ‘outness’ was used is the
5.2 Sexual orientation as a continuum

It has become increasingly apparent that sexual orientation is not a dichotomous (ie, heterosexual versus homosexual) variable. This section discusses the failures of dichotomous classifications, then goes on to explore the continuum of sexual orientation through reference to two additional populations - bisexual and asexual individuals.

5.2.1 Limitations of dichotomous classifications

Categorical versus continuous variable. Early research treated sexual orientation as a dichotomous variable, differentiating only between the 'heterosexual' and 'homosexual' categories. Frequently, only one of the three key concepts of sexual orientation (ie, sexual attraction, sexual behaviour, and sexual identity) was used to classify survey participants into either the 'heterosexual' or the 'homosexual' category. However, these dichotomous classification schemes tend to run into multiple conceptual problems. For instance, they exclude from the 'homosexual' group various individuals who could arguably be included. That is:

If homosexuality is assessed by same-sex attraction, there is no consensus about what proportion of an individual’s attraction must be directed towards same-sex others, or how strong the attractions must be, in order to count as homosexual. If homosexual is defined by same-sex behaviour, gay virgins are omitted, heterosexuals engaging in same-sex behaviour for reasons other than preferred sexual arousal are miscounted, and those with same-sex attraction who only have opposite-sex relations are excluded. If, however, homosexual is defined by an identity label, those who experience same-sex arousal or engage in same-sex behaviour but who do not identify as gay or lesbian are omitted.

(Savin-Williams, 2006, p. 40).

Today there is widespread agreement that dichotomous classifications are overly simplistic and unable to accurately categorise sexual minority men and women. Current conceptual models understand sexual orientation as continuous, and many empirical studies measure ‘gradients of sexual orientation’, including the Christchurch Health and Development Study and the Dunedin Multidisciplinary Health and Development Study (Fergusson, Horwood, Ridder, & Beautrais, 2005; Skegg, Nada-Raja, Dickson, Paul, & Williams, 2003). Research which continues to apply dichotomous definitions (homosexual versus heterosexual) to the sexual orientation construct is now considered highly problematic, because of being simplistic and inaccurate.

Historical context. The influential Kinsey Reports were amongst the first to treat sexual orientation as a continuum, revolutionising research in the area (Kinsey, Pomeroy, & Martin, 1948; Kinsey, Pomeroy, Martin, & Gebhard, 1953). To address their theoretical concerns with the then common dichotomous definitions of sexual orientation, Kinsey and colleagues developed a bipolar seven-point scale (the “Kinsey Scale”), which graded sexual orientation from ‘entirely heterosexual’ (zero) to ‘entirely homosexual’ (six; Gonsiorek et al., 1995). However, as it became apparent that sexual orientation is a multi-dimensional concept and cannot be assessed through a single measurement dimension, Klein and colleagues developed a revised
Continuous dimensions. In addition, some researchers conceptualised ‘homosexuality’ and ‘heterosexuality’ as two separate, perpendicular continuous dimensions of sexual orientation (eg, Shively & De Cecco, 1985, as cited in Gonsiorek et al., 1995). These various conceptualisations of sexual orientation enabled a higher degree of differentiation of the bisexual position on the sexual orientation continuum (Gonsiorek et al., 1995). For example, with the introduction of the later set of conceptualisations, a bisexual person with high homosexual and low heterosexual orientation could be differentiated from a person with high homosexual and high heterosexual orientation. This conceptual research into the continuum of sexual attraction has led to the design of questions on sexual attraction with response categories ranging from ‘exclusively opposite-sex attracted’ to ‘exclusively same-sex attracted’, generally on a five-point scale, with an additional option for those who do not feel sexually attracted to men or women (ie, an asexual category).

5.2.2 The intermediary positions – bisexuality

Empirical evidence from large-scale population-based surveys of the general population shows that significant percentages of men and women report that they are not exclusively same-sex or opposite-sex attracted or behaved (eg, Sell et al., 1995). Similarly, a significant percentage of people identify as bisexual in New Zealand (see Sexual Orientation Data in New Zealand Probability Surveys - Technical Report; Gray, 2009) and in other countries (Sell et al., 1995). A range of conceptual and associated measurement issues have been identified for these intermediary positions.

While the populations in these intermediary positions (often classified as ‘bisexual’ – regardless of whether sexual attraction, sexual behaviour or sexual identity has been measured) have traditionally been under-researched (Morrow, 1989), today sexual diversity amongst bisexuals is a strong field of study (eg, Diamond, 2008; McLean, 2007). Research findings indicate that there is great diversity in the sexual attractions, sexual behaviours, and sexual identities of men and women in the intermediary positions (McLean, 2007).

Implications for measurement. Researchers have developed various classification systems for both-sex attracted, both-sex behaved, and bisexual-identified persons in order to more accurately capture the diversity of sexual attractions, sexual behaviours, and sexual identities covered by the term ‘bisexual’. For instance, in the early 1990s, Weinrich, Williams, and Pryor (1994, as cited in Worthington, Navarro, Savoy, & Hampton, 2008) categorised bisexuality into such types as, ‘pure’, ‘mid’, ‘heterosexual-leaning’, and ‘homosexual-leaning’. In this classification scheme, the strength of same-sex to opposite-sex orientation is the deciding definitional dimension for the differentiation of types of bisexuality (Worthington, et al., 2008). A second example is a recent, more complex classification scheme that is based on a comprehensive review of research on bisexual populations (McLean, 2007). This scheme differentiates between seven types of bisexual orientation:

- **Historic bisexuality** refers to individuals who are predominantly sexually-oriented towards one gender, but have in the past been sexually attracted or behaved.
- **Sequential bisexuality** refers to individuals who sequentially engage in relationships with either one women or one man at a time.

- **Concurrent bisexuality** refers to individuals who have sexual relationships with both men and women during the same time period.

- **Temporary bisexuality** refers to individuals who live predominantly sexually oriented to one gender, yet have brief encounters with members of the opposite gender to their sexual partner or partners.

- **Experimental bisexuality** refers to individuals who have one sexual encounter with a member of the gender opposite to the gender of the person’s other partner or partners.

- **Situational bisexuality** refers to individuals who are one-gender oriented, but due to situational variables (eg, imprisonment) engage in sex with members of the gender that they are normally not oriented towards.

**Multiple factors.** This largely behavioural typology shows that comprehensive definitional classification of the intermediary, bisexual position requires consideration of multiple factors. To name a few, sexual behaviours and attractions; the point in time when sexual behaviour and attraction has occurred; the frequency with which sexual behaviour has occurred with people of both sexes; the concurrency of sexual behaviour with partners of both sexes; and the situational context within which sexual behaviour occurs. Although it distinguishes between many situations, it could be argued that this classification scheme is still incomplete. For instance, it does not take into consideration a person’s sexual identity or cultural affiliations, which are both important dimensions of bisexual orientation. This mirrors the significant complexity of factors involved in explaining both-sex sexual orientations and explains why experts (eg, Diamond, 2008) concur that simple, fixed definitions of bisexuality remain problematic.

5.2.3 Asexuality

There are some people who do not experience any sexual attraction, with this absence of sexual attraction to men or women being termed ‘asexuality’. About 1 percent of men and women who participated in the National Survey of Sexual Attitudes and Lifestyles, a population-based, large-scale survey in the United Kingdom, said that they had never felt sexually attracted to anyone at all (Bogaert, 2004). Considering that sexual attraction can be seen as the sexual orientation component that precedes and motivates both sexual behaviour and the adoption of a sexual identity, asexuality further expands the sexual orientation construct.

**Conceptualisation of asexuality.** The presence of asexuality has implications for the common continuum of sexual orientation where the ends are anchored by opposite-sex orientation and same-sex orientation and both-sex orientation occupies a middle state, because it is clear that this does not fully capture the construct of sexual orientation. Storm (1980 as cited in Bogaert, 2004) has proposed an alternative sexual attraction-based conceptual model that incorporates an ‘asexual’ category, and takes into account the degree to which individuals experience sexual attraction. The model conceptualizes as heterosexual those individuals who are highly opposite-sex attracted; as homosexual those who are highly same-sex attracted; as bisexuals those who are highly both opposite- and same-sex attracted; and as asexual those who are neither opposite nor same-sex attracted (Storm, 1980, as cited in Bogaert,
2004). Such a conceptualisation of sexual orientation takes the strength of an individual's sexual attraction into consideration.

*Implications for measurement.* The Storm (1980) model might constitute a useful model for the OSS in that it may be preferable to conceptualise sexual orientation by observing a primary distinction between those who experience any type of sexual attraction to other people and those who experience no sexual attraction. Within the former (‘sexual’) group, the continuum of sexual orientation as described above (same-sex/both-sex/opposite sex attracted/behaved or heterosexual/sexual minority identity) would be observable, whereas within the latter, asexual group such a continuum might not be observable.

However, the current state of knowledge about asexuality is insufficient to make recommendations about how asexuality should be conceptualised in the OSS. Hence, as asexuality is an emerging area of scientific enquiry, further research is required. But it can be recommended with certainty that sexual attraction questions require the availability of an ‘asexual’ response option (ie, ‘not attracted to members of either sex’).

### 5.3 The fluidity of sexual orientation

While a small minority of researchers (eg, Wilson & Rahman, 2005) continue to promote the idea that sexual orientation generally remains stable over time, there is now a consensus view that fluidity of sexual orientation is common, and this view is supported by a growing body of research evidence. As Paul famously argued, in the past “researchers have imparted an artificial consistency to an inchoate sexual universe” (1985, as cited in Diamond, 2008, p. 21). The prevailing contemporary theoretical position is that sexual orientation can be fluid over time and social context, and some researchers assert that sexual orientation stability is less common than change in sexual orientation (Diamond, 2008). Several theoretical models for sexual orientation fluidity have been proposed (eg, Baumeister, 2000, as cited in Diamond, 2008; Diamond, 2003, as cited in Diamond, 2008). That sexual orientation is fluid is evidenced by the existence of various groups of people who cannot easily and justifiably be classified into stable sexual orientation categories. These include:

- individuals who explore or are uncertain about their sexual orientation
- individuals who do not specify or label their sexual orientation
- individuals who hold political sexual identities
- individuals who create or adopt new or emerging contemporary sexual identities
- individuals for whom their sexual orientation changes over time or social context.

#### 5.3.1 Uncertainty and exploration of sexual orientation

*Research findings.* Based on qualitative analysis of responses to a self-perceived sexual orientation question, Snape, Thompson, and Chetwynd (1995, as cited in McManus, 2003) divided survey participants into three groups: (1) those with an ‘affirmed’ sexuality who recognised and fully accepted their sexual orientation; (2) those with an ‘emergent’ sexuality who had not yet acknowledged or affirmed their same-sex sexual orientation; and (3) those with an ‘open’ sexuality, whose sexual orientation was unfixed. This study demonstrated that individuals might perceive their sexual orientation differently based on the degree of uncertainty or openness that they feel.
Sexual identity development. Worthington and colleagues’ (2008) postulate that four factors act across all sexual identities: exploration, uncertainty, commitment, and synthesis/integration. These are operationalised in their ‘Measure of Sexual Identity Exploration and Commitment’ (MoSIEC) as follows:

- Exploration: Sample item: ‘I am actively trying new ways to express myself sexually’
- Uncertainty: Sample item: ‘I sometimes feel uncertain about my sexual orientation’
- Commitment: Sample item: ‘I have a clear sense of the types of sexual activities I prefer’
- Synthesis/integration: Sample item: ‘My understanding of my sexual needs coincides with my overall sense of sexual self’

These four factors recognise the diversity of sexual identity expression and labels among people of all sexual identities (Worthington, et al., 2008); including for example, adolescent populations immersed in the process of sexual orientation formation (Savin-Williams, 2001; Thompson & Morgan, 2008).

Implications for measurement. There are generally some survey participants who report that they don’t know their sexual orientation or are uncertain or undecided about it. These respondents are sometimes categorised as ‘questioning’, ‘uncertain’ or ‘curious’ (eg, Thompson & Morgan, 2008). Sexual minority individuals often report higher levels of sexual orientation identity uncertainty and exploration than do heterosexuals (Worthington et al., 2008), with some bisexual people appearing to remain in a state of uncertainty (McLean, 2007). Amongst adolescents, ‘unsure’ or ‘don’t know’ responses can reflect a lack of experience of sexual attraction and behaviour (Saewyc et al., 2004).

5.3.2 Unlabeled and unspecified sexual orientations
Some individuals might find common sexual orientation labels, or even alternative sexual orientation labels, unsuitable for authentically and accurately describing their experience and prefer not to label or specify their sexual orientation. In this regard, Savin-Williams and Cohen (2007, p. 40) have cautioned that:

Research designs that operationalize sexual identity in an unidimensional, fixed, limited, forced-choice manner omit most of the homoerotic youth who assume unspecified sexual identities (eg, two-spirit, boydyke, omnisexual, trans-boy), bridge multiple identities (eg, bi-lesbian, half-dyke), claim no sexual label (eg, unlabeled, ‘I love Jen’), and remain fluid in their sexuality.

5.3.3 Political perspectives and sexual identity
Conceptualisations and expressions of sexual orientation may also be politically motivated. In tandem with the development of queer theory, a ‘queer’ social identity has emerged (Warner, 2004), with the term ‘queer’ used as an umbrella expression for and by persons with minority sexual orientations, as well as for and by persons with minority gender identities (Martin, 1996, as cited in McManus, 2003). One central item on the political agenda of queer identity politics is to boycott traditional
frameworks of sexual orientation categorisation for the purpose of enforcing a more fluid conceptualisation of sexual orientation. Warner (2004, p. 326) has elaborated on this point in the context of data collection:

> Regardless of whether the researcher intends to produce prejudiced or nonprejudiced data, research that gives undue substance to identity categories always does so at the expense of a more fluid sexuality, and a more free life. […] Often a queer researcher may eschew offering a clear definition of their terms, for they do not want to risk essentializing or reducing any of the categories. Instead they refer the reader to the way the term unfolds in their research, and in the flow of a given text.

**New Zealand research findings.** In New Zealand, the term ‘queer’ has some currency amongst persons with sexual minority orientations. The 2006 Gay Auckland Periodic Sex Survey found that between 1.0 and 2.8 percent of the convenience-sample of 1228 same-sex oriented men recruited at gay community events, gay bars, or sex-onsite-venues in metropolitan Auckland self-identified as ‘queer’ (Saxton, Dickson, & Hughes, 2006). Similarly, the Lavender Islands Study found that 5.3 percent of the 2,269 self-selected internet survey participants identified as ‘queer’, with nearly twice the percentage of women reporting this identity compared to men (Henrickson et al., 2007). In a similar vein, the term ‘dyke’ has been described as carrying significant political connotations in the North American literature.

**5.3.4 Emergence of new sexual orientation categories**

As previously noted, especially amongst adolescent populations, where language and behaviour undergo rapid change, sexual orientation appears to be significantly more diverse today than in previous generations (Savin-Williams, 2001). Although empirical data are rare, adolescents are increasingly embracing ‘bisexual’ labels and adopting non-traditional sexual identities; that is, they conceptualise sexual orientation as fluid, adopt gender-based sexual identities, or refuse sexual identity labels altogether (Savin-Williams & Cohen, 2007). Young women have been found to adopt sexual identity gradients such as ‘mostly heterosexual’ or ‘mostly lesbian’ as well as non-traditional sexual identity categories such as ‘bi-curious’, ‘questioning’, ‘pansexual’, ‘queer’, and ‘polyamorous’ (Thompson & Morgan, 2008). Some of the newly emerging sexual identities include dimensions relating to gender, gender identity, and gender role.

**5.3.5 Fluidity of sexual orientation over time and social context**

Throughout the life course, but especially during adolescence, sexual orientation may alter as a result of situational, psychological, and/or maturational processes (Gonsiorek, et al., 1995). Several studies have documented that survey respondents do not report same-sex sexual orientation consistently over time (for review see Savin-Williams, 2006).

**New Zealand research findings.** Using data from the Dunedin Multidisciplinary Health and Development Study, Dickson, Paul, and Herbison (2003) established a significant degree of change of sexual attraction over time amongst a Dunedin birth cohort, particularly in women. ‘Any life-time attraction to members of the same sex’ was reported by 10 percent of men and nearly a quarter of women, yet current same-sex attraction had halved by the age of 26. Change occurred in all directions (eg, from mainly same-sex attraction to occasional same-sex attraction; or from only opposite-sex attraction to mainly same-sex attraction), but women moved away from exclusive opposite-sex attraction at higher rates than men. However, the researchers noted that these sex differences could be due to relatively more negative attitudes.
among New Zealand men towards same-sex sexual orientation, and suggested the relatively higher number of women reporting same-sex attraction could be due to differing disclosure rates between men and women (Dickson et al., 2003).

**Gender differences.** Relative to men’s sexual orientation, the sexual orientation of women is more socially and culturally responsive, and is therefore more likely to undergo changes due to external circumstances over the life course (Diamond, 2008; Savin-Williams & Cohen, 2007). For instance, Diamond’s longitudinal study (2008) provided further support for the notion that female sexuality is relatively fluid and that the distinction between lesbian and bisexual women is not rigid. In this study ($N=79$), 67 percent of young initially ‘bisexual’-identified or ‘unlabeled’ women changed their sexual identity at least once and 36 percent at least twice, over a ten-year period, indicating a higher level of fluidity amongst this group than amongst their initially ‘lesbian’-identified peers (Diamond, 2008). Similarly, in the Lavender Islands Study, more same-sex oriented men than women reported that their sexual identity “had always been this way” and more women than men reported that their sexual identity had undergone change at a point in their lives (Henrickson et al., 2007, p. 236). Women are also more likely to report that they can make conscious choices about their sexual orientation than men are (Golden, 1994, as cited in Gonsiorek et al., 1995).

**Ethnic differences.** People of colour who are same-sex oriented might adopt a high level of fluidity for the purpose of optimally managing their ethnic and sexual identities, and potentially also a range of other social identities (Croom, 2000). As noted above, the Lavender Islands Study suggests that Māori sexual minority persons are similarly engaged in a process of identity management, which is likely to require both- and same-sex oriented Māori to be fluid in their sexual orientation, as epitomised by a takatāpui Māori community professional who stated “gay in the city, straight on the marae” (Henrickson, 2006a, p. 253). Overseas-born migrants from Asia and some other non-European countries might also manage their sexual identity as one of multiple identities that they adopt as recent immigrants, with sexual identity possibly having little cultural meaning or relevance to them (Henrickson, 2006b).
6 Sexual orientation as a statistical topic and key measurement concepts

Defining sexual orientation for the purposes of operationalising the concept in survey research poses a central challenge, given that sexual orientation has in the past been used to inconsistently refer to sexual attraction, sexual behaviour, sexual identity, or any combination of these three concepts. Various approaches to defining sexual orientation have been pursued in the social sciences, resulting in a pool of definitional resources designed for different purposes.

This chapter discusses the different approaches to defining sexual orientation and proposes working definitions for the sexual orientation statistical topic and the associated measurement concepts.

6.1 Psychological and behavioural definitional components

Sell (2007) divides recent definitions of sexual orientation into those that comprise a psychological component, those that comprise a behavioural component, and those that combine the two, with more recently used definitions generally including both psychological and behavioural components. There are, however, multiple variations contained within each of these two components. The psychological component includes sexual attraction, sexual interest, and sexual desire, and the behavioural component includes sexual behaviour, sexual contact, and sexual activity (Sell, 2007). A third definitional dimension relates to individuals’ social identity as defined through group membership or identification (i.e., the sexual identity dimension of sexual orientation).

Fish (2006) has called for survey research to use definitions that include sexual minorities who have traditionally been excluded from research. These excluded groups include bisexual individuals, and gay, lesbian and bisexual population groups who are transgender; from an ethnic minority; under 20 or over 50 years of age; disabled; unemployed; of low-socio-economic status; reside in rural areas; and those who are less ‘out’ (Fish, 2006). Given the New Zealand context we emphasise the need for definitions to be inclusive of respondents from a range of ethnicities and cultural backgrounds.

6.2 Defining sexual orientation for measurement

6.2.1 Essentialist versus social constructivist perspectives

Essentialism. According to Laumann and colleagues, definitions of sexual orientations have followed two philosophical traditions, essentialism and social constructivism (Laumann et al., 1994). Essentialist views of same-sex sexual orientations are associated with individualistic, psychological, and biological conceptualisations of sexual orientation which assume that sexual orientations are at least partly determined by biological or genetic factors. Under such a paradigm, all members of a sexual orientation share the same essential features that underlie their sexual orientation, and the social consequences of this biologically determined process are regarded as occurring in response to the biologically or genetically determined characteristics (Laumann et al., 1994). Wilson and Rahman’s (2005) book Born gay - The psychobiology of sex orientation is an extreme and contemporary example of this perspective.
Social constructivism. In contrast, social constructivist understandings of sexual orientation critique essentialist assumptions by highlighting the underlying social, cultural, and historical factors that shape notions of sexuality. This position was strongly influenced by the French philosopher Michel Foucault, for example, in his well-known three-volume treatise The history of sexuality (1976; 1984a, b). Under a social constructivist paradigm, the cultural and historical variability of sexual orientation is emphasised and so-called ‘commonsense’ essentialist categories are questioned (Laumann et al., 1994). Currently, a great deal of research relating to sexual orientation is predicated on social constructivist understandings of sexual orientation (Hoffman, 2004). On this basis, Sell and Becker (2001) have encouraged public health authorities to produce official statistics on sexual orientation that are based on an examination of sexual orientation categories which take cultural and social characteristics into consideration and do not view sexual orientation as being primarily biologically or genetically based.

6.2.2 Standardised definitions versus definitions for specific information needs

Issues. Early studies of sexual minority populations rarely defined their sample or study population(s). If such studies provided theoretically robust definitions, these were not standardised, resulting in significant theoretical discrepancies (Savin-Williams, 2006; Sell, 2007; Sell & Petrulio, 1996). In addition to conceptual ambiguity, such an approach led to the problematic situation where, “Consumers of research are left uncertain as to whether components are measuring the same or different constructs and whether these distinctions matter” (Savin-Williams, 2006, p. 40). In addition, the application of various commonly used definitions to the same data produced diverse population estimates for sexual minority people (Black, Gates, Sanders, & Taylor, 2000), implying that definitional variations result in measurement discrepancies.

Approaches. Two distinct approaches to defining sexual orientation have been taken to address this problem. Some researchers have called for the formulation and standard application of “singular and unambiguous” definitions of sexual orientation (Sell & Petrulio, 1996, p. 34). However, such standardised definitions run the risk of homogenising sexual minority identities through failing to account for the diverse range of conceptualisations used over time and across different cultural settings (Fish, 2006). Such standardised definitions are unlikely to reflect the conceptually complex, highly politicised, and on-going public and academic debate about what constitutes a gay man or lesbian woman (Fish, 2006).

Others suggest that before commencing a study researchers ought to carefully select one suitable definition for use. (Brogan et al., 2001; Fish, 2006; Martin & Knox, 2000; McManus, 2003; Saewyc et al., 2004; Savin-Williams, 2006; Sell, 2007). The definition selected needs to identify the aspect of sexual orientation most relevant for the specific study, and the terms used to describe sexual orientation. In addition, the reasons for selecting the definition need to be made explicit when reporting findings (Brogan, et al., 2001; Fish, 2006; Martin & Knox, 2000; Saewyc et al., 2004; Savin-Williams, 2006; McManus, 2003; Sell, 2007).

Criticisms of official survey definitions. Academics have criticised the United States Department of Health and Human Services’ approach to the definition of sexual orientation in the context of official surveys (eg, Plumb, 2001), and Sell and Becker (2001) have encouraged the department to develop and adopt a standard definition of sexual orientation for measurement and monitoring purposes. A set of principles have been suggested to guide a process for the review and selection of sexual orientation definitions and measures, namely that:
(1) sexual orientation categories should not be interpreted as primarily biological or genetic in nature, but must be examined in the context of social and cultural characteristics of the populations

(2) respect for individual dignity and privacy should guide the collection of data; and

(3) concepts and terminology, insofar as is feasible, should reflect clear generally understood definitions that can achieve broad public acceptance (Sell & Becker, 2001, p. 878).

The United States Centre for Disease Control and Prevention (CDC) has been widely criticised for its definition of a lesbian as, “a woman who has only had sex with women since 1978” (Bevier, Chiasson, Hefferman, & Castro, 1995, as cited in Plumb, 2001, p. 874). To put this definitional decision into context, the development of the CDC definition of lesbian was motivated by the need to identify and monitor woman to woman transmission of HIV. The date of 1978 was selected because it predated the (presumed) first United States domestic transmission of HIV in men. Thus, if a lesbian/bisexual woman had had sex with a man after 1978 and was infected with HIV, it was presumed that the male-female sex had been the route of transmission. Furthermore, the CDC definition was developed to align with definitions frequently used by the women’s movement of the late 1970s (Plumb, 2001). In those times, the political movement operated under what Fish (2006) has called a sexual exclusivity criterion, which argued that only those women who did not currently have sex with men were lesbians. In consequence, women who had sex with both women and men were defined as bisexual. In light of this, Plumb (2001) has sharply criticised the official definition, arguing that it does not sufficiently capture the diverse experiences of lesbian women. She proposes that a more appropriate definition (at least in the context of health risk), should refer to “whether a woman has had sex with both men and women, and what proportion (and portion) of her life she has been sexual with either” (Plumb, 2001, p. 874).

Self-report versus assignation of sexual identity. One important point that bears reiteration in this context is that sexual identities should be self-reported and never assigned or ascribed, so that the meanings of the identity can be determined by the person who reports the identity and the power of definition rests with the respondent of a survey and not the survey administrator (Plumb, 2001; Fish, 2006). This definitional preference might mirror a politically motivated movement emerging from lesbian and gay rights movements, in which sexual minorities increasingly claim minority sexual orientation labels such as ‘gay’, ‘lesbian’ and ‘bisexual’ (Fish, 2006).

One of the objectives of the ONS Sexual Identity Project was to assess the feasibility of using self-perceived sexual identity as the core concept for measurement of sexual orientation, based mainly on the provisions made by newly introduced legislation defining sexual orientation (Betts, 2008). This approach allows respondents, “to take into consideration whichever dimensions of sexual orientation (eg, behaviour, attraction, fantasy, emotional and social preferences, identification and lifestyle) they so choose in order to determine their sexual identity” (Betts, 2008, p. 2). According to Aspinall and Mitton’s observations (2008, pp. 61-62; comments in brackets added), “A broad consensus amongst data users and the LGB [lesbian, gay, and bisexual] community has developed in support of the [sexual identity] categories ‘lesbian’, ‘gay’, ‘bisexual’ and ‘heterosexual’ (LGBH) with ‘other’ and/or ‘prefer not to say’, plus possibly an ‘asexual’ category”. Furthermore, United States focus group research with adolescents of diverse sexual orientations showed that for these young people,
Sexual orientation was defined primarily by (cognitive and physiological) attractions and relationship preferences, rather than by sexual behaviour and sexual identity (Friedman et al., 2004).

6.3 Working definitions for the sexual orientation topic and the associated measurement concepts

6.3.1 Sexual orientation (statistical topic)
The term 'sexual orientation' is commonly used to describe sexual attraction, sexual behaviour and/or sexual identity and is thus used to (unintentionally) refer to three conceptually distinct concepts. In reality, sexual orientation is defined at various times by sexual attraction, sexual behaviour, sexual identity, or by a combination of these three components, depending on a range of situational, cultural, and individual factors. Sexual orientation should therefore be regarded as an umbrella concept for these concepts.

In the context of the OSS, sexual orientation should be viewed as the statistical topic, with sexual attraction, sexual behaviour, and sexual identity as the key measurement concepts. The proposed working definition, developed by the SODCS for the statistical topic of sexual orientation is:

Sexual orientation is defined by three key concepts: sexual attraction, sexual behaviour, and sexual identity. The relationship between these components is that sexual orientation is based upon sexual attraction and that sexual attraction can result in various sexual behaviours and the adoption of sexual identities. The three key concepts are related, but not necessarily congruent continuous variables, each of which can independently change over time and by social context.

6.3.2 Sexual attraction, sexual behaviour, and sexual identity (measurement concepts)
Sexual attraction, sexual behaviour, and sexual identity are the three key measurement concepts under the topic of sexual orientation. It is proposed that the following working definitions be considered for adoption by the OSS.

Sexual attraction refers to, “attraction towards one sex or the desire to have sexual relationships or to be in a primary loving, sexual relationship with one or both sexes” (Savin-Williams, 2006, p. 41).

Sexual behaviour refers to, “any mutually voluntary activity with another person that involves genital contact and sexual excitement or arousal, that is feeling really turned on, even if intercourse or orgasm did not occur.” (Laumann et al., 1994, p. 67).

Sexual identity refers to, “personally selected, socially and historically bound labels attached to the perceptions and meanings individuals have about their sexuality.” (Savin-Williams, 2006, p. 41).
7 Summary and recommendations

1. There is mounting international consensus that sexual orientation is an overarching concept that is best defined by the three key inter-related, yet distinct, measurement concepts: sexual attraction, sexual behaviour, and sexual identity.

   **Recommendations:**
   Adopt sexual orientation as a statistical topic.

   Adopt sexual attraction, sexual behaviour, and sexual identity as the three key measurement concepts of the sexual orientation topic.

2. A range of culture and gender frames of sexual orientation co-exist in the New Zealand context and need to be considered when measuring sexual orientation to ensure such measures are as inclusive as possible.

   **Recommendations:**
   Take cultural perspectives on sexual orientation into account whenever sexual orientation data are being collected. This particularly refers to Māori perspectives as well as those of Pacific and Asian Peoples.

   Perspectives specific to youth also need to be considered.

   Take the gender perspectives on sexual orientation described in the Sexual Orientation Conceptual Framework into account whenever sexual orientation data are collected.

3. Sexual orientation, especially sexual attraction and sexual identity, is often fluid over time and social context.

   **Recommendation:**
   Clearly state reporting frames for sexual orientation questions in questions (eg, ‘ever’, ‘in the last five years’, ‘in the last year’).

4. The three sexual orientation measurement concepts, sexual attraction, sexual behaviour, and sexual identity, are conceptually distinct and data on each should be collected according to the type of information required.

   **Recommendations:**
   Recognise the three sexual orientation measurement concepts (sexual attraction, sexual behaviour, and sexual identity) as being conceptually distinct.

   Always measure the sexual attraction, sexual behaviour, and sexual identity measurement concepts in separate questions and never combined in one question.
5. There is consensus that sexual attraction (towards the same- or opposite-sex) exists along a continuum. Some individuals experience uncertainty about their sexual attraction, and some do not feel sexually attracted to women or men.

**Recommendations:**
Measure sexual attraction using a five-point semantic-differential scale, using following response categories: ‘only attracted to females’, ‘mostly attracted to females’, ‘equally attracted to females and males’, ‘mostly attracted to males’, ‘only attracted to males’.

Add response categories required to enable individuals who are asexual and those who are uncertain about their sexual attraction to respond accurately (ie, ‘not attracted to anybody at all’ and ‘unsure’).

6. There are four agreed upon conceptual categories for sexual behaviour: Exclusively same-sex sexual behaviour; sexual behaviour with men and women; exclusively opposite-sex sexual behaviour; no sexual behaviour. There is a lack of research on sexual behaviour with transgender, fa'afafine and intersex people.

**Recommendation:**
Measure sexual behaviour using at least the generally accepted four response categories of sexual behaviour. That is, ‘exclusively same-sex sexual behaviour’, ‘sexual behaviour with men and women’, ‘exclusively opposite-sex sexual behaviour’, and ‘no sexual behaviour’). Consider further differentiation of categories, if sexual behaviour is to be understood as continuous.

Consider further differentiated categories, if sexual behaviour was understood as continuous.

7. There are a broad range of sexual identity categories in New Zealand, with some commonly adopted categories and others which are only adopted by a potentially small segment of the population. Major categories include ‘heterosexual’ (or ‘straight’), ‘lesbian’, ‘gay’, ‘bisexual’, and ‘takatāpui’. Another category that is potentially important in the New Zealand context and requires further investigation is the culturally defined sexual identity of ‘fa’afafine’ (Samoan). Another group of individuals may be those uncertain about or exploring their sexual orientation.

**Recommendations:**

Further investigate whether the ‘fa’afafine’ concept might also need to be included, as this concept may or may not constitute a robust sexual orientation concept.

Consider adding an ‘uncertain’ category for survey respondents who are uncertain of their sexual identity.
8. There are several key areas which require further investigation as part of the process of developing conceptually robust sexual orientation questions in the New Zealand context. These include:

**Recommendation:**
Conduct research on:

- Māori preferences for sexual identity categories
- Pacific people's conceptualisations of sexual orientation, including the Samoan fa'afafine concept
- Asian conceptualisations of sexual orientation
- Transgender individuals' conceptualisations of sexual identity as the basis for responding to questions around sexual attraction, sexual behaviour, and sexual identity
- How sexual attraction to and behaviour with transgender people would be conceptualised by potential survey respondents
- The conceptualisation of asexuality

9. Based on the evidence presented by the SODCS, the *Sexual Orientation Conceptual Framework* proposed working definitions for sexual orientation (as a statistical topic) and sexual attraction, sexual behaviour, and sexual identity (as measurement concepts).

**Recommendation:**
Adopt the proposed working definitions for sexual orientation, sexual attraction, sexual identity, and sexual behaviour (p. 51) as being conceptually sound and appropriate.
Glossary

**Fa’afafine** – Fa’afofine is a Samoan term that literally means ‘like a woman’. Fa’afafine is often used to refer to people born male who express feminine gender identities in a range of ways, but is sometimes used more broadly to refer to all Pacific people who do not identify with or live according to common understandings of their birth gender. Sometimes the term ‘third sex’ is used. Other similar Pasifika terms include Fakaleiti (Tongan), Akava’ine (Cook Islands Māori), Fiafifine (Niuean), Vaka sa lewa lewa (Fijian).

**Gay** – Gay can refer to homosexual/same-sex attracted women and men, but is more often used in relation to males. Note: In this report, the term ‘gay’ refers to same-sex oriented men, or to the ‘gay’ sexual identity.

**Gender Identity** – Gender identity is an aspect of identity that can be understood as the psychological sex. It is an individual's internal sense of being male or female or something other or in between. It may or may not correspond to a person’s physical sex. One’s sexual orientation cannot be assumed on the basis of their gender identity.

**GLB** – Gay, lesbian, and bisexual

**Heteronormativity** – Heteronormativity refers to the reinforcement of certain beliefs by many social institutions. These beliefs include that people fall into two distinct and complementary categories, male and female, and that sexual relations are normal only when between people of different sexes. This ties in with beliefs that each sex has certain natural roles in life. Thus, it is assumed that sex, gender identity and gender roles should always align to either all-male or all-female norms, and heterosexuality is the only ‘normal’ sexual orientation.

The norms this term describes or criticises might be overt, covert, or implied. Heteronormativity can be expressed in the (often subconscious) assumption that everyone is heterosexual, and the attitudes associated with that. For instance, when a woman refers to a partner, many people will ask, ‘What’s his name?’ assuming a heterosexual relationship. Nevertheless, these people may not have anything against same-sex relationships.

Heteronormativity can stigmatise alternative concepts of both gender and sexuality and make some types of self-expression more difficult.

**Intersex** – Intersex people are born with any of a number of physical variations that means they do not fit expectations of either male or female physical sex (eg, they have genitals that are atypical, XXY chromosomes, etc). Intersex anatomy is not always visible at birth, and may become apparent at puberty, later or not at all. Surgery is performed on some intersex infants and children to physically align them with the sex they are assigned. This practice is criticised, particularly by intersex people. A child’s sex assignment may not match the gender identity the person develops as they grow up. This can mean that some intersex people can face gender identity issues similar to a transgender person.

**Lesbian** – Lesbian is used exclusively in relation to homosexual/same-sex attracted women. Note: in this report, the term ‘lesbian’ refers to same-sex oriented women, or to the ‘lesbian’ sexual identity.

**MSD** – Ministry of Social Development (New Zealand)

**ONS** – Office for National Statistics (United Kingdom)

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23 The definitions for fa’afafine, gender identity, heteronormativity, intersex, queer, takatāpui, and transgender are from the Ministry of Social Development’s Selected GLBTI Definitions document (2008).
**OSS** – Official Statistics System (New Zealand)

**POSS** – Programme of Official Social Statistics (New Zealand)

**Queer** – Queer has been used as a derogatory term for gay and lesbian people in particular. Although some people continue to reject the term, it has recently been reclaimed and used in a positive sense by some to describe sexual orientation and/or gender identity or gender expression that does not conform to heteronormative expectations. It is sometimes used as an umbrella term for same-sex attraction and gender/sex diversity, including but not exclusive to people who are gay, lesbian, bisexual, transgender, takatāpui, faʻafafine, intersex or somewhere in between. This is more common among youth. It is sometimes used to express rejection of traditional gender categories and distinct sexual identities such as lesbian, gay, bi, and straight (heterosexual).

**Sexual minority population** – Population groups defined by minority sexual attraction, minority sexual behaviour, and/or minority sexual identity

**SODCS** – Sexual Orientation Data Collection Study

**SNZ** – Statistics New Zealand

**Takatāpui** – The traditional meaning of takatāpui is ‘intimate companion of the same sex’. Many Māori people have adopted this term to describe themselves, instead of or in addition to terms such as lesbian, gay, bisexual, queer or trans. It refers to cultural and sexual/gender identity. Also spelt takataapui.

**Transgender** – The term transgender is used by different groups in different ways. It is often used as a catch-all umbrella term for a variety of people who feel that the sex they were assigned at birth is a false or incomplete description of themselves. Transgendered people may or may not use some form of medical intervention to better align their physical sex with their gender identity, and may or may not have any interest in such a procedure. Gender reassignment services are some times called gender realignment by trans people. They include but are not limited to hormone treatment and surgeries, such as mastectomy and genital reconstruction. The term transgender can include a number of sub-categories, including, among others, transsexuals, cross-dressers, transvestites, gender queer and consciously androgynous people.

The adjective ‘trans’ is increasingly preferred as a general term, for example ‘trans person’. If a gender term is also used, this refers to the person’s gender identity, eg a ‘trans man’ was born in a body defined as female but identifies as male.
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Appendix 2: SODCS Report 2: Issues in Sexual Orientation Measurement and Data Collection

Sexual Orientation Data Collection Study

Report 2:

Issues in Sexual Orientation Measurement and Data Collection

Frank Pega

July 2009
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Executive summary

Introduction

There is currently little data available on sexual orientation for the New Zealand population, limiting the ability of policy-makers to quantify the issues affecting populations defined by sexual orientation and to develop measures to adequately address the health and social needs of these populations.

Government agencies, service providers, and communities need to be able to access timely, accurate, reliable, comparable, and high-quality sexual orientation data in order to develop appropriate policies and strategies to address issues relating to sexual orientation. However, until such sexual orientation data are available it is difficult to accurately quantify, prioritise, and address issues associated with sexual orientation.

Members of sexual minority populations24 (ie, people with minority sexual attraction, sexual behaviour, and/or minority sexual identity) are disadvantaged across a range of social wellbeing, health, and economic indicators. For example, there is robust national and international evidence that sexual minority groups experience higher rates of suicide, physical and verbal assault, bullying victimisation, depression, alcohol use, tobacco smoking, other drug dependence, and more workplace discrimination and impediments to career progression in comparison with the heterosexual population.

New Zealand legislation guarantees non-discrimination on the basis of sexual orientation through the Human Rights Act of 1993, and the Civil Union Act of 2004 which allows civil union registrations for both opposite-sex and same-sex couples. Furthermore, the Yogyakarta Principles on the Application of International Human Rights Law in Relation to Sexual Orientation and Gender Identity of 2007 affirm the binding international legal standards which all member states of the United Nations must comply with in respect to the provision of human rights for populations defined by sexual orientation. In addition, sexual orientation has also become a relevant topic for public policy in New Zealand and internationally, with legislative provisions having been anchored in government policy. The monitoring of outcomes relating to the provisions made in national and international legislation and public policy requires access to timely, accurate, reliable, comparable, and high-quality sexual orientation data.

There is a clear need for information on sexual orientation in the broad areas of enumeration and demographic characteristics, discrimination, and social well-being and health. These are just a few examples of where the need for sexual orientation data has been identified; it is certain that data on sexual orientation will have wide utility across a range of policy and programme development areas.

Sexual orientation data collection in official statistics systems

Steps to include sexual orientation data in official surveys have been taken in several countries. For example, producers of official statistics in Canada and the United States have collected sexual orientation data for some time, starting in the early

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24 For a definition of ‘sexual minority populations’ see Glossary (p. 133).
1990s. The United Kingdom Office for National Statistics is now collecting standard sexual orientation data in six, large-scale household surveys (Integrated Household Survey, HIS) following an intensive two-year programme to develop, test, and trial sexual orientation questions. Statistics Norway is also currently actively considering how best to collect sexual orientation data. Closer to home, the Ministry of Health has commenced collection of official sexual orientation data; the ministry has included sexual orientation questions in the New Zealand Health Behaviours Surveys on Drug Use conducted in 2003 and on Alcohol Use in 2004, as well as in Te Rau Hinengaro – The New Zealand Mental Health Survey conducted in 2006. Hence, valuable national and international knowledge and experience in the area of collecting official data on sexual orientation is available.

Statistics New Zealand is currently part-way through a process of reviewing and updating the Official Statistics System (OSS). This process, known as the Programme of Official Social Statistics (POSS), was initiated in 2003 and its main objective is to provide a coherent system of official social and population statistics across the government sector. As part of this programme, Statistics New Zealand is considering the inclusion of sexual orientation as an official social statistic. As part of the Review of Culture and Identity Statistics, Statistics New Zealand has supported the documentation and prioritisation of sexual orientation information needs (relative to other information needs) across government.

All official social statistics are required to have a high degree of relevance (i.e., to meet user needs) and to be able to inform decision-making in relation to improving New Zealand’s social wellbeing. Specifically, official social statistics must:

- address issues of enduring concern to government departments, local authorities, businesses, and to the general public
- be useful for improving knowledge about New Zealand’s population
- inform decision making relating to New Zealand’s social well-being
- provide an accurate reflection of the population of interest
- provide information that will help inform and evaluate policy
- be a trusted source
- be publicly acceptable
- be accurate and of high quality

(Statistics New Zealand [SNZ], 2008, pp. 5-6).

With regard to sexual orientation data, Statistics New Zealand has indicated particular interest in being able to determine the size of sexual minority populations (i.e., enumeration) and the demographic distribution of these populations. Pre-requisites for this include consideration of the refinement of measurement concepts, issues around the aggregation/disaggregation of sexual orientation data, advantages of particular survey modes, and issues around public acceptability of questions on sexual orientation. These issues are addressed in this report, in as far as they relate to issues of sexual orientation measurement and data collection.

**Sexual Orientation Data Collection Study (SODCS)**

In response to the identified need to address conceptual and data collection issues in relation to sexual orientation, the Ministry of Social Development established the Sexual Orientation Data Collection Study (SODCS), together with co-sponsors Statistics New Zealand and the Ministry of Health. External researchers and statisticians were commissioned to independently conduct the study on behalf of Ministry of Social Development.
The study was granted competitive funding from the Official Statistics Research (OSR) scheme administered by Statistics New Zealand. The stated purpose of the OSR scheme is to improve methodologies for official statistics and to increase statistical capability in the state sector.

The key aim of SODCS is to provide a sound theoretical and methodological basis for improving the coverage, reliability, and quality of sexual orientation data collected in and available to the OSS. Specific aims of SODCS are to build capability to collect and analyse robust, high quality data on sexual orientation in New Zealand by:

- developing a coherent and theoretically robust conceptual framework to guide the measurement of sexual orientation in New Zealand
- developing a framework for the robust and effective collection of sexual orientation data in OSS probability surveys
- assessing the capability of existing New Zealand OSS to provide reference data for sexual orientation
- developing a model for estimating gay, lesbian, and bisexual population groups in order to provide reference data for public sector information needs and to inform the development of sampling strategies for surveys.

Research findings have been collated into four reports, of which the Sexual Orientation Conceptual Framework (in the New Zealand context), is the first. This conceptual framework underpins this current report, referred to as the SODCS Report 2: Issues in Sexual Orientation Measurement and Data Collection, as well as the SODCS Report 3: Current Best Practice in Sexual Orientation Data Collection, and the SODCS Report 4: Sexual Orientation Data in New Zealand Probability Surveys: Technical Report. Findings from all four specialist reports are brought together in the final SODCS report (Sexual orientation data in probability surveys: Improving data quality and estimating core population measures from existing New Zealand survey data), with recommendations for improving the collection of official sexual orientation survey data in New Zealand.

This report (Issues in Sexual Orientation Measurement and Data Collection) provides an overview of the multiple measurement and data collection issues relating to the sexual orientation statistical topic, on the basis of New Zealand and international evidence, including the Sexual Orientation Conceptual Framework and the Sexual Orientation Data in New Zealand Probability Surveys - Technical Report. These issues include aspects of question design, survey modes, aggregation and disaggregation of data, along with misreporting and non-responses. Issues relating to estimating sexual minority population size and demographic distributions are also discussed; these include issues concerning population enumeration, sampling strategies, sexual orientation question acceptability and disclosure. Current theory and evidence in these areas is reviewed, and strategies for addressing measurement and data collection issues are discussed.

Defining sexual orientation – conceptual framework overview
The Sexual Orientation Conceptual Framework describes how culture and gender-related perspectives frame the conceptualisation of sexual orientation and discusses the conceptual dimensions of sexual orientation. The framework culminates in the proposal of working definitions for the sexual orientation statistical topic and the associated key measurement concepts (sexual attraction, sexual behaviour, and sexual identity).

Culture and gender-related frames of sexual orientation
At the broadest conceptual level, both culture and gender frame the way in which sexual orientation is conceptualised. In terms of culture, Māori, New Zealand European, Pacific, Asian, and other cultural paradigms differ with respect to their conceptualisation of sexual orientation, and these cultural dimensions have implications for the collection of sexual orientation data. Sexual orientation concepts have been in use by Māori both in contemporary times and historically, with takatāpui (wahine, tāne) being a sexual identity specific to Māori. New Zealand Europeans are familiar with sexual orientation as a concept and frequently adopt common Western sexual identity labels. In general terms, amongst Pacific people, while sexual orientation might not be a familiar concept, same-sex behaviour is relatively common amongst some young, unmarried men and there are social identities related to male same-sex sexual relationships (eg, the fa'afafine of Samoa). People from Asian backgrounds might also not traditionally have an equivalent sexual orientation concept, although segments of this population engage in same-sex behaviour. As in other life domains, new migrants tend to adopt the sexual orientation concepts of the host culture; however, this depends on several factors including country of origin, and level of acculturation to the host culture. As these examples illustrate, cultural conceptualisations of sexual orientation vary widely and need to be taken into careful consideration.

Dimensions such as gender, gender role, sex role, and gender identity also impact on the conceptualisation of sexual orientation by various groups. For example, there are gender differences in how men and women conceptualise sexual orientation, and adherence or non-adherence to gender-typical roles can influence conceptualisations of sexual orientation, amongst Pacific males for example. Similarly, amongst some groups (such as Pacific males) a deciding factor for the conceptualisation of sexual orientation is whether an individual takes an active or passive role during (same-sex) sexual behaviour. Finally, gender identity is an important factor with respect to the conceptualisation of sexual orientation, with transgender people conceptualising their sexual orientation to others either in relation to their sex or their gender identity.

Conceptual dimensions of sexual orientation
There are several key conceptual dimensions of sexual orientation. First, there is widespread consensus that the umbrella concept of sexual orientation encompasses three key measurement concepts: sexual attraction, sexual behaviour, and sexual identity. Other concepts such as sexual fantasy or sexual desire are sometimes used to describe aspects of sexual orientation, but are not central to the conceptualisation of sexual orientation for official purposes.

While at first glance it may appear that one concept (eg, sexual identity) could be inferred from another (eg, sexual behaviour), this is in fact not the case, and

25 For a definition of ‘takatāpui’ see Glossary (p. 133).
26 For a definition of ‘fa’afafine’ see Glossary (p. 132).
27 For definitions of ‘gender identity’, ‘transgender’, and ‘intersex’ see Glossary (pp. 132-133).
individuals often do not respond consistently across these three domains. For example, while many women who have sex with women identify as lesbian or bisexual, some identify as heterosexual. The multi-component nature of sexual orientation has implications for measurement in that it means that no one measure can accurately differentiate populations defined by three different key measurement concepts.

A second conceptual issue which has implications for the measurement of sexual orientation is the notion of sexual orientation as a continuum rather than as a set of mutually exclusive categories. Discussions about definitional and classification criteria for both-sex oriented populations have advanced the field to understand sexual orientation as continuous, rendering dichotomous (heterosexual/homosexual) or other simple categorisation schemes inaccurate or even meaningless. Conceptualisation of sexual orientation as a continuum, allows for greater flexibility and inclusiveness. For example, asexuality (i.e., absence of sexual attraction) can be included as an extension of the sexual orientation continuum.

Finally, the notion that sexual orientation can be fluid over time and social context, rather than fixed is discussed. There is growing evidence of changes in sexual orientation over time and social context and these can result in significant sexual orientation fluidity (in much the same way that ethnicity can be fluid). Several phenomena and processes explain and underlie fluidity of sexual orientation. First, differing levels of certainty about one’s sexual orientation and the extent of sexual orientation exploration are two factors that can result in changes in sexual orientation over time. Second, there are individuals who choose not to label their sexual orientation, challenging traditional sexual orientation categories. Third, some individuals adopt an alternative socio-political sexual identity (e.g., ‘queer’) rendering classification norms and rigid classifications of sexual orientation inaccurate. Fourth, the emergence of new sexual orientation categories, particularly amongst dynamic youth populations, indicate increasing fluidity of sexual orientation (and increasing social acceptability of this), along with a merging of sexual orientation, gender, gender identity, and gender role dimensions.

Working definitions of sexual orientation
Given that the umbrella concept of sexual orientation is defined by three key measurement concepts, we propose that sexual orientation should be treated as a statistical topic, with three measurement concepts: sexual attraction, sexual behaviour, and sexual identity. Working definitions for the statistical topic of sexual orientation and the associated measurement concepts are proposed (see p. 10).

SODCS: Measurement and Data Collection Issues

Question design
General considerations in the design of survey questions on sexual orientation include ensuring that terms used will have widespread comprehension in the target population and the extent to which measures used will enable cross-study and international comparisons. The design of a question or set of questions to assess sexual orientation in probability surveys is largely determined by, and dependent on, the question’s underlying conceptual basis.

28 For a definition of ‘queer’ see Glossary (p. 132).
A range of question formats have been developed, both in New Zealand and internationally. These differ with respect to the use of preambles and enhanced
Table 1: Proposed working definitions for the sexual orientation topic and the associated measurement concepts

<table>
<thead>
<tr>
<th>Statistical Topic</th>
<th>Proposed Working Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual Orientation</td>
<td>Sexual orientation is defined by three key concepts: sexual attraction, sexual behaviour, and sexual identity. The relationship between these components is that sexual orientation is based upon sexual attraction and that sexual attraction can result in various sexual behaviours and the adoption of sexual identities. The three key concepts are related, but not necessarily congruent continuous variables, each of which can independently change over time and by social context.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measurement Concept</th>
<th>Proposed Working Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual Attraction</td>
<td>“Attraction towards one sex or the desire to have sexual relationships or to be in a primary loving, sexual relationship with one or both sexes” (Savin-Williams, 2006, p. 41).</td>
</tr>
<tr>
<td>Sexual Behaviour</td>
<td>“Any mutually voluntary activity with another person that involves genital contact and sexual excitement or arousal, that is feeling really turned on, even if intercourse or orgasm did not occur” (Laumann, Gagnon, Michael, &amp; Michaels, 1994, p. 67).</td>
</tr>
<tr>
<td>Sexual Identity</td>
<td>“ Personally selected, socially and historically bound labels attached to the perceptions and meanings individuals have about their sexuality” (Savin-Williams, 2006, p. 41).</td>
</tr>
</tbody>
</table>

items, question stems, response categories, and definitions. Nevertheless, some questions have been trialled and used successfully in official surveys for some time.

On the basis of the available evidence, including pre-testing with a small number of takatāpui, fa'afafine, lesbian, gay, and bisexual people and consumers and producers of official statistics, the SODCS has adapted these well-established questions to better fit the New Zealand context. We propose preliminary sexual attraction, sexual behaviour, and sexual identity questions for standard application in New Zealand official surveys, pending further testing, trialling, and development.

There is consensus that assessment of sexual orientation optimally includes measures of sexual attraction and sexual behaviour and sexual identity (ie, three items), together with specified reporting periods. This implies the collection of data on all three measurement concepts is necessary to fully capture the sexual orientation construct. Research has not yet established the optimal order of a suite of questions on the three concepts; this area requires further attention.

The position in which a sexual orientation question is placed in a survey is of importance. Office for National Statistics (United Kingdom) research suggests that sexual orientation (sexual identity) items are well placed amongst questions on other, similar core demographic variables.

**Population size**

Population prevalence estimates of sexual minority populations have been made, both to provide baseline information to inform policy-decisions, and for the purpose of
designing appropriate probability sampling strategies. Prevalence estimates tend to be inconsistent across studies. Reasons for this are likely to include inconsistent measurement variables (i.e., use of different measurement concepts and operational definitions), as well as varying rates of disclosure/non-disclosure associated with question design, survey administration, and survey modes, amongst other potential sources of measurement error.

Prevalence figures cannot be accurately derived from the only available (indirect) sexual orientation data from the Census—data on same-sex cohabitating couples—as these do not include sexual minority individuals who are not cohabiting, thereby omitting a large proportion of the sexual minority population. However, large-scale probability samples have been used to estimate population prevalence figures more robustly. Some studies have increased the accuracy of the estimates obtained through utilising statistical techniques, such as imputing data, to control for misreporting and non-responses.

There are currently no reliable prevalence estimates of the sexual minority sub-population for the New Zealand general population. The United Kingdom’s Office for National Statistics approach to achieving robust prevalence estimates is to collect sexual orientation (sexual identity) data in several large-scale surveys, enabling the agency to pool this data so as to conduct robust analyses on a large sexual minority sample. This approach constitutes a good, transferable model.

**Demographic distribution**
Robust evidence about the demographic distribution of sexual minority populations in New Zealand is urgently needed for benchmarking purposes. Internationally, demographic profiles of sexual minority populations are being produced; these can be used to guide the construction of stratified probability-sampling approaches to increase the size of sexual minority samples and can act as a reference in the evaluation of the representativeness of a drawn probability-sample.

In the absence of census data, the SODCS has produced such a first demographic profile of sexual minority populations from the most robust national and international sexual orientation data currently available. The profile demonstrates that there is now conclusive evidence that sexual minority populations are concentrated in urban centres, and potentially micro-clustered in selected high-density neighbourhoods. Other demographic variables are less well explored, although there is some emerging, but as yet inconclusive, evidence available for differences between populations defined by sexual orientation in terms of age, education, ethnicity, gender, religiosity, and socio-economic status.

**Sampling**
Past research on sexual minorities has often appeared flawed due to sampling biases. Probability sampling can overcome the potential selection biases of convenience samples recruited through non-representative settings (e.g., mental health institutions, prisons, gay bars, gay/lesbian social and political organisations), with the advantage that findings from probability samples are more generalisable to the survey population.

To date, research on probability samples of sexual minority populations has frequently taken one of three key approaches:

- probability samples of the general population which include sexual minority and heterosexual respondents. This permits comparative analysis and generalisation of the findings, although one consideration
may be that distributions of sexual minority populations may potentially differ from the general populations (as is the case for geographic residency)

- oversampling of sexual minority populations by applying stratified sampling designs (often at the level of geographic distribution and urbanisation). This targeting strategy requires robust demographic information

- probability samples of sexual minority persons obtained by screening for eligible respondents. Telephone screening tools have been developed and effectively used in the United States, but screeners for face-to-face surveys are not yet available. Screening for sexual minority respondents is a way of cost-effectively increasing sample size, yet lacks heterosexual comparison groups, and findings cannot be generalised beyond the sampling frame.

**Aggregation/disaggregation of data**
Meaningful and fine-grained disaggregation of sexual orientation data requires collection of rich data on both sexual orientation and relevant socio-demographic characteristics in the first instance. In addition, sexual minority sub-samples ought to attain large enough sample sizes to ensure there is sufficient statistical power to carry out the required analyses. Data from different sexual minority populations should not be aggregated in analyses, and research findings should be presented separately for different groups defined by sexual orientation; for example, data from gay, lesbian, and bisexual identified respondents should not be aggregated, if they can be meaningfully presented separately. Data from a defined sexual minority population should also be disaggregated by socio-demographic parameters of interest to advance the knowledge-base on aspects of social wellbeing for sexual minorities. In a similar vein, data from the ‘other’, ‘uncertain’, ‘don’t know’ or ‘prefer not to say’ response options ought not be combined with data from other categories, but analysed separately to the extent this is possible.

**Survey modes**
Various survey modes provide different degrees of survey credibility, privacy, and confidentiality, all of which may have significant impact on the disclosure of stigmatised sexual orientations as with other sensitive concepts. Official sexual orientation data has been effectively collected in various survey modes. There is a strong body of evidence from the Office for National Statistics (United Kingdom), indicating that sexual orientation (identity) can robustly be collected in computer-assisted self-interviewing (CASI) and that this mode is potentially preferred by young people, but that practical limitations might make it difficult to use this mode in official surveys, and self-administration might impose an additional temporal burden. The Office for National Statistics is currently collecting sexual orientation (identity) data in computer-assisted telephone interview (CATI) and computer-assisted personal interview (CAPI) modes. If CATI is used, questions need to be used that ensure privacy of responding; and with this in mind, SODCS proposes questions for CATI based on the Office for National Statistics questions. Sexual orientation data can be collected in CAPI mode, in surveys where household members are interviewed in parallel or concurrently, as long as concealed showcards are used.

**Misreporting and non-response**
The phenomenon of misreporting (intentionally inaccurate responses) poses a serious challenge to the quality of sexual orientation data obtained, with implications for the robustness of subsequent analyses and interpretation of the findings.
Misreporting can occur, for example, when more socially acceptable response options are selected instead of providing truthful information (i.e., social desirability bias), causing systematic underreporting of information, such as sexual orientation status, which is perceived to be sensitive. Due to the nature of the social desirability bias, it is difficult to determine the extent of intentional misreporting. However, national research suggests that sexual minority people are generally willing to disclose their orientation, and Office for National Statistics (United Kingdom) research and trialling of sexual orientation (identity) questions concludes that interviewer rules and training are important to ensure appropriate question administration, thus enhancing disclosure.

Non-responses (omitting or ‘skipping’ the question) are directly observable and can be easily quantified. Office for National Statistics research concluded from five trials of sexual orientation (identity) questions that these questions had no discernable effect on survey response rates and response rates to items immediately following sexual orientation questions. Equivalent evidence is however not available for sexual attraction and sexual behaviour questions and from New Zealand, which is why response rates should closely be monitored in OSS trials of sexual orientation questions. Sexual orientation items have achieved very low item non-response rates in official New Zealand surveys (e.g., Te Rau Hinengaro – The New Zealand Mental Health Survey; MHS, 0.05%), indicating that item non-response is not a significant concern at present.

Reasons for misreporting of and non-responses to sexual orientation questions are multiple, complex, and under-researched. However, they are related to the context, format, and wording of a survey, as well as survey (and administrator) credibility, privacy, and confidentiality, and survey mode. Respondent and interviewer effects also play a part in misreporting and non-responses.

Acceptability/disclosure
Significant legal and policy progress has been achieved over the last two decades in New Zealand, leading to increases in the acceptability of sexual minority orientations, with research suggesting that the New Zealand environment is more accepting in this regard than the United Kingdom and the United States, both of which collect official sexual orientation data. Low non-response rates of sexual orientation items included in official surveys in New Zealand further indicate the acceptability of such questions. Young people in New Zealand have been found to disclose minority sexual orientation at higher rates than adults, suggesting increasing acceptability over time. Statistics New Zealand focus group research suggests that sexual minority people are generally willing to answer sexual orientation questions honestly, but also identified some population groups that might potentially be less accepting of sexual orientation questions (i.e., Pacific people, older people, Māori men, and people with strong religious affiliations). United States research suggests that initiatives that encourage sexual minority members to disclose their sexual minority orientation in official surveys might lead to increases in disclosure.
1 Introduction

There is currently little data available on sexual orientation for the New Zealand population, limiting the ability of policy-makers to quantify the issues affecting populations defined by sexual orientation and to develop measures to adequately address the health and social needs of these populations.

Government agencies, service providers, and communities need to be able to access timely, accurate, comparable, and high-quality sexual orientation data in order to develop appropriate policies and programmes to address issues relating to sexual orientation. However, until such sexual orientation data are available it is difficult to accurately quantify, prioritise, and address issues associated with sexual orientation.

While the rights of sexual minority populations are protected in law and public policy, there is growing evidence of disparities in social well-being outcomes in comparison with the heterosexual population. Members of sexual minority populations (ie, people with minority sexual attraction, sexual behaviour, and/or minority sexual identity), are disadvantaged across a range of social wellbeing, health, and economic indicators. For example, there is robust national and international evidence that sexual minority groups experience higher rates of suicide, physical and verbal assault, bullying victimisation, depression, alcohol use, tobacco smoking, other drug dependence, and more workplace discrimination and impediments to career progression in comparison with the heterosexual population (Ministry of Social Development [MSD], 2006). However, without the necessary official data it is difficult to precisely determine needs in order to develop policies and programmes to address inequalities in these areas.

New Zealand legislation guarantees non-discrimination on the basis of sexual orientation through the Human Rights Act of 1993, and the Civil Union Act of 2004 which allows civil union registrations for both opposite-sex and same-sex couples. Furthermore, the Yogyakarta Principles on the Application of International Human Rights Law in Relation to Sexual Orientation and Gender Identity of 2007 affirm the binding international legal standards which all member states of the United Nations must comply with in respect to the provision of human rights for populations defined by sexual orientation.

In line with legislative progress in this area, sexual orientation has also become a relevant topic for public policy in New Zealand and internationally. The following recent examples of national policy development are amongst those that have clear implications for sexual minority populations:

- changes in income support benefit entitlements for same-sex couples living together (Work and Income)
- changes relating to adoption and family law
- re-working of health and education policies to acknowledge and include a wide range of family structures
- a range of roll-on effects from Civil Union legislation

(SNZ, 2008, p. 8).

The monitoring of outcomes relating to the provisions made in national and international legislation and public policy requires access to timely, accurate, comparable, and high-quality sexual orientation data.

Government agencies have identified a clear need for information on sexual orientation in the broad areas of enumeration and demographic characteristics, discrimination, and social well-being and health (Ministry of Health, 2006; MSD,
These are just a few examples of where the need for sexual orientation data has been identified; it is certain that data on sexual orientation will have wide utility across a range of policy and programme development areas.

1.1 Sexual Orientation Data Collection Study (SODCS)

As will be described in detail in the next chapter, Statistics New Zealand supports the view that sexual orientation potentially meets the criteria for an official social statistic, assuming that methodological concerns can be adequately dealt with (2008). In response to the need to address conceptual, measurement, and data collection issues in relation to sexual orientation identified by Statistics New Zealand (2008), the Ministry of Social Development established the Sexual Orientation Data Collection Study (SODCS) in a collaborative effort with co-sponsors Statistics New Zealand and the Ministry of Health. External researchers and statisticians were commissioned to independently conduct the study on behalf of the Ministry of Social Development. The study was granted competitive funding from Official Statistics Research (OSR) scheme, under the auspices of Statistics New Zealand. The stated purpose of the OSR scheme is to improve methodologies for official statistics and to increase statistical capability in the state sector.

The key aim of SODCS is to provide a sound theoretical and methodological basis for improving the coverage, reliability, and quality of sexual orientation data available to the Official Statistics System (OSS). Specific aims of SODCS are to build capability to collect and analyze robust, high quality data on sexual orientation in New Zealand by:

- developing a coherent and theoretically robust conceptual framework to guide the measurement of sexual orientation in New Zealand

- developing a framework for the robust and effective collection of sexual orientation data in OSS probability surveys

- assessing the capability of existing New Zealand OSS to provide reference data for sexual orientation

- developing a model for estimating gay, lesbian, and bisexual population groups in order to provide reference data for public sector information needs and to inform the development of sampling strategies for surveys.

In order to achieve these objectives, the SODCS was implemented in two phases. The Sexual Orientation Conceptual Framework was developed during the initial phase of the study and provides the theoretical basis for the later specialist reports, including the Issues in Sexual Orientation Measurement and Data Collection report presented here. During the second phase of the SODCS, existing New Zealand sexual orientation data collected as part of official surveys were analysed and their potential to improve current estimates of the population size and demographic profile of sexual minority populations in New Zealand assessed. Findings from these analyses and modelling of OSS data were integrated in the second set of key documents produced by the SODCS. The SODCS final report (Pega, Gray, & Veale, 2010) provides an overview of the project’s findings and is accompanied by the four specialist reports:
• SODCS Report 1: Sexual Orientation Conceptual Framework (Pega, 2009a)

• SODCS Report 2: Issues in Sexual Orientation Measurement & Data Collection (the current report)

• SODCS Report 3: Current Best Practice in Sexual Orientation Data Collection (Pega, 2009b)


1.2 Issues in Sexual Orientation Measurement and Data Collection

Issues in Sexual Orientation Measurement and Data Collection provides an overview of the multiple measurement and data collection issues relating to surveys and to measures of sexual orientation specifically. These include aspects of question design, survey modes, aggregation and disaggregation of data, along with misreporting and non-responses.

Issues relating to estimating sexual minority population size and demographic distributions are also discussed. These include issues concerning population enumeration, sampling strategies, sexual orientation question acceptability and disclosure.

Current theory and evidence in these areas is reviewed and strategies for addressing measurement and data collection issues are discussed.

A list of definitions for the terms and acronyms used in this SODCS report is provided in the Glossary (pp. 132-133), with additional information provided in the text.
2 Sexual orientation data collection in official statistics

This chapter introduces the Official Statistics System (OSS) of New Zealand and defines statistics and surveys. It then describes Statistics New Zealand’s current consideration of sexual orientation as a potential official social statistic, followed by a discussion of the requirements and constraints of the OSS. Finally, the collection of official sexual orientation data in New Zealand and in other countries is reviewed.

2.1 New Zealand’s Official Statistics System

The government has a responsibility to provide official statistics and to maintain their long-term sustainability. Production of official statistics is guided mainly by the Statistics Act of 1975. However, the Privacy Act of 1993, the Official Information Act of 1982, and the Public Records Act of 2005 also have implications for the collection and dissemination of statistical information. The United Nations Fundamental Principles of Official Statistics of 1994 is another key source of guidance.

Statistics New Zealand “leads New Zealand’s Official Statistics System. It has primary responsibility for the collection, processing, maintenance, quality assurance, analysis, and dissemination of social, economic and environmental statistics”. While seventy agencies, including the Ministry of Social Development and the Ministry of Health, provide official statistics, the majority are produced by Statistics New Zealand. The Ministry of Social Development “has primary responsibility for the collection and dissemination of statistics on the payment of New Zealand superannuation and a range of income support and employment services. It also administers databases on student allowances and loans, veterans and war pensions, and a range of subsidies”. The Ministry of Youth Development and the Office for Disability Issues (both contained within the Ministry of Social Development) also contribute official statistics. The Ministry of Health “is the government’s principal agent and adviser on health and disability” and is one of the larger providers of official statistics.

Following the review of New Zealand’s Official Statistics System (OSS) in 2005, a portfolio of key official statistics (known as Tier 1 statistics) that are, “important in their own right and, consequently, need to be produced, analysed and released to high statistical standards” was identified. Principles and protocols were developed to ensure these Tier 1 statistics were of a high standard and met legal requirements. These protocols have been promulgated to government departments and require that Tier 1 statistics:

- are essential to government decision making
- are of high public interest
- need to meet public expectations of impartiality and high statistical quality
- require long-term continuity of data
- provide international comparability in a global environment or meet international statistical obligations
- align with Tier 1 statistics principles and protocols

29 Unless otherwise noted, all information contained in sections 2.1 and 2.2 has been taken directly from the following SNZ website: www.statisphere.govt.nz.
Official statistics provide information for government departments (and others) to use in policy making decisions, as well as measures of New Zealand’s, “economic, social and environmental situation”. In practical terms, official statistics are used to, “inform debate, research and decision making” processes.

2.2 Statistics and surveys

Official statistics are defined in section 2 of the Statistics Act 1975 as statistics derived by government departments from:

- statistical surveys
- administrative and registration records, and other documents from which statistics are, or could be, derived and published regularly

Official statistics are all statistics produced by government departments and can be collected through surveys or compiled from administrative records collected by government agencies in their daily work. Official statistics are valued for their: relevance, integrity, quality, coherence, and accessibility. Considerations such as efficiency (of the official statistics agency), protection of respondent information (ie, privacy, confidentiality, data storage), and minimisation of respondent load (eg, data are collected only when the expected benefits of a survey exceed the cost to providers) are also important. Maximising use of existing sources of information and international participation in statistical developments are encouraged.

A statistical survey is defined in the Statistics Act as, “a survey of [...] the public of New Zealand, whereby information is collected from all persons in a field of inquiry or from a sample, by a Government Department [...] for the purpose of processing and summarising by appropriate statistical procedures and publishing the results of the survey in some statistical form”.

The following report refers to ‘official’ surveys, as well as to ‘probability’ and ‘non-probability’ surveys. By ‘official surveys’ we mean any survey undertaken by or on behalf of the OSS. By ‘probability survey’ we mean any survey in which every member of a sample population (eg, same-sex oriented women or gay identified men) has the same opportunity to participate and is randomly selected from the sample population. By ‘non-probability’ survey we mean any survey in which a sampling strategy is applied such that a selection of individuals within the population of interest does not have an equal opportunity to participate.

2.3 Sexual orientation as a potential official social statistic

The potential for inclusion of sexual orientation as an official social statistic is being considered by Statistics New Zealand under the Programme of Official Social Statistics (POSS)\(^\text{30}\). POSS aims to develop the capability to provide quality statistics on social well-being outcomes across the following domains: population, housing, safety and security, economic standard of living, knowledge and skills, health, paid work, culture and identity, social connectedness, human rights, and physical

environment. Sexual orientation is considered under the Review of Culture and Identity Statistics\(^{31}\).

A 2008 Statistics New Zealand discussion paper was published as “a first step to evaluate the need for statistics about the gay, lesbian and bisexual (GLB) population in the context of the Official Statistics System on sexual orientation” and “prior to the consultation process for the Review of Cultural Identity Statistics” (p. 4). In this discussion paper, Statistics New Zealand scoped available information on populations defined by sexual orientation, reviewed information needs related to sexual orientation (falling into the three broad areas of enumeration, social wellbeing, and discrimination), and discussed key measurement issues, especially related to concepts and the technical feasibility (ie, population size, mode, and public acceptability). Key recommendations included:

- monitoring statistical developments in the collection of GLB [gay, lesbian, and bisexual] data internationally
- collaborative investigation of some of the identified methodological issues
- production of a GLB analytical report that brings together existing data to establish better information and to evaluate current data quality.

(text in brackets added; SNZ, 2008, p. 4).

Statistics New Zealand actively supports research into methodological issues pertaining to conceptual, measurement, and data collection issues (such as the SODCS) and views this work as a necessary step in the consideration of sexual orientation as a potential official social statistic (SNZ, 2008). It was envisaged that the SODCS would begin to address some of the areas for further work indicated by the Statistics New Zealand (2008, p. 13) analysis of sexual orientation as a statistical topic:

1. Document and prioritise GLB information needs (relative to other information needs) across government as part of the Review of Cultural Identity Statistics.

2. Investigate the production of a GLB analytical report using existing data in order to make current information more available and to evaluate current data quality.

3. Support or directly undertake research into the identified methodological issues.

4. Monitor work on the topic by the Ministry of Social Development and the Ministry of Health, most notably the results from the Mental Health Survey and the Sexual Health Survey.

5. Continue to monitor international work and look at the potential to collaborate with other national statistical offices.

2.4 OSS social statistics requirements

\(^{31}\) see http://www.stats.govt.nz/people/review-of-culture-and-identity-statistics/default.htm
In order for sexual orientation to become an official statistic it must meet the requirements and standards of the OSS. Statistics New Zealand has formulated specific criteria for determining the suitability of a potential statistic for inclusion in the OSS. In the words of Statistics New Zealand, “Official social statistics must be relevant by providing information that meets user needs in coverage, content and detail. More specifically, official statistics must inform decision making relating to New Zealand’s social well-being. To achieve this, the official statistics must:

- address enduring issues of widespread interest to Government departments,
- local authorities, businesses, and to the general public
- be useful for improving knowledge about New Zealand’s population
- inform decision making relating to New Zealand’s social well-being
- provide an accurate reflection of the population of interest
- provide information that will help inform and evaluate policy
- be a trusted source
- be publicly acceptable
- be accurate and of high quality

(SNZ, 2008, pp. 5-6).

There are a range of OSS constraints of relevance to sexual orientation data collection. The OSS is required to consider the temporal and psychological burden that the inclusion of sexual orientation questions in official probability surveys will put on survey respondents. The OSS also faces financial constraints that require it to balance the need for the collection of sexual orientation data against the need for collection of data on other topics. The OSS is required to collect concepts which span cultural understanding.

2.5 Sexual orientation concepts and information needs

In terms of the application of sexual orientation data, several government agencies have identified data needs relating to sexual orientation in three broad categories: enumeration, social well-being, and discrimination (eg, Ministry of Health, 2006; MSD, 2006; SNZ, 2008). Statistics New Zealand, in particular, has discussed the different information needs in some detail. Consumers of official statistics, such as researchers and non-governmental organisations, have identified similar data needs, particularly around enumeration and social well-being (eg, Sell & Becker, 2001; New Zealand AIDS Foundation, 2003).

Although there has been little scientific discussion to date concerning which concepts of sexual orientation are most applicable to specific information needs, general predictions can be made about which sexual orientation measurement concepts will fulfil key information needs identified for New Zealand.

2.5.1 Enumeration

Information on enumeration of populations defined by sexual orientation requires that data on all three key concepts of sexual orientation (ie, sexual attraction, sexual behaviour, and sexual identity) are obtained, as these describe discrete dimensions of sexual orientation and the data obtained will differ across the population groups. Based on previous findings, measures of sexual attraction are likely to result in the
largest count of sexual minority respondents in any given survey. Sexual behaviour questions, in turn, are likely to identify a larger number of sexual minority respondents than sexual identity questions. Because the nature of the inter-relationships between the concepts that make up sexual orientation is not yet fully understood, it is not possible to make reliable inferences about a particular sexual orientation population group (eg, same-sex sexual attraction) from a population group defined by another concept of sexual orientation (eg, same-sex sexual behaviour, or same-sex sexual identity). That is, it would be erroneous to expect that individuals will respond to all three measures of sexual orientation in a consistent manner, when in actuality a significant proportion of individuals do not. This expectation belies an inaccurate assumption about sexual orientation, when in fact attraction, behaviour, and identity are not necessarily congruent. Thus, data obtained from a measure assessing one particular concept of sexual orientation cannot be used to infer data obtained from other key concepts of sexual orientation.

2.5.2 Discrimination
Information needs related to discrimination on the basis of sexual orientation are likely to be most appropriately met through data collected on sexual identity; particularly, considering that populations who have adopted a stigmatised sexual identity are the sexual minority groups most likely to be discriminated against in areas such as employment and housing. However, people who engage in same-sex sexual activities, and to a lesser degree those with same-sex sexual attraction, may also be the target of discrimination and harassment, if their sexual behaviour or sexual attraction becomes known to others, which indicates a potential need for data on also sexual attraction and sexual behaviour.

2.5.3 Social well-being and health
Information relating to social well-being of populations defined by sexual orientation is likely to require measurement of sexual attraction, sexual behaviour, and sexual identity. Key information needs in relation to social well-being may include information on mental and sexual health variables, as well as on socio-economic inequalities. Measurement of all three sexual orientation concepts will be required in order to obtain accurate information pertaining to mental health issues such as suicidality, substance use, and depression. One study comparing the utility of sexual identity measures versus sexual behaviour measures in research on alcohol use and alcohol-related problems concluded that measures of both concepts were required (Midanik, Drabble, Trocki, & Sell, 2007). Information needs in the area of sexual health, such as the need for sexual orientation information related to the HIV and AID epidemics and sexually transmitted diseases, requires measurement primarily of sexual behaviour and sexual identity. Information on inequalities in socio-economic domains, such as education, occupation, and income, by sexual orientation is likely to require sexual identity data.

2.5.4 Summary
This brief overview of how the three broad categories of information needs identified by producers and consumers of official statistics could be expected to relate to the three key measurement concepts of sexual orientation shows that collection of data on all three concepts is necessary in order to fully address the identified information needs. In other words, no single measurement concept can provide information that will sufficiently address all information needs concerning sexual orientation. However, it has also been shown that collection of data on any of the three concepts relating to sexual orientation will provide valuable data that can be used to address specific information needs identified by producers and consumers of official statistics.
2.6 Official sexual orientation data collection

The collection of direct sexual orientation data through official statistics systems is still in its formative stages. Currently Statistics New Zealand and official statistics agencies in other countries do not include sexual orientation questions in their population censuses (Hughes & Saxton, 2006). However, Statistics New Zealand is one of several official statistics agencies that have commenced investigating the feasibility of including a sexual orientation question in their census (General Register Office for Scotland, 2006; Office for National Statistics [ONS], 2006 a, b; SNZ, 2003a, b; Statistics Canada, 2004a).

Statistics New Zealand and official statistics agencies in several other countries (eg, Australia, Canada, Ireland, Spain, United Kingdom, United States, Uruguay) have collected indirect sexual orientation data (ie, data on same-sex relationships or same-sex cohabitation) through their population censuses (Birrell & Rapson, 2002; Black, Gates, Sanders & Taylor, 2007; Guerra, n.d.; Hyman, 2003; Klement & Simpkins, 2004). These census data on same-sex couples have been widely used, although their capacity to yield robust information on sexual orientation is limited (Badgett & Rogers, 2003; Black et al., 2007; Klement & Simpkins, 2004).

2.6.1 Sexual orientation data collection in New Zealand

The OSS has started collecting direct sexual orientation data through probability surveys. For example, the Ministry of Health collected sexual orientation data in the Health Behaviours Surveys on drug use in 2003, and alcohol use in 2004, as well as in Te Rau Hinengaro – The New Zealand Mental Health Survey (2006).

2.6.2 Sexual orientation data collection in other countries

Official statistics systems in several countries have collected direct sexual orientation data in official probability surveys, predominantly official health surveys, for some time. The United States Department of Health and Human Services and Department of Justice were the first producers of official statistics to include sexual orientation questions in their surveys. The official statistics system in the United States has now collected sexual orientation data in more than 35 surveys, starting with sporadic collections in the early 1990s leading up to regular collections since 2000 (Taylor, 2008a; Sell, n.d.).

Statistics Canada has collected sexual orientation data in official health surveys in 2003 and 2005, after initial pre-testing was carried out in 2002 (Taylor, 2008a). The United Kingdom Office for National Statistics is collecting sexual identity data in the Integrated Household Surveys (IHS; six large-scale household surveys) following completion of the Sexual Identity Project which ran from 2006 to 2008, and involved the systematic development, testing, and trialling of a sexual identity question for inclusion in official surveys (Aspinall & Mitton, 2008; Betts, 2008; 2009; Betts, Wilmot & Taylor, 2008; Hand & Betts, 2008; Joloza, Traynor & Haselden, 2009; Malagoda & Traynor, 2008; Office for National Statistics [ONS], 2008; Taylor, 2008a, b; Taylor & Ralph, 2008; Traynor, 2008; Wilmot, 2007). Statistics Norway is currently developing a sexual orientation question suitable for use in official surveys (Taylor, 2008a).

32 The website www.gaydemographics.org compiles findings from analyses of same-sex cohabitation data from censuses in many countries (Guerra, n.d.). It provides tables that break down this information for the United States geographically and demographically (ie,by age, ethnicity, and level of urbanization) (Guerra, n.d.).
2.7 Summary and recommendations

1. New Zealand's OSS encompasses all government departments, and is coordinated by Statistics New Zealand which also produces most official statistics.

2. Direct sexual orientation data are not currently collected in any population census, although official statistics departments in several countries have commenced investigation of the feasibility of this. Indirect sexual orientation data have been collected in several countries, but these data cannot reliably be used for enumeration and other purposes as only same-sex couples are counted (i.e., these data exclude individuals). Official statistics systems in some countries have collected direct sexual orientation data in official probability surveys, predominantly health surveys.

3. In New Zealand, several government departments have identified information needs related to sexual orientation across three broad categories: enumeration, social well-being, and discrimination.

**Recommendation:**
Collect official sexual orientation data in order to inform the development of appropriate policies and strategies for sexual minority populations.

4. Data on any single concept will not provide information to sufficiently address each of the information needs identified. Nevertheless, collection of data on any of the three sexual orientation concepts will provide valuable data that can be used to address information needs.

**Recommendation:**
Collect data on sexual attraction, sexual behaviour, and sexual identity wherever possible, given real-world constraints.

5. Information on enumeration of populations defined by sexual orientation requires that measures of sexual attraction, sexual behaviour, and sexual identity are obtained, as these three concepts define similar, yet not congruent population groups.

**Recommendation:**
Collect data on all three sexual orientation concepts (sexual attraction, sexual behaviour, and sexual identity) to address information needs relating to enumeration.

6. Information needs relating to discrimination are likely to require data to be collected on the sexual identity concept, and possibly also the sexual behaviour concept. Information on sexual orientation discrimination in such areas as employment and housing is required.

**Recommendation:**
Collect sexual identity, and possibly also sexual behaviour data in order to address information needs relating to discrimination.

7. Information related to social well-being is likely to require measurement of the sexual attraction, sexual behaviour, and sexual identity concepts. Key information needs in relation to social well-being could include information on mental health and sexual health variables, as well as on socio-economic inequalities.

**Recommendation:**
Collect data on all three sexual orientation concepts (sexual attraction, sexual behaviour, and sexual identity) to address information needs relating to social well-being.

8. For sexual orientation to become an official statistic it must fulfil the OSS requirements and constraints that apply to all official statistics. In addition to the data quality requirements, the OSS is required to consider the temporal and psychological burden on survey respondents, financial implications, and the need for the data. The OSS is also required to collect concepts which span cultural understanding.

**Recommendation:**
Undertake further research into cultural perspectives on sexual orientation (particularly for Māori, Pacific, Asian, and potentially youth population groups) to ensure that sexual orientation spans cultural understanding.

9. Official statistics agencies in Canada and the United States have collected sexual orientation data for some time, with the United States pioneering such collections in the early 1990s. The United Kingdom’s Office for National Statistics launched the Sexual Identity Project in 2006 for the purpose of developing a robust sexual identity question for inclusion in official surveys. Following a review of current practice, the Office for National Statistics systematically developed, tested, and trialled sexual identity questions. As a result of this, the Office for National Statistics has published a paper setting out a rationale for including sexual identity questions in official surveys and the design of the official sexual identity questions administered. The final sexual identity questions are currently being implemented in six large-scale, population-based surveys of the Office for National Statistics (Integrated Household Survey; IHS). There are a range of experiences internationally and a significant body of evidence about sexual orientation data collection in official probability surveys.

10. Sexual orientation data collection has also commenced in New Zealand through the OSS. The Ministry of Health has collected these data through the New Zealand Health Behaviours Surveys on drug use in 2003 and alcohol use in 2004, as well as through the 2007 Te Rau Hinengaro – The New Zealand Mental Health Survey. These official data on sexual orientation have not been reported through official channels to-date. Statistics New Zealand is also currently considering sexual orientation as a potential official social statistic.
3 Methodology

This chapter describes the objectives of the Issues in Sexual Orientation Measurement and Data Collection report, as well as the research methodology used to develop this measurement framework.

3.1 Objectives

One of the main objectives of the SODCS was to develop a framework for the robust and effective collection of sexual orientation measures in OSS probability surveys to guide and support the future development of common frameworks, standards, and classifications in the event that sexual orientation is adopted as an official (social) statistic in New Zealand. Thematically, this measurement framework (Issues in Sexual Orientation Measurement and Data Collection) has two key objectives:

- To review the key methodological issues related to the collection of sexual orientation data in official probability surveys;
- To develop recommendations about how to best address such issues in the OSS context, including to propose preliminary sexual attraction, sexual behaviour, and sexual identity questions and classifications.

In order to achieve these objectives, the Issues in Sexual Orientation Measurement and Data Collection report synthesises cutting edge conceptual research evidence on sexual orientation, while tailoring these findings to the constraints and requirements of New Zealand’s OSS and considering their applicability for official probability surveys.

3.2 Research methodology

A multi-method, multi-source approach was used as the basis for development of the Issues in Sexual Orientation Measurement and Data Collection report:

3.2.1 Literature review and analysis

A systematic search of academic papers and official reports published in English since 1990 was conducted by Knowledge Services of the Ministry of Social Development. The search identified methodological literature on three topic areas:

- measurement and definition of sexual orientation
- collection of sexual orientation data in probability surveys
- probability-sampling of populations defined by sexual orientation.

A broad range of key words was used across several, mostly social science, data bases. The library search identified 91 key academic papers and official reports, as

33 Any combination of the following search terms: sexual orientation, sexual identity, sexual behaviour, sexual attraction, lesbian, gay, bisexual, homosexual, homosexuality, heterosexual, heterosexuality, takatāpui, two-spirit and sampling, sample, probability, opportunity, random, data collection, measurement, data source, Census, representative, general population, population-based,

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well as four books, and the resulting bibliography was sent to the advisory board of SODCS for review. The advisory board, comprising 14 national and international experts in the field, identified six additional key papers and one additional book for consideration and inclusion.

The research literature was reviewed and a secondary analysis conducted, taking into account OSS requirements and constraints. The principal measurement and data collection issues, as well as potential solutions to these issues, were identified from the literature.

3.2.2 Focus groups and key-informant interviews

In order to ensure that takatāpui, fa’afafine, lesbian, gay, and bisexual perspectives were sufficiently taken into account in the development of the Issues in Sexual Orientation Measurement and Data Collection report, two focus groups and a key-informant interview with individuals from these population groups were conducted.

Focus group participants were selected and recruited from the Ministry of Social Development’s existing network of contacts, using purposive sampling to ensure a diversity of perspectives on sexual orientation. To qualify for participation, individuals were required to identify as takatāpui, fa’afafine, lesbian, gay or bisexual. Steps were taken to ensure that focus group participants reflected a diverse range of ages, genders, gender identities, and ethnicities, with particular emphasis placed on Māori, Pacific, Asian, new migrant, and transgender perspectives were represented.

A question catalogue was developed that sought participants’ views on findings compiled in a draft version of the Issues in Sexual Orientation Measurement and Data Collection report, and worked through in the focus groups - creating an informal, semi-structured interviewing situation. Focus group sessions (each of 90 minutes duration and audio-taped) were held in Auckland (five participants) and in Wellington (four participants) respectively in November 2008.

As a Pacific perspective was absent in the focus groups with takatāpui, fa’afafine, lesbian, gay, and bisexual individuals, a fa’afafine perspective was sought separately in a supplementary key-informant interview. The fa’afafine key-informant was also selected and recruited through the Ministry of Social Development’s existing networks. Implementing the same question catalogue as in the focus groups, the supplementary key-informant interview (90 minutes, audio-taped) was conducted in Wellington in January 2009.

In addition, four key-informant interviews of 60 minutes duration were conducted with producers and consumers of official statistics, including members of staff from the Ministry of Social Development (November 2008), Statistics New Zealand (November 2008), and the Ministry of Health (February 2009). A second question catalogue tailored to key-informants’ perspectives was implemented, seeking participants’ views on findings compiled in a draft version of the Issues in Sexual Orientation Measurement and Data Collection report. The principal goal of the key-informant interviews was to ensure that the OSS context was adequately taken into account in the development of the measurement framework, thereby ensuring the suitability of the framework for use in New Zealand.

epidemiological, demographic, geographic, geography, distribution, prevalence, morbidity, mortality, data analysis, statistical model, base line data, validity.
Data from the focus groups and key-informant interviews were analysed using thematic analysis (Braun & Clarke, 2006). This means that common themes in the data were identified and are reported here. Findings from the focus groups and key-informant interviews were summarised, and several recommendations about the development of the Issues in Sexual Orientation Measurement and Data Collection report made on the basis of the diverse perspectives expressed by focus group participants and key-informants. These recommendations were taken into consideration in the subsequent development of the Issues in Sexual Orientation Measurement and Data Collection report.

The small number of focus group participants and key informants and non-random sampling prohibits the identified themes from being considered as representative of common discourses amongst the populations represented. However, the identified themes offered the desired insight into a diversity of perspectives on the topic of sexual orientation concepts, measurement, and the collection of sexual orientation data.

Findings from the two focus groups and the supplementary key-informant interview, as well as the key-informant interviews with producers and consumers of official statistics, were compiled in a separate report, the Summary of Focus Groups and Interviews (Pega, 2009c). This summary report included recommendations made on the basis of the views expressed by the takatāpui, fa'afafine, lesbian, gay, and bisexual individuals involved, as well as from the key-informant interviews with producers and consumers of official statistics about suggested amendments to the Issues in Sexual Orientation Measurement and Data Collection report. This summary report was submitted to the Ministry of Social Development and distributed amongst the focus group participants and key-informants. The recommendations made in the report were implemented in the Issues in Sexual Orientation Measurement and Data Collection report as it is presented here.

3.2.3 Expert advice
The 14-member advisory board of SODCS reviewed and provided feedback during the development of the Issues in Sexual Orientation Measurement and Data Collection report. Comments and suggestions made by these national and international experts were incorporated in further development of the document and have informed this final version.

Several individuals from the Ministry of Social Development and Statistics New Zealand also reviewed the document.

In addition, feedback was sought from Māori reviewers from the advisory board throughout the development of the Issues in Sexual Orientation Measurement and Data Collection report.

34 The Summary of Focus Groups and Interviews report (Pega, 2009c) is available from the Ministry of Social Development on request.
4 Defining sexual orientation – conceptual framework overview

This chapter summarises the Sexual Orientation Conceptual Framework (Pega, 2009a) developed by the SODCS. The Sexual Orientation Conceptual Framework describes how cultural and gender-related perspectives frame the conceptualisation of sexual orientation, discusses the conceptual dimensions of sexual orientation, and proposes working definitions of the key sexual orientation concepts.

4.1 Culture and gender-related frames of sexual orientation

Culture perspectives. At the broadest conceptual level, both culture and gender frame the way in which sexual orientation is conceptualised. In terms of culture, Māori, New Zealand European, Pacific, Asian, and other cultural paradigms differ with respect to their conceptualisation of sexual orientation, and these cultural dimensions have implications for the collection of sexual orientation data. Sexual orientation concepts have been in use by Māori both in contemporary times and historically, with takatāpui (wahine, tāne) being a sexual identity specific to Māori. New Zealand Europeans are familiar with sexual orientation as a concept and frequently adopt common Western sexual identity labels. In general terms, amongst Pacific Peoples, while sexual orientation might not be a familiar concept, same-sex behaviour is relatively common amongst some young, unmarried men and there are social identities related to male same-sex sexual relationships (eg, the fa’afafine of Samoa). People from Asian backgrounds might also not traditionally have an equivalent sexual orientation concept although segments of this population engage in same-sex behaviour. As in other life domains, new migrants tend to adopt the sexual orientation concepts of the host culture; however, this depends on several factors including country of origin, and level of acculturation to the host culture. As these examples illustrate, cultural conceptualisations of sexual orientation vary widely and need to be taken into careful consideration.

Gender-related perspectives. Gender-related dimensions such as gender, gender role, sex role, and gender identity also impact on the conceptualisation of sexual orientation by various groups. For example, there are gender differences in how men and women conceptualise sexual orientation, and adherence or non-adherence to gender-typical roles can influence on conceptualisations of sexual orientation, for example amongst Pacific males. Similarly, amongst some groups such as Pacific males it is a deciding factor for the conceptualisation of sexual orientation, whether an individual takes an active or passive role during (same-sex) sexual behaviour. Finally, gender identity is an important factor with respect to the conceptualisation of sexual orientation, with transgender (and potentially intersex) people conceptualising their sexual orientation to others either in relation to their sex or their gender identity.

4.2 Conceptual dimensions of sexual orientation

4.2.1 Key measurement concepts of sexual orientation

There are several key conceptual dimensions of sexual orientation. First, there is widespread consensus that the umbrella concept of sexual orientation encompasses three key concepts: sexual attraction, sexual behaviour; and sexual identity. Other concepts such as sexual fantasy or sexual desire are sometimes used to describe aspects of sexual orientation, but are not central to the conceptualisation of sexual orientation for official purposes.
While at first glance it may appear that one concept (e.g., sexual identity) could be inferred from another (e.g., sexual behaviour); whereas this is in fact not the case, and individuals often do not respond consistently across these three domains. For example, while many women who have sex with women identify as lesbian or bisexual, some identify as heterosexual. The multi-component nature of sexual orientation has implications for measurement in that it means that not one measure can accurately differentiate populations defined by three key different measurement concepts.

4.2.2 Sexual orientation as a continuum
A second conceptual issue which has implications for the measurement of sexual orientation is the notion of sexual orientation as a continuum rather than as a set of mutually exclusive categories. First, discussions about definitional and classification criteria for both-sex oriented populations have advanced the field to understand sexual orientation as continuous, rendering dichotomous (heterosexual/homosexual) or other simple categorisation schemes inaccurate or even meaningless. Conceptualisation of sexual orientation as a continuum, allows for greater flexibility and inclusiveness. For example, asexuality (i.e., absence of sexual attraction) can be included as an extension of the sexual orientation continuum.

4.2.3 The fluidity of sexual orientation
Finally, the notion that sexual orientation can be fluid over time and social context, rather than fixed is discussed. There is growing evidence of changes of sexual orientation over time and social context and these can result in significant sexual orientation fluidity (in much the same way that ethnicity can be fluid). Several phenomena and processes explain and underlie fluidity of sexual orientation. First, differing levels of certainty about one’s sexual orientation and differences in the extent of sexual orientation exploration are two factors that can result in changes in sexual orientation over time. Second, there are individuals who choose not to label their sexual orientation, challenging traditional sexual orientation categories. Third, some individuals adopt an alternative socio-political sexual identity (e.g., ‘queer’) rendering classification norms and rigid classifications of sexual orientation inaccurate. Fourth, the emergence of new sexual orientation categories, particularly amongst dynamic youth populations, indicate increasing fluidity of sexual orientation (and increasing social acceptability of this), along with a merging of sexual orientation, gender, gender identity, and gender role dimensions.

4.3 Working definitions: sexual orientation topic and key measurement concepts

Given that the umbrella concept of sexual orientation is defined by three key measurement concepts, we propose that sexual orientation should be treated as a statistical topic, with three measurement concepts: sexual attraction, sexual behaviour and sexual identity. The following working definitions for the statistical topic of sexual orientation and the associated measurement concepts are proposed:
Table 1: Proposed working definitions for the sexual orientation statistical topic and the associated measurement concepts (sexual attraction, sexual behaviour, and sexual identity)

<table>
<thead>
<tr>
<th>Statistical Topic</th>
<th>Proposed Working Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual Orientation</td>
<td>Sexual orientation is defined by three key concepts: sexual attraction, sexual behaviour, and sexual identity. The relationship between these components is that sexual orientation is based upon sexual attraction and that sexual attraction can result in various sexual behaviours and the adoption of sexual identities. The three key concepts are related, but not necessarily congruent continuous variables, each of which can independently change over time and by social context.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measurement Concept</th>
<th>Proposed Working Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual Attraction</td>
<td>“Attraction towards one sex or the desire to have sexual relationships or to be in a primary loving, sexual relationship with one or both sexes” (Savin-Williams, 2006, p. 41).</td>
</tr>
<tr>
<td>Sexual Behaviour</td>
<td>“Any mutually voluntary activity with another person that involves genital contact and sexual excitement or arousal, that is feeling really turned on, even if intercourse or orgasm did not occur” (Laumann, Gagnon, Michael, &amp; Michaels, 1994, p. 67).</td>
</tr>
<tr>
<td>Sexual Identity</td>
<td>“Personally selected, socially and historically bound labels attached to the perceptions and meanings individuals have about their sexuality” (Savin-Williams, 2006, p. 41).</td>
</tr>
</tbody>
</table>

4.4 Summary and recommendations (Sexual Orientation Conceptual Framework; Pega, 2009a, pp. 50-53)

10. While past research has used a range of concepts, either singly or in combination, depending on situational factors, to refer to sexual orientation, today there is mounting international agreement that sexual orientation is an overarching concept that is best defined by the three key related, but distinct measurement concepts sexual attraction, sexual behaviour, and sexual identity.

**Recommendations:**
Adopt sexual orientation as a statistical topic.

Adopt as the three key measurement concepts of the sexual orientation topic sexual attraction, sexual behaviour, and sexual identity.

11. A range of culture and gender frames of sexual orientation exist in the New Zealand context and need to be considered when measuring sexual orientation to ensure such measures are as inclusive as possible.

**Recommendations:**
Take cultural perspectives on sexual orientation into account whenever sexual orientation data are being collected. This particularly refers to Māori perspectives as well as those of Pacific and Asian Peoples. Also consider youth perspectives.
Take gender perspectives on sexual orientation as described in the Sexual Orientation Conceptual Framework into account whenever sexual orientation data are collected.

12. Sexual orientation, especially sexual behaviour and sexual identity, is often fluid over time and social context.

**Recommendation:**
Clearly state reporting frames for sexual orientation questions in questions (eg, in the last year, ever).

13. The three sexual orientation measurement concepts, sexual attraction, sexual behaviour, and sexual identity, are conceptually distinct and data on each should be collected according to the type of information required.

**Recommendations:**
Recognise the three sexual orientation measurement concepts (sexual attraction, sexual behaviour, and sexual identity) as being conceptually distinct.

Always measure sexual attraction, sexual behaviour, and sexual identity separately and never in combination.

14. There is consensus that sexual attraction (towards the same- or opposite-sex) exists along a continuum. Some individuals experience uncertainty about their sexual attraction, and some do not feel sexually attracted to women or men.

**Recommendations:**
Measure sexual attraction using a five-point semantic-differential scale, using following response categories: ‘only attracted to females’, ‘mostly attracted to females’, ‘equally attracted to females and males’, ‘mostly attracted to males’, ‘only attracted to males’.

Add response categories that are required to enable individuals who are asexual or uncertain about their sexual attraction to respond (ie, ‘never felt attracted to anybody at all’ and ‘unsure’).

15. There are four agreed upon conceptual categories for sexual behaviour: Exclusively same-sex sexual behaviour; sexual behaviour with men and women; exclusively opposite-sex sexual behaviour; no sexual behaviour. There is a lack of research on sexual behaviour with transgender, fa'afafine and intersex people.

**Recommendation:**
Measure sexual behaviour using at least the generally accepted four response categories of sexual behaviour (ie, ‘exclusively same-sex sexual behaviour’, ‘sexual behaviour with men and women’, ‘exclusively opposite-sex sexual behaviour’, and ‘no sexual behaviour’). Consider further differentiated categories, if sexual behaviour was understood as continuous.
16. There are a broad range of sexual identity categories in New Zealand, with a range of commonly adopted categories and other categories being adopted by a very small segment of the population only. Major categories include ‘heterosexual’ (or ‘straight’), ‘lesbian’, ‘gay’, and ‘bisexual’. Important other categories that are important categories in the New Zealand context, but potentially require further investigation are the culturally defined sexual identities of ‘takatāpui’ (Māori) and ‘fa’afafine’ (Samoan). Some individuals might be uncertain about or be exploring their sexual orientation.

**Recommendations:**


Further investigate whether the ‘fa’afafine’ concept might also need to be included, as this concept might not constitute a robust sexual orientation concept.

Consider adding an ‘uncertain’ category for survey respondents who are uncertain of their sexual identity.

17. There are several key areas which require further investigation as part of the process of developing conceptually robust sexual orientation questions in the New Zealand context. These include:

**Recommendation:**

Conduct research on

- Māori preferences for sexual identity categories
- Pacific people’s conceptualisations of sexual orientation, including the Samoan fa’afafine concept
- Asian conceptualisations of sexual orientation
- transgender individuals’ conceptualisations of sexual identity, basis for responding to questions around sexual attraction, sexual behaviour, and sexual identity; and how sexual attraction to and behaviour with transgender people would be conceptualised by potential survey respondents.
- the conceptualisation of asexuality

18. Based on the evidence obtained by the SODCS, the Sexual Orientation Conceptual Framework proposed working definitions for sexual orientation (as a statistical topic) and sexual attraction, sexual behaviour, and sexual identity (as the measurement concepts).
**Recommendation:**
Adopt the working definitions for sexual orientation, sexual attraction, sexual identity, and sexual behaviour (p. 51) as being conceptually sound and appropriate.
5 Question design

The OSS has not yet developed standard sexual attraction, sexual behaviour or sexual identity questions that could ensure that timely, reliable, consistent, high-quality, and comparable sexual orientation data are collected in official New Zealand surveys. But there is some research on the design of sexual attraction and sexual behaviour questions that the OSS could draw on in this regard; however, this research generally does not aim to find questions that are suited for use in official surveys. There is a large body of research on the design of sexual identity questions for inclusion in official surveys that the United Kingdom Office for National Statistics has produced.

This chapter outlines the key measurement issues associated with the design of sound sexual attraction, sexual behaviour, and sexual identity questions for use in official surveys. It provides general considerations, followed by a discussion of the conceptual basis that could potentially guide the development of OSS sexual orientation questions. The chapter then reviews evidence on the format of sexual orientation questions, and develops and proposes preliminary standard sexual attraction, sexual behaviour, and sexual identity items for use in the OSS on the basis of this evidence. Finally, the chapter explores issues related to the order in which sexual attraction, sexual behaviour, and sexual identity questions in a suite of sexual orientation questions should be asked, as well as the placement of sexual orientation questions in surveys.

5.1 General considerations

A number of overseas official statistics agencies have developed sexual attraction, sexual behaviour, and sexual identity questions for inclusion in official probability surveys (see Office for National Statistics [ONS], 2008; Sell, n.d.). These sexual orientation questions already in use in official surveys are a selected set of all possible questions that are more suited to official statistics systems. However, of all the official statistics agencies that have collected sexual orientation data, only the Office for National Statistics (United Kingdom) has published evidence from the developing, testing, and trialling of such questions in official surveys, producing valuable information that can inform question design and selection in New Zealand’s OSS (Betts, 2008; 2009; Betts, Wilmot & Taylor, 2008; Hand & Betts, 2008; Joloza, Traynor & Haselden, 2009; ONS, 2008; Taylor, 2008a, b; Taylor & Ralph, 2008; Traynor, 2008; Wilmot, 2007). Outside of official statistics systems, there has also been significant scientific enquiry into which questions produce the highest possible quality data on sexual attraction, sexual behaviour, and sexual identity, and numerous questions have been developed and applied in non-official probability surveys to measure these conceptual dimensions.

While such evidence is by no means comprehensive, experiences have accumulated from the application and testing of these diverse questions, allowing increasing evaluation of the usefulness of measurement tools, for both adult and adolescent population groups. Various technical issues related to the design of sexual attraction, behaviour, and identity questions have also been highlighted by methodological research.

5.1.1 Complex measurement tools

Studies that describe the development of the various complex measurement instruments specifically designed to assess sexual orientation, as well as the tools themselves, could potentially provide important insights for the development of
survey questions for official surveys (see Sell, n.d.; Worthington, Navarro, Savoy, & Hampton, 2008). These measurement tools include the *Kinsey Scale*, the *Klein Sexual Orientation Grid*, the *Sell Assessment of Sexual Orientation*, the *Friedman Measure of Adolescent Sexual Orientation*, and the *Measure of Sexual Identity* *Exploration and Commitment*, amongst others.

These increasingly complex measures reflect the progressively sophisticated conceptual and operational definitions of sexual orientation. For example, the *Kinsey Scale* was the first measure that acknowledged the sexual orientation continuum by allowing identification along a scale from 'exclusively homosexual' to 'exclusively heterosexual'. The *Klein Sexual Orientation Grid* expanded measurement along various dimensions of sexual orientation (sexual behaviour, identity, attraction and fantasy) and different reporting periods. The *Sell Assessment of Sexual Orientation* measures sexual orientation dimensions on a continuum, includes a lifetime dimension of sexual orientation, and separate assessments of homosexuality and heterosexuality. The *Friedman Measure of Adolescent Sexual Orientation* is tailored to the needs of adolescent respondents.

While these specific measurement tools are likely to be too complex for use in most official probability surveys, they could potentially provide useful insights into various question designs. These complex measurement tools, and research about them, could prove especially useful for the further development of the preliminary sexual attraction and sexual behaviour question proposed by the SODCS, considering that evidence about the optimal design of official sexual attraction and sexual behaviour questions is currently still limited.

5.1.2 Standardisation of sexual orientation items

There is a need for national and international coordination with respect to the design of sexual attraction, behaviour, and identity questions in order to facilitate cross-study comparability by ensuring the collection of internationally consistent data (Coxon, 1993; Saewyc et al., 2004; Sell & Becker, 2001). Such standardisation of sexual orientation questions across studies and countries will enable national and international comparisons and meta-analyses to be conducted (Saewyc et al., 2004). However, this does not negate the need for culture-specific concepts to be included in measures of sexual orientation.

To ensure a high degree of utility across studies, standard sexual attraction, behaviour, and identity questions must be applicable in a variety of data-collection situations (Coxon, 1993). Such questions must be easily comprehensible, possibly encryptable for the purpose of securing confidentiality, detailed enough to cover a range of potentially complex sexual orientations, and yet remain open for modification (eg, allowing changes to response categories; Coxon, 1993).

5.1.3 Adolescent populations

Adolescents comprise a population group with particular data collection needs in the area of sexual orientation. A cognitive processing study has been conducted in the United States to make sense of adolescents' understanding of four sexual orientation questions (Austin, Conron, Patel, & Freeder, 2006). This study provides important lessons for the construction of sexual orientation questions that target adolescents.

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The first item that the study explored was a sexual identity question. This item suited many participants for whom one of the response categories (eg, ‘heterosexual/straight’; ‘gay or lesbian’; ‘bisexual’; ‘not sure’) matched their self-definition. However, sexual minority youth perceived this question as more difficult to accurately answer the question as they felt the sexual identity labels used in the response categories implied a degree of permanence they did not necessarily agree with. Those
and echoes findings from other studies on measurement of sexual orientation in adolescent health research. The study found that for adolescent survey respondents, questions on sexual attraction and sexual behaviour are likely to provide more useful data than sexual identity questions (Austin et al., 2006). However, further qualitative pilot-testing is still needed to gain a better insight into how adolescent respondents of differing ethnic groups, ages, and cognitive abilities understand sexual orientation items (Saewyc et al., 2004).

5.1.4 Minimum age of respondents
Another important area that requires attention is the minimum age of a respondent at which sexual orientation questions can be administered. The Office for National Statistics administers sexual identity questions to all survey respondents 16 years or over (ONS, 2008). As the Sexual Orientation Data in New Zealand Surveys – Technical Report has shown, in OSS surveys, sexual orientation questions have generally been administered to respondents aged 18 or older (Gray, 2009). In sum, the current body of evidence suggests that sexual attraction, sexual behaviour, and sexual identity questions can be administered to respondents aged 18 or over and could be administered to respondents 16 years of age or over also in OSS surveys; however, age limits for official sexual orientation questions need further investigation.

5.1.5 Culture and language
Sexual orientation measurement tools that have been developed and tested on predominantly European samples cannot be uncritically used to assess sexual orientation amongst ethnic minority men and women (Croom, 2000; Zea, Reisen, & Diaz, 2003). In addition, the language in which participants are asked to report their sexual identity may influence self-identification of minority sexual orientation. In consequence, sexual orientation questions (especially questions on sexual identity) could result in different classifications of sexual minority persons with similarly patterned sexual behaviour due to the effects of cultural origins on responding (Zea et al., 2003). If surveys are to be administered in multiple languages, there is an urgent need for culturally neutral translations of questions assessing sexual orientation, or aspects thereof, to be made (Laumann et al., 1994). As indicated by who chose ‘bisexual’, those whose sexual orientation was in-between categories (e.g., ‘mostly heterosexual’), and those with alternative sexual identities (e.g., ‘queer-identified’), preferred response options better suited to their self-identification and experience.

The second item merged the sexual identity and attraction categories in that the question was: ‘Which of the following best describes your feelings?’ and a response category was ‘Completely heterosexual (attracted to persons of the opposite sex).’ The item allowed reporting of gradients of sexual orientation (‘completely heterosexual’, ‘mostly heterosexual’, ‘bisexual’, ‘mostly homosexual’, and ‘completely homosexual’). That the question merged sexual identity and sexual attraction was favoured by those whose experience matched the intermediary positions (i.e., ‘mostly heterosexual’, ‘bisexual’, and ‘mostly homosexual’). Other sexual minority youth on the other hand critiqued this item for insufficiently differentiating between identity markers and attraction, which for them were quite different. Transgender youth struggled with answering this question, with some making choices in relation to their gender identity, and others on the basis of their biological sex. Some also considered the ‘not sure’ or ‘bisexual’ options, partly to avoid this decision.

Nearly all participants could easily answer the third item explored in the study, which was a sexual attraction/feelings item, reporting that they perceived a sexual attraction items as less threatening than having to report their sexual identities. This was also particularly useful for those who preferred to not adopt a specific sexual identity label at this point and to avoid the negative connotations of traditional terms such as ‘gay’ and ‘lesbian’.

A fourth item on sexual contact was problematic in that adolescents had widely varying ideas about what constituted ‘sexual contact’ and even the suggestion of more narrowly defined terms such as ‘sex’ or ‘sexual intercourse’ was associated with widely divergent behaviours amongst youth, making it problematic for use (Austin et al., 2006).
Saewyc and colleagues (2004), more research on indigenous sexual minority groups is needed to ensure culturally appropriate wording of items.

5.1.6 Survey context
Survey context is also a factor which could potentially impact on reporting. Findings from Statistics New Zealand sponsored focus groups suggested that respondents felt sexual orientation questions were more acceptable in some types of surveys than others (eg, health surveys; SNZ, 2003a). This is likely to impact on respondents’ willingness to disclose information in different contexts.

5.2 Conceptual basis
The Sexual Orientation Conceptual Framework produced by the SODCS (Pega, 2009a; summarised in the previous chapter) makes the case for consideration of sexual orientation as a statistical topic, with the three key measurement concepts to capture the conceptually complex and multi-dimensional nature of the topic. Working definitions for the sexual orientation topic and key measurement concepts are proposed in the framework (see pp. 48-49) and can be used as the definitional basis for OSS question development.

Furthermore, the design of standard sexual attraction, behaviour, and identity questions for inclusion in OSS probability surveys needs to be guided by the principles described in the Sexual Orientation Conceptual Framework. In particular, questions should take into account:

- that culture and gender frame the conceptualisation of sexual attraction, sexual behaviour and sexual identity
- that sexual orientation concepts need to be seen along a continuum
- that sexual orientation concepts can be fluid over time and social context

The vital sexual orientation concepts and categories that need to be included in OSS questions are detailed in the conceptual framework.

5.3 Question format
Questions vary in format with respect to their use of preambles and enhanced items, question stems, and response categories.

5.3.1 Preambles and enhanced items
In some question designs, the question stem is preceded by a preamble. Such preambles can have a variety of functions, including:

- introducing, contextualising, and explaining the question

Examples:

“Now I am going to ask you about your sexual orientation.” (Oregon Behavioural Risk Factor Surveys)

“This is a new question that we are testing. This question is being developed for equality monitoring.” (Omnibus Survey, Office for National Statistics Sexual Identity Project, United Kingdom)
• reassuring respondents of survey confidentiality
  Example:
  “This next question is about your sexual orientation and I want to remind you again that your answers are completely confidential.” (California Health Interview Survey 2001)
• listing response categories to familiarise respondents with these
• reminding respondents of the choice to not answer the question
• helping make the transition from other topics
• including statements which reduce the sensitivity of the question

Use in New Zealand surveys. The New Zealand Health Behaviours Survey: 2003 Drug Use used an exemplary preamble combining many of these functions:

‘I am now going to ask you to describe your sexual identity. The options I am going to read out are: heterosexual; gay man; lesbian, bisexual; or some other sexuality. As I said at the beginning of the interview, everything you say is confidential and you can choose to not answer any question if you wish.’

Use of preambles in international surveys. A range of preambles used in official surveys in North American surveys are listed elsewhere (Taylor, 2008b, pp. 11-12). Betts identified only one large-scale non-official probability survey from the United Kingdom in which a preamble was used to introduce a sexual orientation question (2008). A range of preambles were piloted in United Kingdom probability surveys, but not included, and some were dropped during survey administration (Betts, 2008). Trialling of a preamble to familiarise survey respondents with the reason for collecting sexual identity data in official surveys showed that such a preamble was not necessary and did not increase response rates in the United Kingdom (Office for National Statistics, 2008).

The sexual identity question currently administered in United Kingdom official surveys is not preceded by a preamble or enhanced item. The Office for National Statistics (2008, p. 6) concluded that, “as a general principle, the sexual identity question should be treated just as any other survey question. Testing has shown that the question should not be given any special explanation about its meaning, purpose or confidentiality (the last two can be explained if a respondent asks”. This highlights the point that such preambles can sometimes draw undue attention to the item, thereby heightening its sensitivity. In conclusion, the current evidence suggests that preambles to standard sexual identity items are not required in OSS surveys, and possibly also not required for sexual attraction and sexual behaviour items, if the available evidence on sexual identity items is transferable.

Enhanced items. Notwithstanding this, enhanced items can allow respondents greater freedom to report minority sexual attraction, sexual behaviour, and sexual identity by making them feel more at ease, as well as increasing respondents’ recall of past same-sex sexual attraction and sexual behaviour, and minority sexual identity (eg, behaviour; Kontula, 2004). An example of an enhanced item is:

‘In past surveys many men have reported that in some point in their life they have had some type of sexual experience with other males. This could have happened before adolescence, during adolescence, or as an adult.’
And, similarly:

“In past surveys many men have reported that in some point in their life they have had some kind of sexual experience with another male. This could have happened before adolescence, during adolescence, or as an adult.”

(Catania et al., 1996, p. 353)

Recent research. Research on the use of enhanced items is emerging, with too few findings as yet to be conclusive. Kontula (2004) reports in reference to Turner et al. (1996) that enhanced items have been found to improve disclosure rates of same-sex sexual behaviour in empirical studies. On the other hand, one older, possibly dated study testing the effect of enhanced versus standard items found that enhanced items generally increased non-response and drop-out rates, although they increased reporting of same-sex sexual behaviour amongst men significantly (Catania et al., 1996). This effect may occur only in phone surveys due to participants becoming bored with all the extra detail and ending the call. In self-response questionnaires this may be less of an issue because the participant can ‘skim over’ the extra detail if this is not needed. In conclusion, the value of using enhanced items in official surveys should be further investigated.

5.3.2 Question stems
A range of different question stems have been used in sexual attraction, sexual behaviour, and sexual identity questions. These are outlined below and question stems proposed for use in the OSS proposed.

Sexual attraction questions. There is no published research on question stems for sexual attraction items for use in official surveys. However, the online resource www.gaydata.org, created by Sell (n.d.) to inform the development of suitable survey questions for inclusion in surveys, has proposed a standard sexual attraction question, which has previously been used in official United States surveys. The proposed question stem is from the National Survey of Family Growth, collected through audio-CASI:

People are different in their sexual attraction to other people. Which best describes your feelings? Are you...Only attracted to females, Mostly attracted to females, Equally attracted to females and males, Mostly attracted to males, Only attracted to males, Not sure.

(Sell, n.d.)

This question uses a preamble (‘People are different in their sexual attraction to other people’), although generally, preambles have not been found to be of benefit for sexual identity questions (ONS, 2008), and are likely to also be of little benefit for sexual attraction questions. In addition, the preamble uses the term ‘sexual attraction’, which might not be widely understood, especially amongst heterosexual survey respondents. The word ‘feeling’ could be misunderstood, especially if the term ‘sexual attraction’ is not mentioned previously. The second part of the question stem (‘Are you...’) might be perceived as too direct, confrontational, and rigid.

On the basis of these critiques, a question was designed for possible application in the OSS and then discussed in focus groups with takatāpui, fa’afafine, lesbian, gay, and bisexual participants and key-informant interviews with producers and
consumers of official statistics (see Summary of Findings from Focus Groups and Interviews; Pega, 2009c). The item underwent further development on the basis of the feedback received as part of the SODCS. The proposed preliminary question stem for a OSS standard sexual attraction question is:

**Do you consider yourself to be only attracted to females; mostly attracted to females; equally attracted to females and males; mostly attracted to males; only attracted to males; not attracted to members of either sex; unsure?**

**Sexual behaviour questions.** There is no published research on question stems for sexual behaviour items for use in official surveys. For the sexual behaviour dimension, Sell (www.gaydata.org; n.d.) recommends a telephone interview question applied in the Vermont and Massachusetts Behavioural Risk Factor Surveys:

**During the past 12 months, have you had sex with only males, only females, or both males and females?**

As noted earlier, there are likely to be varying understandings about which sexual behaviours qualify as ‘having had sex with someone’, especially amongst adolescents (Austin et al., 2006). However, the OSS could consider the inclusion of an explanation listing the sexual practices that define ‘having had sex with someone’ to solve this issue.

**Sexual identity questions.** Detailed evidence about question stems is available for sexual identity questions from the Office for National Statistics Sexual Identity Project in the United Kingdom. This project reviewed question stems commonly used in official non-United Kingdom surveys to assess sexual identity (Taylor, 2008a). For example, the Sexual Identity Project found that in the United States and Canadian official probability surveys, commonly used question stems were:

- **Do you consider yourself to be**… (Taylor, 2008a; also recommended by Sell, n.d.)
- **Do you think of yourself as**… (Taylor, 2008b).

No United States or Canadian official sexual identity questions referred to ‘sexual identity’ in the question stem (Taylor, 2008b). As in other surveys where response options were presented in the preamble, survey administrators, in the 2006 North Dakota Behavioural Risk Factor Survey, re-read the list of response categories and asked respondents to, ‘**please stop me when I get to the item that best describes how you think of yourself** ’ (Taylor, 2008b). This approach is likely to be particularly effective for telephone surveys, because it ensures privacy of response.

The 2001 California Health Interview Survey was unique in that it divided its sexual identity question into two parts, with the first question identifying all non-heterosexual respondents and the second question clarifying the sexual identities of self-identified sexual minority individuals. This approach produced similar response rates and prevalence figures as a more conventional, one-item measurement approach (Taylor, 2008b), indicating that a one-item approach is sufficient.

The Sexual Identity Project also reviewed sexual identity questions administered in United Kingdom large-scale non-official probability surveys. This review found that question stems in the United Kingdom for sexual identity questions varied significantly more than was the case in official surveys in Canada and the United
States. In particular, United Kingdom surveys administration techniques to enhance privacy such as the use of cards with answer categories or encrypting of answer categories (for review see Betts, 2008, pp.17-18) were reflected in the question stem. For example, the Citizenship Survey used the following question stem:

Looking at this card, which of the options best described your sexual identity? Please just read out the letter next to the description.

Also, the majority of the reviewed sexual identity questions from United Kingdom large-scale probability surveys did not explicitly refer to the subject topic (ie, sexual identity) in the stem, but rather conveyed it in the response categories (Betts, 2008). When trialled in the Omnibus Surveys, the usage of the term ‘sexual identity’ in the question stem was problematic as this term was poorly understood by some respondents (Taylor, 2008a). It can be concluded that the OSS should also avoid referring to ‘sexual identity’ in its standard sexual identity question.

The wording of sexual orientation questions in United Kingdom surveys tacitly acknowledges the complexities associated with accurately describing sexual orientation. To ask respondents to identify which response category ‘best described’ their sexual orientation as opposed to which response category ‘described’ their sexual orientation is a means of acknowledging the fluidity of sexual orientation experienced by some respondents (Betts, 2008). To ask respondents to ‘state’ their sexual orientation is a qualitatively different approach from asking them to ‘describe’ their sexual orientation; with the former being more self-assertive and the latter carrying a less constraining connotation (Betts, 2008).

The question stem of the standard sexual identity question implemented in United Kingdom official surveys after two years of intensive development, pre-testing, and trialling in official surveys is:

Which of the options on this card best describes how you think of yourself? Please just read out the number next to the description.

(ONS, 2008, p. 3)

This question stem is the most robust question stem for use in official surveys developed to-date and is supported by strong evidence from focus group testing (Betts, Wilmot, & Taylor, 2008) and several trials in official surveys (Malagoda & Traynor, 2008; Taylor, 2008b; Taylor & Ralph, 2008; Traynor, 2008).

Time frames. Considering that sexual attraction, sexual behaviour and sexual identity can be fluid over time (see Sexual Orientation Conceptual Framework; Pega 2009a, pp. 42-45), we emphasise that time frames should also be included in sexual orientation questions to facilitate accurate reporting (Brogan, Frank, Elon, & O’Hanlan, 2001; Gonsiorek, Sell, & Weinrich, 1995). Time frames (eg, ‘currently’, ‘in the last six months’, ‘ever’) should be included in the question stem of sexual attraction, behaviour, and identity questions. An additional related point is that if respondents are asked to report their sexual attraction, sexual behaviour, and sexual identity for different time periods as implemented for example by Fay, Turner, Klassen, and Gagnon’s 1989 study, changes over time can be studied.
5.3.3 Response categories
Response categories vary with respect to the terms used, whether and how terms are combined, and in which order response categories are presented. These are discussed below.

Sexual attraction. There is no published research on response categories for sexual attraction for use in official surveys. However, Sell (www.gaydata.org; n.d.) proposes the following response categories for a sexual attraction question based on the United States National Survey of Family Growth:

Only attracted to females, Mostly attracted to females, Equally attracted to females and males, Mostly attracted to males, Only attracted to males, Not sure

These commonly used response categories acknowledge the continuum of sexual attraction by providing a five point-scale from exclusively attracted to females to exclusively attracted to males, plus a category for those uncertain about their sexual attraction. The proposed answer categories do not include a category for people who are not sexually attracted to males or females (asexual), which might be a significant category. As some participants of focus groups with takatāpui, fa'afafine, lesbian, gay, and bisexual people conducted as part of the SODCS pointed out, these response categories do not enable survey respondents to accurately report sexual attraction to people who do not identify as male or female (ie, transgender and intersex people), although this population appears to constitute only a very small percentage of the general population (see Summary of Findings from Focus Groups and Interviews; Pega, 2009c).

The following response categories have been developed for the preliminary sexual attraction question for the OSS by the SODCS, and expand the response categories proposed by Sell (n.d.) to include one additional category, namely ‘never felt attracted to anybody at all’ (as coined by Brogaert, 2004):

- only attracted to females
- mostly attracted to females
- equally attracted to females and males
- mostly attracted to males
- only attracted to males
- never felt attracted to anybody at all
- unsure

Sexual behaviour. There is no published research on response categories for sexual behaviour questions for use in official surveys. Sell (www.gaydata.org; n.d.) proposed the following response categories for his sexual behaviour question:

only males, only females, or both males and females

These categories are commonly used and uncontested sexual behaviour categories, with few additional categories used; however, a category enabling respondents to report that they ‘have not had sex’ in the reporting time is also required. Once again, some participants of focus groups with takatāpui, fa'afafine, lesbian, gay, and bisexual people conducted as part of the SODCS pointed out, that these response categories do not enable survey respondents to accurately report sexual behaviour
with people who do not identify as male or female (ie, transgender and intersex people) (see Summary of Findings from Focus Groups and Interviews; Pega, 2009c).

Sexual identity. There is detailed evidence from the United Kingdom Office for National Statistics Sexual Identity Project about the suitability of different terms, whether to combine alternative terms, and how to best order response categories. Large-scale probability surveys generally provide a combination of formal, scientific or medical terms (eg, ‘heterosexual’, ‘homosexual’) and more colloquial terms describing sexual orientation (eg, ‘straight’, ‘gay’, ‘lesbian’) as response categories. Official probability surveys from the United States and Canada provided the following response options: ‘heterosexual’, ‘homosexual/gay/lesbian’, and ‘bisexual’, normally in that very order (Taylor, 2008b). In United Kingdom surveys, similar terms were used, but in a wider variety of combinations than in the United States and Canada (Betts, 2008). A common alternative for the formal ‘heterosexual’ label was ‘straight’, and common alternatives for ‘homosexual’ were ‘gay’ or ‘gay man’; ‘lesbian’; or ‘gay/lesbian’. Neither in the United Kingdom nor in the United States or Canada was an alternative term used for ‘bisexual’ (Betts, 2008; Taylor, 2008b).

Focus group research conducted by UMR Research on behalf of Statistics New Zealand (2003a) sought the perspectives of individuals from a range of population groups in New Zealand about their understanding of various sexual identity terms, although focus group discussions appear to have not engaged in a detailed investigation of the topic. This study included one focus group with six men identifying as ‘gay’ and one focus group with four women identifying as ‘lesbian’, but did not include several important sexual minority groups such as takatāpui, fa’afafine, and bisexual identified participants, as well as participants who were not out. The small number and limited range of sexual minority focus group participants challenge the idea that this study was able to identify an adequate range of sexual minority perspectives and question the overall approach taken and expertise drawn on, limiting the validity of the findings. However, the study concluded that many focus groups participants were of the opinion that most New Zealanders would understand the term ‘heterosexual’, whereas ‘straight’ as an alternative term was discounted for being too colloquial and informal. Somewhat surprisingly, cognitive testing for the Census suggests that many respondents in New Zealand still fail to understand the term ‘heterosexual’. Groups identified who may experience some difficulty with the term ‘heterosexual’ were very young and very old people, as well as new migrants with limited English language skills.

All focus group participants readily understood the term ‘homosexual’, yet for some the term was seen as a label for same-sex oriented men only, and not same-sex oriented females. Gay men voiced preference for the term ‘gay’ as an identity marker, opposing the term ‘homosexual’ for its negative connotations. Other participants, however, perceived the term ‘gay’ as overly colloquial and quoted the derogatory use of the term; for example, amongst children and adolescents. Some Pacific Island people noted that ‘fafa’ (an abbreviation for the Samoan term ‘fa’afafine’) would be the most recognised term that their contemporaries used to refer to same-sex oriented men. However, it needs to be noted in this regard that this term is a Samoan term only, and not a term used across Pacific peoples. The majority of lesbian women as well as other groups preferred the term ‘lesbian’, regarding it as the most appropriate term. For most, ‘same sex’ was a suitable neutral term that could be applied to both gay men and lesbians.

A majority opinion thought that ‘bisexual’ needed to be included as a category in official sexual orientation questions, given that it denotes a distinct sexual identity category. Some gay men and lesbians were of the opinion that ‘transgender’,
although the term marks a gender identity rather than a sexual orientation, was important and merited inclusion as a separate category in sexual orientation questions. However, it needs to be acknowledged that ‘transgender’ would not be appropriate for a question on sexual orientation, given that this category measures gender identity, not sexual orientation.

Gay men and lesbians also perceived an ‘unsure’ category as valid, with some stating that this category reflected some stage of their sexual identity development. In addition, a number of focus group participants felt that survey respondents needed to have the option of not disclosing a sexual orientation question in official surveys.

Use of alternative terms. Response categories in sexual identity questions can consist of more than one term. In United Kingdom probability surveys and United States official surveys, when alternative terms were given for the same sexual identity, the formal term preceded the colloquial term, with few exceptions (Betts, 2008; Taylor, 2008b). In United Kingdom probability surveys, the term ‘straight’ sometimes preceded ‘heterosexual’, whereas colloquial terms (eg, ‘gay’, ‘lesbian’, ‘bisexual’) always followed ‘homosexual’. At times, the second term is given in parentheses, ‘heterosexual (straight)’ for example; or, inverted commas are used to mark colloquial terms, ‘I am heterosexual or ‘straight’” for example (Betts, 2008). In some instances, colloquial terms were used for one response category, and formal terms used in others without alternatives. Importantly, “there did not appear to be any meaningful difference in estimates obtained from questions which could be put down to using particular variants of gay, lesbian and homosexual.”, at least in the United Kingdom surveys (Betts, 2008, p. 21). Notably however, combining ‘straight’ with ‘heterosexual’ in the response category in an Omnibus Survey trial (Office for National Statistics) of a sexual orientation question improved overall response rates, which is another indication of the comprehension difficulties some people have with the term ‘heterosexual’ (Taylor, 2008a). In conclusion, the terms ‘heterosexual’ and ‘straight’ should be used in combination to enhance understanding of the terms amongst heterosexual survey respondents.

Combined responses. The terms ‘gay’ and ‘lesbian’ are frequently combined to form one response category, in Canadian, United Kingdom, and United States surveys (Betts, 2008, Taylor, 2008b). However, similar prevalence rates were obtained (in the United Kingdom), whether these terms were provided in combined form or separately (Betts, 2008). From a measurement point of view, these categories would therefore not need to be separated, except if the two assessed groups (eg, lesbian-identified women and gay-identified men) found a combined option unacceptable.

Order of response options. It is possible that the order in which response options are provided might impact on response rates and disclosure. In United Kingdom probability surveys, those that placed ‘bisexual’ first, to ensure an alphabetical, non-hierarchical category order, achieved the highest prevalence rates for the ‘bisexual’ category across surveys (Betts, 2008). However, primacy effects have not been observed (Betts, 2008), and the Office for National Statistics’ Sexual Identity Project’s Omnibus Survey Trial 3 found no statistically significant differences in non-response rates whether the ‘heterosexual/straight’, or ‘gay/lesbian/bisexual’ was the first response option. Based on these findings the Office for National Statistics suggests placing the ‘heterosexual/straight’ category first, given that it is the most prevalent and least controversial (Taylor & Ralph, 2008). It is recommended that the OSS follow this practice.

‘Other’, ‘uncertain’, and ‘don’t know’ categories. Many sexual identity survey questions, especially in the United States and Canada, included an ‘other’ category.
Inclusion of this category acknowledges that the terms given are not inclusive of all individuals and provides opportunities for those with alternative sexual identities to respond, rather than to provide a non-response or slot themselves into another, unsuitable response category. However, the ‘other’ category is problematic as it does not allow any assessment of why respondents chose this category - leaving it open to interpretation as to whether respondents were genuinely ‘other’, were unlabelled, or were uncertain about or questioning their sexual orientation (Betts, 2008). Some United Kingdom surveys have asked respondents who chose the ‘other’ category to specify their sexual identity (Betts, 2008). In the sexual identity question currently implemented in United Kingdom official surveys, the ‘other’ category is not supplemented by a ‘please specify’ option for privacy reasons (ONS, 2008). In OSS surveys, it is recommendable to include an ‘other’ response category, considering the diverse sexual identities that have currency in New Zealand besides the most common categories (see Sexual Orientation Conceptual Framework, Pega 2009a).

Many sexual identity questions also include a ‘don’t know’ and/or a ‘not sure’ or ‘uncertain’ category, enabling survey respondents who don’t know their sexual identity, or are uncertain to respond accordingly. This is an area for further OSS consideration.

Mandatory responding. Some surveys also include a ‘do not wish to answer the question’, or ‘prefer not to say’ category. This category might be needed in official surveys where it is mandatory for survey respondents to answer the sexual identity question as it provides survey respondents with an opportunity to opt out of responding to a sensitive question while still meeting mandatory requirements. Aspinall and Mitton (2008) note that amongst both data users, and the lesbian, gay and bisexual community in the United Kingdom, there is broad consensus that ‘gay’, ‘lesbian’, ‘bisexual’, together with an ‘other’ and a ‘prefer not to say’ option is most appropriate. They concluded a review of evidence regarding the choice of answer categories by stating that, “this evidence suggests that classifications and categorizations are not limiting factors in the collection of sexual orientation data, so long as a ‘prefer not to answer’ or similar option is available” (Aspinall & Mitton, 2008, p.62). However, as noted previously, the Office for National Statistics Sexual Identity Project concluded that a ‘prefer not to answer’ category was not useful considering that it reduced reporting rates, so that such an option is currently not included in official sexual identity survey questions in the United Kingdom (ONS, 2008).

Given that some OSS surveys are mandatory, inclusion of a ‘prefer not to say’ option is an area that needs additional investigation in the New Zealand context, as emphasised also by producers and consumers of official statistics interviewed as part of the SODCS (see Summary of Focus Groups and Interviews; Pega 2009c). Although the Office for National Statistics decided against the inclusion of a ‘prefer not to answer’ category due to this opt-out category increasing non-response rates (Malagoda & Traynor, 2008; Taylor & Ralph, 2008), the OSS might nevertheless need to further consider inclusion of such a category.

‘Transgender’ category. United Kingdom surveys sometimes include a ‘transgender’ sexual orientation category. This occurs for one of two reasons; first, transgender people need to be identified for research purposes (although in this case a gender identity question should more correctly be placed with gender questions), or second because sexual orientation and gender identity have not been conceptually differentiated (Betts, 2008). Transgender participants of focus groups conducted with takatāpui, fa’afafine, lesbian, gay, and bisexual people as part of the SODCS,
believed that including a ‘transgender’ category as part of sexual orientation assessment was not useful as it conflated two quite distinct concepts, namely sexual orientation and gender identity. It can be concluded with confidence that a ‘transgender’ category should not be included in OSS survey questions on sexual identity.

Definitions. A number of surveys provided definitions of response categories within the item. Others had prepared definitions which were available during administration should respondents seek clarification (Taylor, 2008b). While these practices have some advantages, we argue that questions should be self-evident, and work without additional definition or explanation wherever possible. Some respondents who are confused by survey terms may ask for clarification while others may not, which may in turn affect their responses. However, the Office for National Statistics standard of not providing a definition within the item, but for survey administrators to provide a standardised definition upon request might well be adopted in the OSS (ONS, 2008).

Office for National Statistics standard categories. After completing two years of question development, testing, and trialling (Aspinall & Mitton, 2008; Betts, 2008; 2009; Betts, Wilmot, & Taylor, 2008; Joloza, Traynor, & Haselden, 2009; Malagoda & Traynor, 2008; ONS, 2008; Taylor, 2008a, b; Taylor & Ralph, 2008; Traynor, 2008; Wilmot, 2008), the Office for National Statistics Sexual Identity Project concluded that the following response categories were sufficient for official data collections in the United Kingdom (with ‘don’t know’ and non-responses spontaneously coded by survey administrators; ONS, 2008, p. 3):

1. Heterosexual or Straight
2. Gay or Lesbian
3. Bisexual
4. Other

Implications for OSS surveys. The Office for National Statistics standard categories should also be used in OSS survey questions on sexual identity. In addition, the Sexual Orientation Conceptual Framework (Pega 2009a) has highlighted that a ‘takatāpui’ and ‘fa’afafine’ category could also be added in OSS surveys, considering that the Māori and Samoan population is sizeable. As pointed out in the conceptual framework, additional conceptual research might be required to confirm that ‘takatāpui’, but especially the ‘fa’afafine’ categories are indeed sexual minority identities.

In addition, other minority Pacific sexual identities (eg, Tongan ‘fakaleiti’) could also be considered, but have not been addressed by the SODCS due to other Pacific populations than the Samoan population potentially not constituting sizeable populations. If a ‘fa’afafine’ category is added, among other questions, one matter that needs to be considered is what impact the presence of a Samoan-specific category - and no other Pacific categories - might have on the attitudes of other Pacific groups towards the sexual identity question. In particular, it may be useful to test, whether this could potentially have an adverse impact on response rates amongst non-Samoan, Pacific respondents.

5.4 Proposed preliminary questions

The proposed preliminary sexual attraction, sexual behaviour, and sexual identity questions have been developed by the SODSCS on the basis of:
• provisions made in the *Sexual Orientation Conceptual Framework* (Pega, 2009a)
• research findings on question development and the conclusions drawn from this evidence, as reported in this chapter
• pre-testing of the question with a small number of takatāpui, fa’afafine, lesbian, gay, and bisexual people as well as producers and consumers of official statistics (see *Summary of Findings of Focus Groups and Interviews*; Pega, 2009c).

The proposed preliminary sexual attraction, sexual behaviour, and sexual identity questions are shown in two formats, one for use in face-to-face interviews using concealed showcards, and one for use in telephone interviews - these being the recommended survey modes for the collection of sexual orientation data (see Chapter 10: *Survey mode*, pp. 102-110). Importantly, all proposed preliminary questions adopt (verbatim) the well-tested question formats and comments guiding administration that have been developed and implemented by the Office for National Statistics (2008) for implementation in United Kingdom official surveys; these formats were adopted, because they appear to be amongst the most robust available formats for official surveys and in order to ensure across-country comparability.

The proposed preliminary sexual attraction question for use in OSS surveys is:

**In personal interviews:**

ASK ALL AGED 16 OR OVER

INTERVIEWER: Allocate all cards, then ask the question to all

[NAME] SHOWCARD 1, [NAME] SHOWCARD 2, [NAME] SHOWCARD 3 etc

**Which of the options on this card best describes how you presently consider yourself to be? Please just read out the letter next to the description.**

*(ONLY IF CONCURRENT INTERVIEW)*

The letters on each card are different for each person

(letter) only attracted to females
(letter) mostly attracted to females
(letter) equally attracted to females and males
(letter) mostly attracted to males
(letter) only attracted to males
(letter) never felt attracted to anybody at all
(letter) unsure

*(Spontaneous DK/Refusal)*

**In telephone interviews:**

ASK ALL AGED 16 OR OVER

*I will now read out a list of terms people sometimes use to describe how they presently consider themselves to be.*

(INTERVIEWER: read list to end without pausing.

only attracted to females
mostly attracted to females
equally attracted to females and males
mostly attracted to males
only attracted to males
never felt attracted to anybody at all
unsure

*(Spontaneous DK/Refusal)*

As I read the list again please say ‘yes’ when you hear the option that best describes how you presently consider yourself to be.

(INTERVIEWER: Pause briefly after each option during second reading.)
The proposed preliminary sexual behaviour question for use in OSS surveys is:

<table>
<thead>
<tr>
<th>In personal interviews:</th>
<th>In telephone interviews:</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASK ALL AGED 16 OR OVER</td>
<td>ASK ALL AGED 16 OR OVER</td>
</tr>
</tbody>
</table>
| INTERVIEWER: Allocate all cards, then ask the question to all | I will now read you a list of terms people sometimes use to describe who they have had sex
| [NAME] SHOWCARD 1, [NAME] SHOWCARD 2, [NAME] SHOWCARD 3 etc   | with during the last 12 months?                                                         |
| Which of the options on this card best describes who you have | (INTERVIEWER: read list to end without pausing.                                         |
| you had sex with during the last 12 months? Please just read   | only with males                                                                          |
| out the letter next to the description.                       | only with females                                                                        |
| (ONLY IF CONCURRENT INTERVIEW)                                 | with both males and females                                                               |
| The letters on each card are different for each person        | not had sex during last 12 months                                                       |
| (letter) only with males                                      | (Spontaneous DK/Refusal)                                                                 |
| (letter) only with females                                     |                                                                                         |
| (letter) with both males and females                          | As I read the list again please say ‘yes’ when you hear the option that best describes who |
| (letter) not had sex during last 12 months                    | you have had sex with during the last 12 months.                                         |
| (Spontaneous DK/Refusal)                                     | (INTERVIEWER: Pause briefly after each option during second reading.)                    |

The proposed sexual identity question for use in OSS surveys is:

<table>
<thead>
<tr>
<th>In personal interviews:</th>
<th>In telephone interviews:</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASK ALL AGED 16 OR OVER</td>
<td>ASK ALL AGED 16 OR OVER</td>
</tr>
<tr>
<td>INTERVIEWER: Allocate all cards, then ask the question to all</td>
<td>I will now read out a list of terms people sometimes use to describe how they think of themselves.</td>
</tr>
<tr>
<td>[NAME] SHOWCARD 1, [NAME] SHOWCARD 2, [NAME] SHOWCARD 3 etc</td>
<td>(INTERVIEWER: read list to end without pausing.</td>
</tr>
<tr>
<td>Which of the options on this card best describes how you think</td>
<td>Note that ‘Heterosexual or Straight’ is one option; ‘Gay or Lesbian’ is one option.</td>
</tr>
<tr>
<td>of yourself? Please just read out the letter next to the</td>
<td></td>
</tr>
<tr>
<td>description.</td>
<td>Heterosexual or Straight</td>
</tr>
<tr>
<td>(ONLY IF CONCURRENT INTERVIEW)</td>
<td>Gay or Lesbian</td>
</tr>
<tr>
<td>The letters on each card are different for each person</td>
<td>Bisexual</td>
</tr>
<tr>
<td>(letter) Heterosexual or Straight</td>
<td>Takatāpui</td>
</tr>
<tr>
<td>(letter) Gay or Lesbian</td>
<td>Fa’afafine</td>
</tr>
<tr>
<td>(letter) Bisexual</td>
<td>Other</td>
</tr>
<tr>
<td>(letter) Takatāpui</td>
<td>(Spontaneous DK/Refusal)</td>
</tr>
<tr>
<td>(letter) Fa’afafine</td>
<td></td>
</tr>
<tr>
<td>(letter) Other</td>
<td>As I read the list again please say ‘yes’ when you hear the option that best describes how you think of yourself.</td>
</tr>
<tr>
<td>(Spontaneous DK/Refusal)</td>
<td>(INTERVIEWER: Pause briefly after each option during second reading.)</td>
</tr>
</tbody>
</table>
5.5 Question order

As noted previously, consensus is building that to adequately capture sexual orientation, studies ought to use a multi-dimensional conceptual and operational definition of sexual orientation that includes at the minimum the sexual attraction, sexual behaviour, and sexual identity concepts (Brogan et al., 2001; Gonsiorek et al., 1995; Martin & Knox, 2000; Savin-Williams, 2006). This means that in the optimal case a question each on sexual attraction, sexual behaviour, and sexual identity should be included in official surveys. There is emerging evidence about how to order sexual attraction, sexual behaviour and sexual identity questions, but few papers have described order effects and none have evaluated such effects in official surveys.

The order in which sexual attraction, sexual behaviour, and sexual identity questions are asked in a survey can impact on the rates at which socially stigmatised sexual attractions, sexual behaviours, and sexual identities are reported. It is a common assumption that progressively desensitising survey respondents is a successful strategy which leads to higher levels of disclosure (Catania, Gibson, Chitwood, & Coates, 1990). This involves ordering questions so that less sensitive questions are placed before more sensitive questions. The relative sensitivity of sexual attraction, sexual behaviour, and sexual identity questions is currently unknown. Participants of focus groups with takatāpui, fa'afafine, lesbian, gay, and bisexual people conducted as part of the SODCS did not agree on the relative sensitivity of the three questions (see Summery of Focus Groups and Interviews; Pega, 2009c).

Sexual orientation questions assessing sexual attraction and sexual identity should not be placed within a skip pattern that excludes those who have never had sexual contact (Saewyc et al., 2004). For example, respondents who report no sexual contact (behaviour) should still have an opportunity to respond to sexual attraction and sexual identity questions. Sexual attraction and sexual identity questions should not appear prior to sexual behaviour questions as the respondent may feel locked into supplying consistent responses to subsequent questions.

In conclusion knowledge about the order in which sexual orientation questions should be administered in a suite of sexual orientation questions in official surveys is limited. This means that further research in this area is required, before a suite of sexual orientation questions can be confidently administered in OSS surveys.

5.6 Question location

Question location may potentially influence the psychological and social context within which survey responses are provided. The sequencing of interview items might for example influence the socially ascribed value and meaning that a reported sexual attraction, sexual behaviour, or sexual identity has, with implications for the degree to which participants feel the need to present themselves in a socially desirable light. “Thus, appropriate sequencing may reassure the respondents that it is acceptable, under interview conditions, to admit to socially undesirable activities” (Catania et al., 1990, p. 348). For example, sexual orientation questions should never be located adjacent to questions on sexual abuse (Saewyc et al., 2004). As identified by the Office for National Statistics Sexual Identity Project, questions on sexual identity appear to be most appropriately placed with other questions on similar topics, such as gender or marital status, in official surveys. In accordance with this, sexual orientation questions are part of the standard demographic questions in United Kingdom official surveys, (Taylor, 2008b). Later evidence from the the General
Lifestyle (GLF) split-sample pilot supported the inclusion of the sexual identity question before a question on religion (Joloza, Traynor, & Haselden, 2009).

Further it is known that the motivation to answer questions decreases as the length of a questionnaire increases. Hence the placement of sensitive sexual attraction, sexual behaviour, and sexual identity items that might require particularly high motivation in the surveys requires careful consideration (Catania et al., 1990).

The implications for the placement of sexual orientation items in OSS surveys are that additional research is potentially required to determine the optimal placement of sexual attraction and sexual behaviour questions. Sexual identity items are most appropriately placed with other, related social identities, likely in the demographic core of OSS surveys.

5.7 Summary and recommendations

General considerations

1. A number of sexual orientation questions for use in official surveys have been developed, including by the United Kingdom Office for National Statistics.

   **Recommendation:**
   Standardise the collection of sexual orientation data within New Zealand, and ensure that sexual orientation data collected are consistent (to the extent possible) with similar data collected overseas.

2. Sexual orientation questions need to be based on sound, agreed-upon conceptual definitions, as developed in the Sexual Orientation Conceptual Framework (Pega, 2009a).

   **Recommendation:**
   Use the principles set out in the Sexual Orientation Conceptual Framework to guide the design of standard sexual attraction, sexual behaviour, and sexual identity questions.

3. Sexual orientation questions must be suitable for use across a variety of survey contexts, be phrased in terms that are widely understood by the public, and be detailed enough to capture a range of sexual orientations while remaining amenable to required changes and adaptations.

4. Questions developed mostly for and with European respondents cannot necessarily be used with non-European audiences. Translations of sexual orientation questions need to be made carefully, keeping in mind that terms chosen need to be value-free and that failure to ensure this could lead to different response patterns.

   **Recommendation:**
   Develop sexual orientation questions designed for use in one cultural context (eg, for predominantly European populations) for use in New Zealand; this may include appropriate translation of surveys into other languages as well as modifications to questions.
5. Adolescents have specific data collection needs in the area of sexual orientation. Questions on sexual attraction and sexual behaviour are likely to yield more useful responses from this group than are sexual identity questions.

**Recommendations:**
Carry out pilot-testing to investigate adolescents' perceptions of sexual orientation items, including adolescents from Māori, Pacific, and Asian ethnicities, and of a range of ages and abilities.

In surveys of adolescents only, prioritise collection of the sexual attraction and sexual behaviour measurement concept.

6. The minimum age at which respondents are asked sexual orientation questions has been set at 18 years of age or older in previous OSS surveys and at 16 years of age or older in overseas official surveys (including in the questions currently administered by the Office for National Statistics).

**Recommendation:**
Pilot-test collection of sexual orientation data with respondents 16 years of age and older to ascertain whether this age limit used by overseas official statistics agencies is adequate also for OSS surveys.

**Question format**
7. General advantages and disadvantages of using preambles for sexual orientation questions are known. However, there is limited specific evidence on the usefulness of preambles to sexual attraction and sexual behaviour items. While one OSS survey has used a preamble in a sexual identity question, based on the results from extensive questions development, testing, and trialling the Office for National Statistics does not include preambles for sexual identity questions. Hence, it appears that sexual identity items used in official surveys do not require preambles. Enhanced items might be a useful tool to increase disclosure rates in sexual orientation questions, but further research in this area would be beneficial.

**Recommendations:**
Investigate the usefulness of preambles to sexual attraction and sexual behaviour questions for inclusion in OSS surveys; do not use preambles for OSS sexual identity questions.

Investigate the usefulness of enhanced items in terms of increasing disclosure rates.

8. Sexual orientation questions stems need to be worded in ways that acknowledge the complexities around accurately describing sexual orientation. For example, evidence suggests that the term ‘sexual identity’ might not readily be understood by many survey participants, with the implication being that this term should not be used in the question stem. Possibly this evidence is transferable to the use of ‘sexual attraction’ and ‘sexual behaviour’. As aspects of sexual orientation can be fluid over time and social context, time frames should be incorporated into question stems.
Recommendations:
Ensure that items are easily understood by most individuals by using commonly known, appropriate terms.

Include time frames in question stems to enhance accuracy.

Use the following question stems:
- sexual attraction: How do you presently consider yourself to be?
- sexual behaviour: Who have you had sex with during the last 12 months?
- sexual identity: How do you think of yourself?

9. Research evidence suggests that following sexual attraction response options are essential: only attracted to females; mostly attracted to females; equally attracted to females and males; mostly attracted to males; only attracted to males; never felt attracted to anybody at all; unsure. The first five response options enable assessment of sexual attraction along a continuum; the last two response options enable asexuality and sexual attraction uncertainty/exploration to be reported. There is limited knowledge about the order in which these response options should be placed.

Recommendations:
Use the following response options for sexual attraction questions: only attracted to females; mostly attracted to females; equally attracted to females and males; mostly attracted to males; only attracted to males; never felt attracted to anybody at all; unsure.

Investigate the optimal order of these response categories.

10. Questions on sexual behaviour generally use following common response categories: only males, only females; both males and female; have not had sex. Knowledge about the order in which these response options should optimally be placed is currently limited.

Recommendations:
Use the following response options for sexual behaviour questions: only males; only females; both males and female; have not had sex.

Investigate the order in which these response options are placed.

11. There is a wealth of knowledge on response options for use in official survey questions on sexual identity. The response options used by the Office for National Statistics are well-researched and tested with respect to their wording, their use of combined categories (both combination of colloquial and formal terms and combination of sexual identity terms), and their order; these are: Heterosexual or Straight; Gay or Lesbian; Bisexual; Other. When including an ‘Other’ category, some questions, although not the Office for National Statistics question, have a follow-up ‘Please Specify’ question for respondents choosing this option. When there are mandatory response requirements, surveys may also need to include an opt-out category (eg,
Prefer not to answer), although research suggests that addition of such a category is likely to have a negative impact on disclosure rates. From the current body of evidence, it is recommended that a Māori (Takatāpui) and a Samoan (Fa’afafine) response option is included in OSS questions, but such inclusion would be supported by further conceptual research and empirical testing.

**Recommendations:**
Consider the following general principles with regard to response categories for sexual identity questions:

- **Presenting response categories in order of prevalence** (e.g., Heterosexual or Straight before Gay or Lesbian)
- **Combining response categories** (e.g., Gay or Lesbian), with associated implications for disaggregation of data
- **Using formal followed by colloquial terms** (e.g., Heterosexual or Straight rather than Straight or Heterosexual)

Use the following response options for sexual identity questions:
Heterosexual or Straight; Gay or Lesbian; Bisexual; Takatāpui; Fa’afafine; Other

12. Some surveys provide standard definitions of terms within survey items, and others have definitions available should respondents request clarification from administrators.

**Recommendation:**
Design sexual orientation questions that are framed in such a way that definitions are not required; however, develop standardised definitions for ad-hoc administration by survey administrators, if clarification of terms is requested by respondents.

**Proposed preliminary sexual orientation questions**

13. Based on the provisions made in the Sexual Orientation Conceptual Framework (Pega, 2009c), the findings of research on question development and the conclusions drawn from this evidence, and pre-testing of the question with a small number of takatāpui, fa’afafine, lesbian, gay, and bisexual people as well as producers and consumers of official statistics, the SODCS proposes preliminary sexual orientation questions for use in official surveys.

14. There is no previous research on designing sexual attraction questions for official surveys, although standard questions have been proposed. Based on the question development conducted as part of the SODCS, we propose the sexual attraction questions shown in the text (see p. 44 for face-to-face and telephone formats).

**Recommendation:**
Trial, develop further, and implement a final version of the proposed sexual attraction question stem and response options (face-to-face interview format and telephone interview format) in the New Zealand context.
15. There is no previous research on designing sexual behaviour questions for official surveys, although standard questions have been proposed. Based on the question development conducted as part of the SODCS, we propose the sexual behaviour questions shown in the text (see p. 45 for face-to-face and telephone formats).

**Recommendation:**
Trial, develop further, and implement a final version of the proposed sexual behaviour question stem and response options (face-to-face interview format and telephone interview format) in the New Zealand context.

16. One issue has been identified around the preliminary sexual attraction and sexual behaviour questions proposed by the SODCS: The response options for these do not include an option for individuals who are attracted to people who may not identify as either male or female (eg, transgender and intersex people). This means that a presumably very small population group would not be able to accurately report this aspect of their sexual attraction and sexual behaviour; however, the benefits of including additional categories to account for this issue are unlikely to outweigh the costs associated with such an inclusion.

**Recommendations:**
Do not include categories that account for sexual attraction to and behaviour with people who may not identify as either male or female (eg, transgender and intersex people).

Investigate how people with sexual attraction to and/or sexual behaviour with transgender and intersex people report their sexual attraction and sexual behaviour respectively.

17. On the basis of the strong evidence provided by the Office for National Statistics Sexual Identity Project and question development conducted as part of the SODCS, we propose the preliminary sexual identity question shown in the text (see p. 45 for face-to-face and telephone formats).

**Recommendation:**
Trial, develop further, and implement a final version of the proposed sexual identity question stem and response options (face-to-face interview format and telephone interview format) in the New Zealand context.

18. Sexual identity questions implemented in Office for National Statistics surveys since 2009 largely appear to be transferable to the OSS. However, it is likely that at least one additional response category will need to be added to the Office for National Statistics question to enable takatāpui-identified survey respondents to report their sexual identity. The Samoan sexual identity response category (ie, fa‘afafine) (and potentially other Pacific sexual identities), may also be needed. The inclusion of a Māori and potentially a Samoan (and other Pacific) sexual identity response categories carries with it the requirement that respondents can report multiple sexual identities.
**Recommendations:**

Carry out further conceptual research to achieve clarity about the level to which the Māori concept of ‘takatāpui’ and the Pacific concepts such as ‘fa’afafine’ (Samoan) constitute distinct sexual identity categories.

When including the Māori or Pacific concepts, carry out further pre-testing to investigate the feasibility of allowing multiple response options and of providing culturally appropriate options in a follow-up question rather than an initial question.

Consider the inclusion of minority Pacific sexual identities other than the Samoan ‘fa’afafine’ and consider what impact the presence of a Samoan-specific category - and no other Pacific categories - might have on the attitudes of other Pacific groups towards the survey (including testing of whether this is likely to have an adverse impact on completion rates).

**Question order**

19. The order of sexual orientation questions administered in a suite of such questions is related to the relative sensitivity of the sexual attraction, sexual behaviour, and sexual identity questions; the relative sensitivity of such questions is not known and so the order in which these should be placed requires further investigation. Sexual orientation questions assessing sexual attraction and identity should not be placed within a skip pattern that excludes those who have never had sexual contact (eg, *If you answered “have not had sex” to Q3 about sexual behaviour go straight to Q6*).

**Recommendations:**

Undertake research into the relative sensitivity of sexual attraction, sexual behaviour, and sexual identity questions and implications of this for placement of such items in surveys.

Avoid placing questions assessing sexual attraction and sexual identity within a skip pattern that precludes those who have never had sexual contact (ie, the behaviour question) from answering these.

**Question placement**

20. Sexual orientation questions (being sensitive for some respondents) should follow more routine questions in surveys. As respondent motivation to answer questions decreases as a function of survey length, this also needs to be taken into consideration. Questions on sexual identity are most appropriately placed with questions on similar topics, such as gender or marital status (and never adjacent to questions on child abuse, for example). The Office for National Statistics successfully administers sexual identity questions as part of the core demographic questions.

**Recommendations**

Place sexual orientation questions after more routine questions in view of their perceived sensitivity.

Consider the effects of respondent motivation as a function of survey length on question placement in the survey (ie, early or late).
Investigate the optimal placement of sexual attraction and sexual behaviour questions; place question on sexual identity with similar demographic questions - the demographic core could be a good location.
6 Population size

Because direct sexual orientation data have never been collected through a census, or other survey which covers the entire population of a country, baseline data about populations defined by sexual attraction, sexual behaviour, and sexual identity remain unavailable to date. Estimates of the population prevalence of sexual minority populations are therefore required to address the lack of baseline data.

Estimates of population size are important for policy-making; without knowing the size of sexual minority populations it is difficult to determine, for example, what percentage of the general population will be affected by a policy targeted at sexual minority populations and how much the implementation of the policy will cost. Estimates for population size are also needed for survey planning purposes. In order to construct sample designs, population prevalence figures are required to be able to calculate the number of surveys that have to be administered in order to achieve a desired sample size of sexual minority respondents.

This chapter outlines issues related to determining the size and prevalence of sexual minority populations. This includes a discussion of the three key approaches to determining population prevalence and the issues associated with each.

6.1 Determining population prevalence

There has been ongoing scientific debate over the population prevalence of minority sexual orientations. The Kinsey reports released in the late 1940s and early 1950s fuelled this debate by concluding (from a convenience-sample recruited through friendship as well as other social and organisational networks) that approximately 10% of the United States population engaged in same-sex sexual contact at least once in their lifetime (Kinsey, Pomeroy, & Martin, 1948; Kinsey, Pomeroy, Martin, & Gebhard, 1953). This figure was however highly contested and sparked a surge of research that aimed to accurately determine the population prevalence of sexual minority populations.

In addition, the introduction of the notion of the sexual orientation continuum (rather than categories of sexual orientation) by Kinsey and colleagues widened the scope for inclusion of respondents as sexual minority members (especially both-sex oriented people), and resulted in increased population estimates (Fish, 2006). In the following research phase, highly variable population prevalence figures were produced from sexual orientation data obtained in various countries. One explanation for this variation was that population prevalence figures depended on the respective conceptual definitions and measurement tools on which they were based. As conceptual research on sexual orientation advanced, it became increasingly obvious that the different dimensions of sexual orientation (ie, sexual attraction, sexual behaviour, and sexual identity) did not fully map onto each other (ie, did not demonstrate one-to-one correspondence). Empirical research showed that measurement of the different dimensions of sexual orientation returned figures indicating these dimensions represented discrete population groups with varying prevalence rates.

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36 Both-sex oriented people are often referred to as ‘bisexual’, but this document differentiates between both-sex attracted, both sex-behaved, and bisexual identified people. People who are both-sex attracted, both-sex behaved, and/or bisexual identified can be described as both-sex oriented.
6.1.1 Reasons for variability in prevalence estimates
Accurate, reliable estimations of population prevalence for populations defined by
sexual attraction, sexual behaviour, and sexual identity have been difficult to obtain
for several reasons as outlined below:

Definitional inconsistencies. It quickly became apparent that the observed variations
in prevalence rates could be explained in part by the inconsistent conceptual and
operational definitions that were (and often still are) applied to probability data to
identify different sexual minority populations. For example, Black, Gates, Sanders,
and Taylor (2000) showed that applying a range of commonly used definitions for
what constitutes a 'gay man' and a 'lesbian woman' to data from the combined
National Health and Social Life Survey produced prevalence figures ranging from
0.6% to 4.7% for 'gay' men, and from 0.5% to 3.6% for 'lesbian' women.

The continued inconsistent application of various conceptual and operational
definitions has urged some researchers to call for the development of universal
definitional standards in order to provide a greater degree of consistency and to
enable cross-study comparability (eg, Gonsiorek et al., 1995; Kontula, 2004; Sell &
Becker, 2001; Sell & Petrulio, 1996). On the other hand, others have rejected the
notion of standard definitions, arguing that definitions should be selected based on
the specific purpose of each individual study (Brogan et al., 2001; Fish, 2006; Martin
& Knox, 2000; McManus, 2003; Saewyc et al., 2004; Savin-Williams, 2006; Sell,
2007). This means that in practice conceptual and operational definitions continue to
show high variability, thereby contributing to the high level of variability seen in
reported prevalence figures.

As conceptual research on sexual orientation advances, it has become increasingly
apparent that different sexual orientation dimensions (ie, sexual attraction, sexual
behaviour, sexual identity) are not interchangeable and that there are different
prevalence rates for each (Maddedu et al., 2006; Messiah & Mouret-Fourme, 1996;
Laumann et al., 1994; Saewyc et al., 2004; Savin-Williams, 2006). This means that
prevalence figures produced by measures recording different dimensions of sexual
orientation are not directly comparable and that differently dimensional questions are
likely to tap into different groups of sexual minorities (Saewyc et al., 2004). To
address the variability caused by these factors, recent studies on population
estimates of sexual minorities more often assess various dimensions of sexual
orientation, predominantly the sexual attraction, behaviour and identity dimensions.

There is some evidence suggesting that the congruency of reporting of these
dimensions of sexual orientation might vary as a function of certain population
parameters. For example, American Indian and Alaska Native adolescents appear to
self-label more consistently than other ethnic groups such as Anglo-American
adolescents, possibly due to experiencing less culture-specific sexual orientation
discrimination due to more positive approaches to sexual minority persons (Saewyc
et al., 1998). In an Australian study, for 4.2% of men, and 8.2% of women, their
attraction did not match their sexual behaviour (Smith, Rissel, Richters, Grulich, & de
Visser, 2003).

Lack of concept-specific data. There is little sexual attraction, sexual behaviour, and
sexual identity data from large-scale probability surveys. (Binson, Blair, Huebner, &
Woods, 2007; Rothblum, 2007). Large-scale probability surveys which do collect
sexual attraction, sexual behaviour, and/or sexual identity data are likely to
significantly undersample minority groups and particularly individuals living at-risk lives (eg, homeless sexual minority members), leading to underestimates of population prevalence (Bagley & Trembley, 1998).

**Geographical clustering.** That sexual minority populations are geographically clustered is increasingly recognised (see *Chapter 7: Demographic distribution*, pp. 74-83). Probability surveys of the general population are unlikely to aim for the collection of representative sexual minority sub-samples, which might lead to under- or oversampling of sexual minority respondents in these general population samples, depending on whether samples are drawn from areas with high or low density of sexual minority persons (Bagley & Trembley, 1998; Hughes & Saxton, 2006).

**Demographic characteristics of samples.** Differences in the demographic composition of probability samples can affect prevalence estimates (see *Chapter 7: Demographic distribution*, pp. 74-83), differences in socio-demographic population characteristics (eg, ethnicity) potentially resulting in different prevalence findings (Saewyc et al., 1998). For example, the New Zealand Health Behaviours Surveys: 2003 Drug Use and 2003 Alcohol Use oversampled the Māori population, achieving a near-equal split in the sample between Māori and non-Māori; if prevalence rates for sexual minority populations are calculated from the overall sexual minority sub-sample in relation to the entire sample, estimates are likely to under- or overestimate the actual prevalence of minority sexual orientation if the prevalence of minority sexual orientations varies between Māori and non-Māori.

**Fluidity of sexual orientation.** Another issue affecting the calculation of population prevalence estimates is the fact that sexual orientation can change over time, as evidenced for example by longitudinal data from the Dunedin Multidisciplinary Health and Development Study (Dickson, Paul, & Herbison, 2003). One review of findings from eight state-level and national adolescent health surveys from the United States and Canada concluded that at any point during adolescence between 1 and 8 % of all adolescents identify as ‘gay’, ‘lesbian’ or ‘bisexual’ (Saewyc et al., 2004).

**Survey design and administration.** Differences in question design, question administration, and survey modality can contribute to varying rates of misreporting of minority sexual attraction, sexual behaviour, and sexual identity. This can, in turn, lead to either inflated or deflated sexual minority population prevalence estimates, but it is currently difficult, if not impossible, to robustly assess the degree of measurement error arising from misreporting (Bagley & Trembley, 1998). However, because sexual minority individuals constitute a relatively small proportion of the general population, even modest measurement errors could result in serious errors in estimates (Black et al., 2000).

Given these multiple measurement issues, it is not surprising, that prevalence figures of populations defined by sexual orientation vary widely across studies, depending on:

- which sexual orientation concept (eg, sexual attraction, sexual behaviour; sexual identity) is assessed
- in which country sexual orientation is assessed
- the time period covered by the sexual orientation item (eg, current, lifetime)
- the question type
- survey mode

**6.1.2 Prevalence estimates**
The tables below show reported prevalence figures for sexual attraction (Table 2; p. 61), sexual behaviour (Table 3; pp. 62-63), and sexual identity (Table 4; p. 64) respectively from a selection of well-known, international, large-scale, population-based probability studies. The prevalence rates produced by surveys conducted in different years, in different countries, and over different reporting periods vary widely. These tables also demonstrate that in empirical studies the prevalence of minority sexual attraction is generally higher than the prevalence of minority sexual behaviours, which in turn is generally higher than the prevalence of minority sexual identities. The prevalence of sexual behaviour (especially male same-sex behaviour) is most well-researched. It also becomes apparent from the tables that different studies have reported prevalence figures for different categories, often not covering the entire range of relevant categories and/or reporting categories that are not directly comparable. Furthermore, the table shows that assessment of sexual orientation over different time periods results in different prevalence estimates, as is to be expected, considering that sexual orientation is fluid over time.

Table 5 (pp. 65-66) lists the most robust existing prevalence estimates from New Zealand, all of which are however limited to populations of young people, with associated limitations for their generalisability. The table lists the date of publication and study authors, measurement concept (i.e., sexual attraction, sexual behaviour or sexual identity) and the specific measure assessed, as well as the respective methodology used and the study limitations, together with the reported prevalence figures; the variability in these factors listed can be used to explain the variability in the current estimates.

As discussed previously, these New Zealand figures cannot be generalised to the adult or general population due to sampling issues and are also not adjusted for misreporting and non-response, meaning that they are likely to underestimate the actual size of sexual minority populations to an unknown, but significant degree. In conclusion, there are currently no reliable prevalence estimates of the sexual minority sub-population for the New Zealand general population; but, as the international prevalence figures listed in Tables 1-3, the existing New Zealand prevalence estimates suggest that sexual minority populations constitute a sizeable population.

The SODCS tried to produce more robust population estimates from existing sexual behaviour and sexual identity data from OSS surveys, but found that the collected data did not permit such estimation due to data quality concerns (see Sexual Orientation Data in New Zealand Probability Surveys - Technical Report; Gray, 2009).
### Table 2: Sexual attraction: Prevalence estimates from selected, international, large-scale probability surveys

<table>
<thead>
<tr>
<th>Year</th>
<th>Country</th>
<th>Authors</th>
<th>Time Period</th>
<th>Opposite-sex only (Male)</th>
<th>Opposite-sex only (Female)</th>
<th>Mostly opposite-sex (Male)</th>
<th>Mostly opposite-sex (Female)</th>
<th>Both-sex (Male)</th>
<th>Both-sex (Female)</th>
<th>Mostly same-sex (Male)</th>
<th>Mostly same-sex (Female)</th>
<th>Same-sex only (Male)</th>
<th>Same-sex only (Female)</th>
<th>Asexual b (Female)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>United States</td>
<td>Laumann et al.</td>
<td></td>
<td>93.8</td>
<td>95.6</td>
<td>2.6</td>
<td>2.7</td>
<td>0.6</td>
<td>0.8</td>
<td>0.7</td>
<td>0.6</td>
<td>2.4</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td>1994</td>
<td>United Kingdom</td>
<td>Bogaert (published in 2004)</td>
<td>Lifetime</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.05 c</td>
<td>1.05 c</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1995</td>
<td>France</td>
<td>Sell, Wells, &amp; Wypij</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8.5 a</td>
<td>11.7 a</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>United Kingdom</td>
<td></td>
<td>Lifetime</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7.9 a</td>
<td>8.6 a</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>United States</td>
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<td></td>
<td></td>
<td></td>
<td>8.7 a</td>
<td>11.1 a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>Australia</td>
<td>Smith et al.</td>
<td>Lifetime</td>
<td>92.9</td>
<td>86.5</td>
<td>6.2</td>
<td>12.6</td>
<td>0.6</td>
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<td>0.2</td>
<td>0.6</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Notes: a any same-sex sexual attraction; b operational definition used by Bogaert (2004): ‘Never felt attracted to anyone at all’; c Male/Female
### Table 3: Sexual behaviour: Prevalence estimates from selected, international, large-scale probability surveys

<table>
<thead>
<tr>
<th>Year</th>
<th>Country</th>
<th>Authors</th>
<th>Time Period</th>
<th>Sexual Behaviour Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Any same-sex</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Male</td>
</tr>
<tr>
<td>1989</td>
<td>United States</td>
<td>Fay et al.</td>
<td>Lifetime</td>
<td>20.3&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Adulthood</td>
<td>6.7&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Last year</td>
<td>1.6-2.0&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>1990</td>
<td>Spain</td>
<td></td>
<td>Lifetime</td>
<td>7</td>
</tr>
<tr>
<td>1990</td>
<td>West Germany</td>
<td></td>
<td>Lifetime</td>
<td>4</td>
</tr>
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<td>Portugal</td>
<td></td>
<td>Lifetime</td>
<td>1</td>
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<tr>
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<td>United States</td>
<td>Rogers &amp; Turner</td>
<td>Adulthood</td>
<td>5.0-7.0</td>
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<tr>
<td>1992</td>
<td>Finland</td>
<td>Kontula (published in 2004)</td>
<td>Lifetime</td>
<td>5</td>
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<tr>
<td>1992</td>
<td>France</td>
<td></td>
<td>Lifetime</td>
<td>4</td>
</tr>
<tr>
<td>1992</td>
<td>Greece</td>
<td></td>
<td>Lifetime</td>
<td>2</td>
</tr>
<tr>
<td>1992</td>
<td>Norway</td>
<td></td>
<td>Lifetime</td>
<td>5</td>
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<td>1992</td>
<td>Switzerland</td>
<td></td>
<td>Lifetime</td>
<td>5</td>
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<tr>
<td>1993</td>
<td>Belgium</td>
<td></td>
<td>Lifetime</td>
<td>6</td>
</tr>
<tr>
<td>1993</td>
<td>United States</td>
<td>Billy, Tanfer, Grady &amp; Klepinger</td>
<td>Last 10 years</td>
<td>2</td>
</tr>
<tr>
<td>Year</td>
<td>Country</td>
<td>Study Authors</td>
<td>Age Range</td>
<td>Last 5 years</td>
</tr>
<tr>
<td>------</td>
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</tr>
<tr>
<td>1994</td>
<td>United States</td>
<td>Laumann et al.</td>
<td>Last 5 years</td>
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<td></td>
<td></td>
<td></td>
<td>Lifetime</td>
<td>7</td>
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<td>1995</td>
<td>France</td>
<td>Sell et al.</td>
<td>Last 5 years</td>
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<td></td>
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<td></td>
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<td>80.1</td>
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<td>Canada</td>
<td>Bagley &amp; Trembley</td>
<td>Age 12-27</td>
<td>14.0</td>
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<td>1991-2000</td>
<td>United States</td>
<td>Berg &amp; Lien (published in 2006)</td>
<td>Lifetime</td>
<td>7.1&lt;sup&gt;a&lt;/sup&gt;</td>
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<td>2003</td>
<td>Australia</td>
<td>Smith et al.</td>
<td>Lifetime</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>90.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.3</td>
</tr>
<tr>
<td>2003</td>
<td>Australia</td>
<td>Grulich, de Visser, Smith, Rissel &amp; Richters</td>
<td>Lifetime</td>
<td>5.9</td>
</tr>
</tbody>
</table>

Notes: <sup>a</sup> adjusted for misreporting and non-response
### Table 4: Sexual identity: Prevalence estimates from selected, international, large-scale probability surveys

<table>
<thead>
<tr>
<th>Year</th>
<th>Country</th>
<th>Authors</th>
<th>Reporting Period</th>
<th>Sexual Identity Prevalence (%)</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Heterosexual</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>United States</td>
<td>Janus &amp; Janus</td>
<td>Lifetime</td>
<td>Gay man</td>
<td>91.0</td>
<td>95.0</td>
<td>4.0a</td>
<td>2.0a</td>
<td>5.0</td>
<td>3.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1993</td>
<td>Canada</td>
<td>Bagley &amp; Trembley</td>
<td>age 12-27</td>
<td>Lesbian</td>
<td>90.2</td>
<td>5.9</td>
<td>3.9</td>
<td>0.1c</td>
<td>0.1c</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1998</td>
<td>Australia</td>
<td>Smith et al.</td>
<td>Current</td>
<td>Bisexual</td>
<td>97.4</td>
<td>97.7</td>
<td>1.6</td>
<td>0.8b</td>
<td>0.9</td>
<td>1.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>Canada</td>
<td>Statistics Canada (2004b)</td>
<td>Current</td>
<td>Others</td>
<td>97.4</td>
<td>97.7</td>
<td>1.6</td>
<td>0.8b</td>
<td>0.9</td>
<td>1.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td></td>
<td></td>
<td></td>
<td>Uncertain/Don’t Know</td>
<td>97.4</td>
<td>97.7</td>
<td>1.6</td>
<td>0.8b</td>
<td>0.9</td>
<td>1.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: a ‘homosexual’; b ‘homosexual’ or ‘lesbian’; c ‘other’ or ‘undecided’
Table 5: Prevalence figures for sexual minority populations from all available New Zealand probability surveys

<table>
<thead>
<tr>
<th>Measurement Concept</th>
<th>Year</th>
<th>Authors</th>
<th>Measure</th>
<th>Methodology</th>
<th>Limitations</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual attraction</td>
<td>2003</td>
<td>Dickson, et al.</td>
<td>Any lifetime same-sex sexual attraction (operational definition recommended by the Sexual Orientation Conceptual Framework; Pega, 2009a)</td>
<td>Cohort of 1,037 babies born in Dunedin 1972/3 N = 946 (at age 26) CASI (other items surveyed using personal interviews)</td>
<td>Limited representativeness Perceived lack of anonymity may affect disclosure Small sample size of sexual minority sub-sample</td>
<td>10.7</td>
</tr>
<tr>
<td>Sexual behaviour</td>
<td></td>
<td></td>
<td>major lifetime same-sex sexual attraction (current same-sex or both-sex attraction)</td>
<td>Ongoing longitudinal study</td>
<td></td>
<td>1.6</td>
</tr>
<tr>
<td>Sexual identity</td>
<td>1999</td>
<td>Fergusson, Horwood, &amp; Beautrais</td>
<td>lesbian, gay or bisexual sexual identity</td>
<td>Cohort 1,265 babies born in Christchurch in 1977 N = 1,007 (at age 21) and N = 967 (at age 25)</td>
<td>Personal interviews Limited representativeness Perceived lack of anonymity may affect disclosure Small sample size of sexual minority sub-sample</td>
<td>2.8a</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>any same-sex behaviour last year</td>
<td></td>
<td></td>
<td>3.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>any lifetime same-sex behaviour (operational definition recommended by the Sexual Orientation Conceptual Framework; Pega, 2009a)</td>
<td>Ongoing longitudinal study</td>
<td></td>
<td>8.9</td>
</tr>
<tr>
<td>Sexual identity</td>
<td>2004</td>
<td>Le Brun, Robinson, Warren, &amp; Watson</td>
<td>minority sexual identity</td>
<td>$N = 9,699$ in $133$ schools</td>
<td>Target population: youth attending high-school years 9-12</td>
<td>Sample bias: excludes students not in school due to truancy, dropping out or alternative education, international students and some disabled pupils. Possible bias due to large non-response (7.3%)</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------------</td>
<td>-----------</td>
<td>------------------------------------</td>
<td>--------------------------</td>
<td>-----------------------------</td>
<td>----------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Combined sexual attraction, sexual behaviour, and sexual identity</td>
<td>2005</td>
<td>Fergusson, Horwood, Ridder, &amp; Beautrais</td>
<td>any same-sex attraction and/or any same-sex behaviour and/or lesbian, gay or bisexual sexual identity</td>
<td>Cohort of $1,265$ babies born in Christchurch in 1977, $N = 1,007$ (at age 21) and $N = 967$ (at age 25) personal interviews</td>
<td>Ongoing longitudinal study</td>
<td>Limited representativeness. Personal interview and perceived lack of anonymity may affect disclosure. Small sample size of sexual minority sub-sample</td>
</tr>
</tbody>
</table>

Note: " Male/Female
6.2 Approaches to determining prevalence

More recently, three main approaches have been taken to determine the population prevalence of sexual minority populations:

1) **Census data**
   At times, indirect data are extracted from census data to determine the proportion of same-sex to opposite-sex couples. These include data on same-sex relationships and partner co-habitation. The advantage of such an approach is that censuses achieve near complete general population coverage, thus making large samples of sexual minority people available for study. Disadvantages include the questionable data quality of such sexual orientation data; the exclusion of large sections of sexual minority populations (eg, all those who are not cohabiting couples); and a lack of clarity around the extent to which partner-cohabitation relates to the key sexual orientation measurement concepts (sexual attraction, sexual behaviour, and sexual identity).

2) **Large-scale surveys**
   In the second type of approach, direct sexual orientation data are collected in, or extracted from, large-scale probability samples, with population prevalence figures derived from these data. Such studies are able to cover a more comprehensive set of sexual minority populations than can be obtained from census data, and can provide prevalence estimates for sexual attraction, sexual behaviour, and sexual identity. However, figures produced by such studies are highly variable and dependent on the specific characteristics of the samples upon which they are based. The figures also do not account for the misreporting and non-response phenomena.

3) **Data imputation**
   The most recent, third approach also uses data from large-scale surveys, but addresses the issue of underreporting as an effect of misreporting and non-participation biases by imputing for these phenomena. Such studies involve significant guesswork, yet are able to provide more robust figures, when designed well.

6.2.1 Census data
   One prominent data source for information on sexual orientation is couple cohabitation data from censuses. While sexual orientation is currently not assessed through a direct question in any census world-wide, data on same-sex cohabitation can be derived from the combination of two variables (gender and relationship status). Various papers have described the exact enumeration procedures used to derive same sex cohabitation data, with some including critiques of such practices (eg, Black et al., 2007; Hughes & Saxton, 2006; Hyman, 2003).

   Censuses have collected information on same-sex couples in a range of countries: Australia (1996, 2001 and 2006), Canada since 2001\(^\text{37}\), Ireland since 1996, New Zealand (1996, 2001 and 2006), the United Kingdom (2001), the United States (1990 and 2000), and Uruguay since 2006 (Birrell & Rapson, 2002; Black et al., 2007; Hyman, 2003; Klement & Simpkins, 2004; Guerra, n.d.).\(^\text{38}\)

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\(^{37}\) Although Statistics Canada asked people in a co-habiting same-sex relationship to identify their relationship for the first time in the 1996 Census, this information was never publicly released (Klement & Simpkins, 2004). The Canadian census counted common-law same-sex couples for the first time in 2001 (Klement & Simpkins, 2004).

\(^{38}\) The website www.gaydemographics.com compiles findings from analyses of same-sex cohabitation data from censuses in many countries. It provides tables that break down this information for the United States geographically and demographically (ie, by age, ethnicity, and level of urbanization) (Guerra, n.d.).
Statistics New Zealand published information on same-sex cohabiting couples from the 1996 and 2001 Censuses of Population and Dwelling. As in other countries, in the 1996 and 2001 Census there was no response category that enabled same-sex partners to directly indicate that they were in a same-sex relationship, but data on the gender and relationship variables could be combined to infer same-sex relationships and cohabitation (Hyman, 2003; Hughes & Saxton, 2006). Hyman (2003) noted that Statistics New Zealand has not released information on some of its coding and enumeration practices regarding same-sex cohabitating couples. This means it is not possible to know for example which category cases were assigned to in which person A identified a cohabiting person B as a 'partner', but person B identified a different relationship with person A (eg, person B identified person A as a 'flatmate') (Hyman, 2003). As in other countries, such as the United Kingdom (Purdam, Wilson, Afkhami, & Olsen, 2008), a separate category was subsequently introduced to enable the direct identification of same-sex de-facto and civil union couples in the 2006 New Zealand Census of Population and Dwelling.\(^39\)

The proportion of same-sex couples as percentage of all couples provides a potential measure of population prevalence, given that cohabitation data are the only sexual orientation data presently available from the Census. The reported average rates across states and territories of same-sex couples for Australia were 0.47% in the 2001 Census (Australian Bureau of Statistics, 2005; Birrell & Rapson, 2002). In the United States, 0.30% of all cohabiting couples were same-sex in the 1990 Census and 0.99% in the 2000 Census respectively (Guerra, n.d.). The 2000 United States census also reported 0.6% of unmarried couples were same-sex couples (Badgett & Rogers, 2003). In New Zealand, the 2001 Census: Families and Households (2001) - Reference Report (SNZ, 2002) published information on same-sex couples, including selected summary characteristics for same-sex couples in households without children (2001 Census data; see Table 7) and with children (1996 and 2001 Census data; see Table 12 and Table 20). Hyman reported that 0.40% of all couples living in the same private dwellings were same-sex cohabiting couples based on 1996 Census data and 0.65% based on 2001 Census data (2003).

The use of census data in this way causes concern, considering that data on same-sex relationships and same-sex cohabitation do not represent an accurate proxy measure for the prevalence of sexual minority populations for several reasons. These are outlined below.

Exclusion of sexual minority individuals. Data on same-sex cohabiting couples systematically excludes all sexual minority persons who are not in a relationship and those who are partnered but not cohabitating, as well as both-sex oriented people who are legally married or cohabitating with opposite-sex partners (Badgett & Rogers, 2003; Klement & Simpkin, 2004).

Increasing awareness and acceptance. The prevalence of same-sex cohabitation reported in the Census has increased over time in Australia, New Zealand, and the United States (Birrell & Rapson, 2002; Hyman, 2003; Klement & Simpkins, 2004). In

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\(^{39}\) The British Office for National Statistics (ONS) has revised its questions on marital status so that same-sex cohabitating couples can identify as such in other OSS surveys (eg, the Labour Force Surveys and the General Household Surveys); however, same-sex unmarried couples generally continue to be treated as housemates, whereas opposite-sex couples are treated as co-habiting unmarried couples (Purdam et al., 2008).
New Zealand, there was a 56% overall increase in couples who reported same-sex cohabiting partnerships between the 1996 and 2001 Censuses. This is likely to be due to increased awareness and increased willingness amongst same-sex cohabitating couples to respond to the question accurately (in view of more public acceptance generally) rather than due to an actual increase of prevalence (Hyman, 2003).

**Underestimation.** It is likely that census data-based counts of both same-sex couples and same-sex cohabitating couples greatly underestimate these actual group sizes. Black, Gates, Sander, and Taylor (2000) estimated that only approximately 35% of male and 29% of female same-sex cohabitating couples might have been accurately recorded as such in the 1990 United States Census. This finding highlights the need for significant caution regarding findings from such cohabitation data, given that only one-third of eligible census respondents appear to have disclosed their relationship and cohabitation arrangements correctly or have been coded appropriately. These researchers also conclude with some confidence that the great majority of those reporting same-sex partner cohabitation are not opposite-sex partners that misclassified their or their partner’s sex, but actual same-sex cohabitating couples (ie, there is a high false negative rate but a low false positive rate for same-sex cohabitating partner data). Similarly, Badgett and Rogers estimated the undercount of same-sex couples in the 2000 United States Census data to be as high as 66% (2003). In high-density gay suburbs of Sydney, it was estimated that same-sex cohabitation data from the 2001 Australian Household Census undercounted same-sex oriented men by as much as 50% or even more in certain areas (Prestage et al., 2008).

**Biased reporting.** Same-sex cohabitating couples identified in censuses also appear to be biased samples of sexual minority populations. For example, in the United States 2000 Census data, same-sex couples with higher incomes, greater political activity, and higher levels of education were found to be overrepresented amongst those reporting to be in same-sex unmarried partnerships (Badgett & Rogers, 2003).

**Enumeration.** In some instances, enumeration practices have been inconsistently applied to different sets of census data (eg, United States 1996 and 2000 Census data, as reported by Black et al., 2007). In other instances, enumeration and coding practices have not been made public (eg, New Zealand 1996 Census data, as reported by Hyman, 2003). On the positive side, some countries have utilised the same enumeration practices which allow for between-country comparisons; for example, Australia and the United States (Birrell & Rapson, 2002).

New Zealand research has shown that in the 1996 and 2001 New Zealand Censuses, geographic macro- and micro-clustering of same-sex cohabitating male couples in the Census data generally match the geographic profile obtained from the large-scale, self-selected online-sample of men who have sex with men (MSM) from the Gay Online Sex Survey (GOSS) (Hughes & Saxton, 2006). This could be seen as providing some initial confirmation of the (geographic) representativeness of the convenience data on MSM and census male same-sex couple co-habitation data in New Zealand or, alternatively, as indicative of the fact that both prevalence estimates are similarly biased.

Overall however, the extremely high estimated undercount, various reporting biases, and inconsistent or opaque enumeration strategies cast significant doubts over the representativeness and quality of current census data when applied to sexual orientation. Indeed, the argument that census data on same-sex couples and same-sex

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40 For a definition of MSM see Glossary (p. 132).
couple cohabitation grossly underestimate actual population prevalence is uncontested. In summary, what Prestage and colleagues stated in regard to Australia can likely be generalised to census data on same-sex couples and same-sex partner cohabitation in all countries; that is, “census data are probably unreliable for assessing overall proportions of the population that are homosexual given the indirect nature of the questions asked” (2008, p.101).

6.2.2 Data obtained from large-scale probability studies
A small selection of large-scale, population-based probability surveys that directly assess sexual attraction, sexual behaviour, and/or sexual identity have become available over the last 15 years with the advent of public funding for research on sexual orientation (mainly in the wake of the HIV and AIDS epidemics) and, more recently, the inclusion of direct sexual orientation questions in official surveys (Binson et al., 2007; Rothblum, 2007; Sell, n.d.). Reviews listing robust data sources highlight that such surveys have conducted in Canada (Taylor, 2008a), the United Kingdom (Betts, 2008), and the United States (Taylor, 2008a), amongst other countries.

Theoretically, the population prevalence of sexual orientations could be determined from such high-quality data sources, and a range of studies have analysed these probability data to produce estimates of sexual minority populations at the national or state level (Bagley & Tremblay, 1998; Berg & Lien, 2006; Fay et al., 1989; Madeddu, et al. 2006; Prestage et al., 2008; Rogers & Turner, 1991; Sell et al., 1995; Smith et al., 2003). One of these studies focused primarily on determining population prevalence estimates and collected data in different countries specifically for this purpose (Sell et al., 1995; for findings see Table 2, p. 61; Table 3, p. 62; and Table 4, p. 64). Other studies have produced prevalence figures from data of sexual orientation-related research (often epidemiological studies; Prestage et al., 2008) and, in very recent times, official surveys (Taylor, 2008a).

Large-scale, official probability surveys conducted by central and local government and the private sector obtain estimates of between 0.9% and 4.9% (United States and Canada), and 0.3% and 3.0% (United Kingdom) of respondents who identify as gay, lesbian or bisexual (Betts, 2008; Taylor, 2008a).

6.2.3 Adjusting prevalence figures for misreporting and non-responding
A major challenge to obtaining accurate prevalence measures is the underreporting of minority sexual attraction, sexual behaviour, and sexual identity due to social stigma, even within the bounds of confidential research. As Gonsiorek et al. (1995, p. 24) noted:

A major problem facing such studies is the risk involved in self disclosure, especially where the studies fail to ensure complete anonymity. It is possible, indeed quite likely, that these recurrent 2-5% figures represent an absolute minimum and that they represent homosexual individuals who are relatively open and/or who live lives within tolerant or cosmopolitan communities.

Consequently, current prevalence figures for minority sexual attraction, sexual behaviour, and sexual identity are likely to underestimate actual prevalence, even when they are derived from high-quality and/or official data sources (Hyman, 2003; Sell et al., 1995). Underestimates are likely to be particularly high for samples drawn from neighbourhoods considered to be low gay-density, such as socio-economically deprived areas or certain geographic areas (Bagley & Tremblay, 1998).
Various models have been used to impute prevalence rates for non-responding and/or misreporting (Berg & Lien, 2006; Fay et al., 1989; Izazola-Licea, Gortmaker, De Gruttola, Tolbert, & Mann, 2000; Rogers & Turner, 1991). Using multiple stages of imputation to estimate the effects of non-responding, Fay et al. (1989) obtained higher prevalence figures for some sub-populations, doubling the reported figures for men aged 65 years or over: Overall 20.3% of male respondents reported any same-sex sexual behaviour over their lifetime; this number decreased to 6.7% for those who had had sex with another male at age 19 or later and 1.6 - 2.0% prevalence for those who reported any same-sex behaviour over the last year. Data from a 1988 survey were also analysed and provided validation and confirmation of the imputed prevalence figures.

In a second study published two years later, Rogers and Turner (1991) reanalysed data on lifetime same-sex sexual behaviour amongst males from five probability studies (four national and one local study) conducted in the United States between 1970 and 1990. They consistently found prevalence rates of between 4.8 and 6.7 percent, and these remained fairly stable after being adjusted for non-responses. The study also reported prevalence findings by time frame (any same sexual behaviour since age 18 versus over the last 12 months), with a majority of male respondents (from the 1989 and 1990 General Social Survey) with any same-sex behaviour during adulthood having been sexually active with women only over the last year and only 0.7% of males reporting exclusive same-sex sexual behaviour. Rogers and Turner (1991) also adjusted their prevalence measures of male same-sex sexual behaviour to account for non-responding. They constructed weightings on the basis of three variables: being 30 years of age or over and having been never married; personally knowing at least two persons with an AIDS infection; and, being of the opinion that extramarital sex is either ‘sometimes wrong’ or ‘not wrong at all’. The application of these weightings to data from two national surveys (conducted in 1989 and 1990 respectively) generated imputed prevalence figures which were virtually identical with the observed percentages.

More recently, Berg and Lien (2006) have simultaneously imputed misreporting and non-responding to derive frequency estimates for same-sex sexual behaviour, fitting their model to 1991-2000 United States General Social Survey data. They found that the average non-respondent earned less, was less well educated, was older, and was more likely to be non-white (Berg & Lien, 2006). Applying their statistical model, Berg and Lien concluded that 7.1% of men and 4.1% of women had ever engaged in any same-sex sexual behaviour (2006). This imputation, controlling for non-responding and misreporting, augmented prevalence figures of the original figures calculated using a naive model model by more than one-third.

On the basis of a review of these imputation models the SODCS has developed a model to adjust sexual orientation data for misreporting and non-responding tailored to the OSS and tested this model with existing New Zealand survey data on sexual orientation (see Sexual Orientation Data in New Zealand Probability Surveys: Technical Report; Gray, 2009).

6.3 Summary and recommendations

1. There are several estimates of the population prevalence of minority sexual attraction, behaviour, and identity in countries other than New Zealand that have been produced from robust data sources (large-scale probability surveys).

**Recommendation:**
Although overseas prevalence figures might differ significantly from New Zealand figures, in the absence of local data, these could be used as a first indication of what we can expect to find in New Zealand.

2. Robust estimates of the size of New Zealand’s population defined by minority sexual attraction, sexual behaviour, and sexual identity are currently not available due to a lack of suitable data from large-scale national surveys. However, the population defined by minority sexual attraction can be expected to be greater than the corresponding estimates for sexual behaviour; the population defined by minority sexual behaviour can be expected to be greater than the corresponding figures for sexual identity. The available, but limited New Zealand estimates suggest that sexual minority populations constitute a sizeable population group. The SODCS found further that robust population prevalence estimates cannot be produced from the existing OSS data, due to the data quality concerns, judged by the conceptual and measurement frameworks developed by the SODCS (see Sexual Orientation Data in New Zealand Probability Surveys: Technical Report; Gray, 2009).

Recommendation:
Collect robust survey data on sexual attraction, sexual behaviour, and sexual identity in large-scale official surveys guided by the recommendations made by the SODCS and then use such data to develop robust estimates of populations defined by minority sexual behaviour, sexual identity, and sexual attraction.

3. Robust estimates of the size of populations defined by minority sexual attraction, sexual behaviour, and sexual identity cannot be derived from indirect sexual orientation data (e.g., same-sex partner cohabitation data).

Recommendation:
Collect direct data in large-scale, national surveys through well-designed sexual attraction, sexual behaviour, and sexual identity questions

4. Prevalence estimates are best derived from national, large-scale probability surveys as data sources; Census co-habitation data cannot be used as a data source to estimate the prevalence of sexual minority populations.

Recommendations:
Use sexual attraction, sexual behaviour, and sexual identity data from national, large-scale probability surveys as the data source for estimating population prevalence figures.

Do not consider Census co-habitation data fit for the purpose of estimating the prevalence of sexual minority populations.

5. Figures for the prevalence of sexual attraction, sexual behaviour, and sexual identity, even if derived from large-scale surveys, do not provide robust prevalence figures that can be used to estimate population size. Rather, such figures need to be adjusted for misreporting and non-response. The SODCS model to adjust OSS sexual orientation data for misreporting and non-responding has been developed on the basis of former models and is fit for OSS use (see Sexual Orientation Data in New Zealand Probability Surveys: Technical Report; Gray, 2009).
**Recommendations:**
Always adjust prevalence data for non-responding and misreporting, using the best available reference data to guide these adjustments.

Apply the misreporting and non-response model developed by the SODCS in the *Sexual Orientation Data in New Zealand Probability Surveys: Technical Report* (Gray, 2009) for such adjustments.

6. The Office for National Statistics has developed, tested, trialled, and implemented standard sexual identity questions in six large-scale official surveys to collect large set of data on sexual orientation to then produce core population estimates, including population size and demographic distribution of sexual minority populations (defined by minority sexual identity).

**Recommendations:**
Follow a similar course of action as the Office for National Statistics to enable the OSS to also produce robust national estimates.

Once a large enough pooled sample of high-quality data has been collected, apply, and possibly further strengthen, the statistical model developed by the SODCS to adjust data for non-response and misreporting (see *Sexual Orientation Data in New Zealand Probability Surveys: Technical Report*; Gray, 2009).
7 Demographic distribution

Robust information about the demographic distribution of sexual minority populations is required for:

- developing effective stratified sampling designs that increase the sample size of sexual minority survey respondents (see Chapter 8: Sampling, pp. 84-94)
- evaluating the representativeness of a drawn sample of sexual minority respondents
- exploring trends in specific sub-groups over time
- informing both data analysis and interpretation.

The key challenge to reliably establishing the demographic distributions of sexual minority populations is the lack of reliable baseline data. As mentioned above, one reason for this lack is that the current New Zealand Census does not include a direct question on sexual orientation. The lack of robust baseline data means that it is difficult to determine with certainty, whether findings in the empirical research are due to reporting bias or reflect actual differences in distribution.

To address the lack of baseline data, sexual minority population profiles that synthesise demographic information from the most robust sexual orientation data available have been produced in recent times. These profiles are generally derived either from cohabitation data from censuses or from large-scale, population-based probability surveys that directly assess sexual orientation. The limitations of indirect sexual orientation data from the census (see Chapter 5: Populations size, pp. 57-73) also apply to such data being used to determine demographic distributions of sexual minority individuals. These demographic profiles can be used for reference purposes, although they are not as convincing as profiles produced from direct sexual orientation data collected through the Census would be.

Research into the geographic distribution of many populations defined by sexual orientation is advanced, both in New Zealand and internationally. However, there is only limited research on the geographic distribution of sexual minority women. There is emerging evidence of how populations defined by sexual orientation are distributed in terms of other key demographic variables.

This chapter outlines information about the demographic distribution of populations defined by the three key sexual orientation concepts and the associated issues. The following demographic variables are discussed with regard to sexual minority populations: age, education, ethnicity, gender, geographic residency, religiosity, and socio-economic status.

7.1 Age

New Zealand research. There is no substantive previous empirical New Zealand research on the association between sexual orientation and age, but one study of Census couples co-habitation data found that same-sex co-habiting couples were of a relatively younger age than opposite-sex co-habiting couples (which however, might be an effect of disclosure) (Hyman, 2003).

International research. There is emerging international research on the age distribution of minority sexual attraction, sexual behaviour, and sexual identity. A 1989 United States study found men who have sex with men (MSM) were overrepresented amongst men over 30 years of age, who had never been married and were highly educated (Fay
et al.). The 1996 Analyse des Comportements Sexuels en France/Analysis of Sexual Behaviour in France (ACSF) Survey found that same-sex and both-sex sexual behaviour was approximately equally distributed with respect to age, but that exclusively same-sex sexual behaviour were more concentrated amongst the 26-45 years age strata than both-sex sexual behaviour (Messiah & Mouret-Fourme). This pattern was explained as an effect of two phenomena; firstly, an increasingly greater social acceptability of same-sex sexual behaviour may allow exclusively same-sex oriented individuals to engage in same-sex behaviours exclusively; secondly, exclusively same-sex oriented adolescents might engage in experimentation with both sexes, resulting in their classification as both-sex behaved respondents, explaining the relatively lower concentration of exclusively same-sex behaviours amongst the adolescent age group (Messiah & Mouret-Fourme, 1996).

A 1997 Australian study took data from a national sample of MSM to compare the demographics of older and younger MSM (Van de Ven, Rodden, Crawford, & Kippax, 1997). Compared to younger MSM (≤ 49 years), older MSM (> 49 years) were more likely to live alone, to have lived at their current address for over five years, and to live rurally, and were less likely to live in a high-density gay area. Older MSM were also more likely to be currently married or to have been married in the past. Despite a strong sense of gay community attachment, on average the older MSM scored lower on social attachment and cultural involvement measures than younger MSM. Older MSM also reported sexual involvement with the gay community at lower rates and engaged in a significantly narrower range of same-sex anal sexual practices, but did not differ from younger MSM with respect to the number of their male and female sex partners over the last six months.

Older MSM were less likely to disclose their sexual identity but were more likely to identify as ‘homosexual’, rather than ‘gay’. However, the finding that younger individuals are generally more willing to report minority sexual orientations than are older people could explain this, or it could be argued that the number of individuals reporting minority sexual orientations increases with time due to decreasing stigmatisation and increasing acceptability of these (Smith et al., 2003).

Conceptual research. There is a lack of conceptual research on how sexual orientation is conceptualised across different age groups.

7.2 Education

New Zealand research. One previous empirical New Zealand study on education levels and sexual orientation, a 2003 study using data from the longitudinal Dunedin Multidisciplinary Health and Development Study, found education level was positively associated with minority sexual attraction amongst young men and women such that those with the highest level of education were also the most likely to report any current same-sex attraction (Dickson et al.). The Lavender Islands Study found that in a large self-selected convenience sample of sexual minority New Zealanders, educational attainment was associated with self-identification as lesbian, gay, or bisexual (Henrickson, 2008). More specifically, the principal finding was that

While there was no significant difference [for both men and women] by highest educational qualification in the age at which respondents felt different from their peers, the more education a respondent had the older they were likely to be when they came out to themselves.”

(Henrickson, 2008, p. 169).
International research. There is much international research on the relationship between education level and sexual orientation. There is an established association between minority sexual orientation and higher levels of education for same-sex behaved men (Bagley & Trembley, 1998; Fay et al., 1989), gay identified men (Smith et al., 2003), and male same-sex cohabiting couples (Black et al., 2000, 2007). Similarly, higher education levels are associated with a ‘lesbian’ identity (Smith et al., 2003), and with being in a female same-sex cohabitating relationship (Black et al., 2000). An absence of sexual attraction to both males and females (asexuality) has been associated with lower levels of educational achievement (Bogaert, 2004).

For instance, the 1996 ACFS Survey conducted in France found that exclusively same-sex behaved survey respondents were more likely than both-sex behaved respondents to hold at least an undergraduate tertiary qualification (Messiah & Mouret-Fourme, 1996). Both-sex behaved respondents, in turn, were more likely than opposite-sex behaved respondents to achieve this educational level (Messiah & Mouret-Fourme, 1996). While it could be argued that these associations may be a reflection of less educated same-sex oriented individuals being less willing to report their same-sex orientation or cohabitation, emerging evidence suggests that these differences reflect actual population differences marked by sexual orientation (Black et al., 2000).

Conceptual research. There is a lack of research on how sexual orientation is conceptualised across different educational groups.

7.3 Ethnicity

New Zealand research. There is no substantive previous empirical New Zealand research on the association between sexual orientation and ethnicity; although Hyman’s 2003 study of Census cohabitation data found significantly higher numbers of Māori amongst female same-sex cohabitating couples, and of Asian men amongst male same-sex cohabiting couples.

International research. There is emerging international empirical evidence on the distribution of sexual attraction, sexual behaviour, and sexual identity amongst different ethnic groups. A 2003 Australian study found that being of an English-speaking background was positively associated with reports of sexual minority orientations (Smith et al.). A 1999 United States study found that Asian-American, African-American, and Latino-American sexual minority adolescents differed with respect to the number of sexual and romantic relationships they reported (Dubé & Savin-Williams, as cited in Savin-Williams, 2001).

Conceptual research. There is a good body of research on how sexual orientation is conceptualised across different ethnic groups. A synthesis of research on cultural influences on sexual orientation is provided elsewhere (see Sexual Orientation Conceptual Framework; Pega 2009a, pp. 22-28).

7.4 Gender

New Zealand research. There is one previous empirical study from New Zealand on the relative distribution of sexual orientation by gender. The 2005 study of data from the longitudinal Christchurch Health and Development Study found that more young women than young men reported same-sex sexual orientation as a combined measure of sexual attraction, sexual behaviour, and sexual identity (‘predominantly heterosexual but
some level of same-sex sexual attraction or experience’ 14.2% versus 4.8%; ‘exclusively homosexual’ 3.9% versus 1.5%) (Fergusson et al.).

International research. There is some international research on male and female sexual orientation distributions, but no evidence about transgender and intersex people. Current international evidence is contradictory and inconclusive. According to a review conducted by Smith et al. (2003), empirical studies vary by country and study with respect to finding associations between sexual minority orientation and gender. In the majority of countries, men tend to be more likely than women to report a sexual minority orientation, whereas in others this gender effect is reversed. A recent Australian study of large-scale probability survey data found that women were more likely than men to report a sexual minority orientation overall (Smith et al., 2003). In contrast to these findings, in almost all country surveys conducted as part of the first wave of HIV-related sex surveys in Europe during the late 1980s and early 1990s (exceptions being West Germany and Finland) and the later New Encounter Module (NEM) surveys, women reported lower rates of same-sex sexual behaviour than men (Kontula, 2004).

However, there is emerging evidence that women might be more likely to identify as bisexual than men. For example, the 2003 Australian study found women were more likely to report bisexual identities than men (Smith et al., 2003). In a 1998 United States study of American Indian and Alaska Native adolescents, adolescent sexual minority men were more likely to be same-sex oriented and sexual minority women more likely to be both-sex oriented (Saewyc et al., 1998).

Conceptual research. There is some research on how sexual orientation is conceptualised across different gender groups. Amongst men, sexual behaviour and sexual attraction appear to be the central variables for self-identification; whereas amongst women, same-sex sexual attraction and behaviour are not as predictive of self-identification with common sexual identity labels (Golden, 1996, as cited in Gonsiorek et al., 1995). Rather, choice of sexual orientation appears to be an important factor amongst women, with lesbian women describing same-sex affect and political perspectives as being central to self-definition (Golden 1994, as cited in Martin & Knox, 2000). This research is synthesised elsewhere (see Sexual Orientation Conceptual Framework; Pega, 2009a, pp. 28-30).

7.5 Geographic residency

New Zealand research. There are two previous empirical New Zealand studies on the association between sexual orientation and geographic residency. The studies of partner cohabitation data from the year 1996 and 2001 censuses establish that same-sex oriented males (Hughes & Saxton, 2006) and female same-sex couples (Hyman, 2003) are clustered in urban areas in New Zealand, mainly Auckland and Wellington. There are micro-clusters of sexual minority men within urban centres that are known to host a high percentage of this population group. Hughes and Saxton (2006) investigated micro-clustering of MSM in Auckland, identifying a range of inner-city Auckland suburbs with a high density of MSM; “12–13% of the national population of homosexual men resided in an inner-city Auckland area compared to 1.3% of all males aged over 15” (p. 158).

Urban clustering. There is ample international empirical evidence conclusively demonstrating the geographical clustering of sexual minority populations. Urban clustering has been found for sexual minority men residing in Australia (Birrell & Rapson, 2002; Prestage et al., 2008; Smith et al., 2003), France (Messiah & Mouret-Fourme, 1996), the United Kingdom (Wellings, Wadsworth & Johnston, 1994), and the
United States (Fu, 2007; Rogers & Turner, 1991). Such clustering has also been demonstrated for sexual minority women residing in Australia (Birrell & Rapson, 2002; Smith et al., 2003), France (Messiah & Mouret-Fourme, 1996), and the United Kingdom (Welling et al., 1994). It has been suggested that the proportion of the urban population with sexual minority orientations might be two to three times higher than the proportion of the general population with minority sexual orientations.

New Zealand findings of clustering of sexual minority populations in certain cities are consistent with the international findings. In Australia, sexual minority men are also highly concentrated within urban centres such as Brisbane, Melbourne, and Sydney (Birrell & Rapson, 2002; Prestage et al., 2008). Similarly, in the United States male and female same-sex cohabiting couples are clustered in urban centres, often well-known gay/lesbian cities like San Francisco or, amongst medium-sized cities, traditional college towns (Black et al., 2000). In the United States, the 20 cities with the highest percentage of same-sex couples accounted for approximately 60% of male same sex couples, but only about 26% of male opposite-sex cohabiting couples (Black et al., 2000). The 20 cities with the highest percentage of female same-sex cohabitating couples accounted for approximately 45% of female same-sex cohabitating couples, but only about 25% of female opposite-sex cohabiting couples (Black et al., 2000).

Micro-clustering: suburbs. New Zealand findings of micro-clustering of sexual minority men in urban centres are also consistent with international research. Madeddu and colleagues’ 2006 Australian study identified micro-clusters of sexual minority men within inner west and inner east postcode areas of Sydney. Between the postcode areas, there was great variance in the prevalence rates of men reporting any lifetime same-sex sexual attraction (12.9 - 52.8%), any lifetime same-sex sexual behaviour (9.8 - 51.5%), and identifying as ‘homosexual’ or ‘bisexual’ (minority sexual identity; 4.4 - 48.1%).

Another study found that male same-sex cohabiting couples in the United States tended to reside in metropolitan neighbourhoods, areas with a high degree of ‘adult-related amenities’, areas with mild climates, and cities with higher levels of ‘gay-friendliness’ (Black et al., 2000).

Change over time. Patterns of change over time for the geographic prevalence of sexual minority populations are not currently known. A 2008 study from Australia used a range of data sources to estimate changes in sexual minority men’s geographic residency over time, but concluded that Australian data were insufficient to achieve robust estimates (Prestage et al.).

Geographic profiles. Geographic information generated from the most robust available data (generally census or large-scale, official probability surveys) has been compiled in geographic profiles of sexual minority populations. Hughes & Saxton were the first to publish such a geographic profile for New Zealand in 2006, providing information about the geographic distribution of sexual minority men. This followed a movement to produce such profiles in the United States initiated by Gates, Gates, Sander, and Taylor’s seminal paper published in 2000. The UCLA Williams Institute has produced 64 papers since 2004 as part of its census snapshots series that provide geographic profiles of sexual minority populations at state-level (eg, Romero, Bauml, Badgett, & Gates, 2007a, b) and for sub-populations such as Asian, Pacific, African American, and Latino/Latina sexual minority people residing in California state (Ramos & Gates, 2008a, b, c). Such geographic profiles provide benchmarking information that can be used to evaluate the robustness and quality of sexual orientation data. For example, Hughes

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41 A complete list of all Census snapshots released by the UCLA Williams institute can be found at http://repositories.cdlib.org/uclalaw/williams/census/
and Saxton (2006) used their geographic profile produced from New Zealand Census data on male same-sex cohabiting couples to show that their self-selected online sample of MSM from the Gay Online Sex Survey (GOSS) had a similar geographic distribution as the Census profile.

Conceptual research: Underlying factors. There is a strong body of theoretical research on why empirical studies have found a geographic clustering of sexual minority populations. These theories are important because they address the vital question of the degree to which the geographic clusters found are due to reporting bias or reflect actual geographic variance. Those who see the geographic clustering as the result of reporting bias have argued that rural residents might be less likely to disclose their sexual minority status than urban residents due to heavier social stigmatisation of sexual minority orientations in rural environments. If this was the case then the higher urban concentration of sexual minority people would simply reflect the relative ease with which minority sexual orientation can be disclosed in an anonymous city environment (Bagley & Trembley, 1998; Hughes & Saxton, 2006; Purdam et al., 2008). Urban/rural differences in the understanding of sexual orientation and the use of associated terms and identities could also be explained by differences in exposure and access to sexual minority communities and scenes (McManus, 2003).

An alternative explanation is that sexual minority persons migrate to urban areas at higher rates than the rest of the population and hence the empirically identified geographic clusters of people with sexual minority orientations reflect actual overrepresentation of sexual minority persons in certain geographic areas. In their elicitation/opportunity hypothesis Laumann, Gagnon, Michael, and Michaels argue that urban clustering could be due to migration of persons with a sexual minority identity to more liberal, accepting, and socially inclusive urban neighbourhoods (1994). Others supporting this hypothesis have argued further that migration to urban environments offers MSM the opportunity to meet other life or sex partners and to secure a more affirmative sexual identity development (Fu, 2007; Hughes & Saxton, 2006). Male same-sex cohabitating couples in the United States might also be motivated to move to central city locations rather than suburban city areas by the desire to escape high property taxes (Black et al., 2000).

Fu (2007) synthesised key theoretical literature on reasons for sexual minority men being more concentrated in urban areas with high amenities, concluding that five theoretic streams of explanations exist to-date:

1. The special sorting theory posits that gay men living without children have more disposable income to spend on houses that are closer to high-amenity city centres than opposite-sex couples, especially considering that they attain higher levels of education and are thus more likely to have relatively higher earnings. However, this theory does not explain why groups of gay men have been found to sort into socially disadvantaged and stressful ‘gay ghettos’.

2. The gay politics theory explains this last point as it assumes that gay men consciously occupied certain residential areas in order to have a political voice and gain more social recognition. However, such an approach is only effective in communities where gay men would reach such numbers that they would achieve some level of dominance, which is rarely the case outside of the few high-density gay neighbourhoods.

3. The gentrification theory considers sexual minority people’s role in bringing prosperity to disadvantaged neighbourhoods. It posits that sexual minority populations move into neighbourhoods, developing and up-skilling these, which,
in turn, results in increased property prices. However, this theory fails to explain what would motivate sexual minority populations to gentrify disadvantaged neighbourhoods.

(4) A fourth theory considers the impact of sexual orientation discrimination in the rental and housing market. It is possible that sexual minority people might be forced to pay more for the same level of housing and that they invest more money in the renovation of their homes than heterosexual people, meaning that the value of their houses increases relatively more than for heterosexuals. However, empirical evidence for this theory is sketchy at best.

(5) Sexual minority people might have an intrinsic preference for residential areas with aesthetic potential and contribute to the quality development of these neighbourhoods; for example, by contributing their aesthetic judgments to the restoration and development of houses and residential areas. In line with this theory, some have even argued that the future values of properties are positively correlated with the past prevalence of sexual minority residents. In this sense, sexual minority people would ‘make’ aesthetically better, more affluent communities. Empirical testing of this theory is, however, difficult.

In conclusion, conceptual research is supportive of the notion that the geographic clustering of sexual minority populations found in empirical research does not solely reflect differences in disclosure rates, but is due to actual differences in geographic distribution.

7.6 Religiosity

New Zealand research. There are several empirical New Zealand studies on the association between sexual orientation and religiosity. Hyman’s 2003 study of Census couple co-habitation data from 1996 and 2001 found that same-sex couples were less likely to be religiously affiliated than opposite-sex co-habiting couples. The Lavender Islands Study found that a large, self-selected sample of sexual minority survey respondents reported abandoning the faiths of their birth (Christianity) at a rate 2.4 times higher than that of the general population (Henrickson, 2007a, b).

International research. A 1991 United States study found that MSM were less likely to report having no religion, or a religious affiliation other than a Judeo-Christian religion, compared to opposite-sex behaved men (Rogers & Turner). A 1994 United Kingdom study of data from the British National Survey of Sexual Attitudes and Lifestyles found that the highest level of disapproval of same-sex sexual orientation came from Muslim respondents (Wellings, Wadsworth, & Johnston, 1994, as cited in Purdam et al., 2008). A 2004 United Kingdom qualitative study found that the majority of the Muslim sexual minority study participants reported non-participation in Muslim religious and social activities (Yip, as cited in Purdam et al., 2008). Extremely high levels of religiosity are associated with no reported sexual attraction to men or women (asexuality) (Bogaert, 2004).

There is also research on the acceptance of minority sexual orientation amongst different religious groups. The 1994 United Kingdom study found that acceptance of minority sexual orientation was highest amongst Anglicans and those reporting no religious affiliation (Wellings, Wadsworth, & Johnston, as cited in Purdam et al., 2008). A 2003 study identified Christians as being more disapproving of homosexuality than the wider population (Crockett & Voas, as cited in Purdam et al., 2008). The 1994 study of data from the National Health and Social Life Survey conducted in the United States
found that Protestant men and women scored highest amongst the religious groups with respect to holding traditional conservative attitudes towards sexuality, as marked by condemnation of premarital and extramarital sexual behaviour and the opinion that same-sex sexual behaviour is always wrong (Laumann et al.).

**Conceptual research.** There is some information on how sexual orientation is conceptualised across different religious groups. For example, the (Roman Catholic) Congregation for the Doctrine of the Faith (1986) published its now well-known statement about the ‘intrinsically disordered’ nature of homosexuality. Nevertheless there is an increasing literature that understands anti-homosexual sentiment among many African and Asian nations and religions (in particular) as post-colonial and post-Western contact residue and that cultures/nations adopted such religious attitudes in order to achieve what they perceive as respect and acceptance from the Judaeo-Christian-based West. Henrickson suggests with view of the New Zealand context that the issue of sexuality is highly controversial among religious groups and that religious attitudes towards sexuality have more to do with boundaries (‘othering’) and ‘gatekeeping’ functions, rather than being about a given religion’s concepts about sexual orientation per se (2009).

### 7.7 Socio-economic status

**New Zealand research.** There is one empirical New Zealand study on the association between sexual orientation and economic status. Hyman's 2003 study of same-sex couple cohabitation data from the Census established that same-sex cohabiting couples without children are economically better off than opposite-sex cohabiting couples without children, although age differences between these same-sex and opposite-sex cohabiting couples might have enhanced this effect. However, for couples with children this sexual orientation effect is reversed. Hence, same-sex couples face significant economic disadvantage, with fewer male than female same-sex cohabiting couples having children (Hyman, 2003).

The same study found similar differences for employment. Both male and female same-sex co-habiting couples were more likely than opposite-sex co-habiting couples to be part of the labour force, although differences amongst male cohabitating couples by sexual orientation were smaller than for female couples. Overall, male and female same-sex cohabitating couples reported higher rates of unemployment. Amongst couples who worked, male and female same-sex cohabiting couples were concentrated amongst those in ‘white collar’ professions.

**International research.** Several United States studies have compared income by sexual orientation. In her landmark 1997 study of data from the General Social Surveys, Badgett found that sexual minority men and women were not economically advantaged compared to heterosexuals. Badgett noted that prominent studies finding relatively higher economic wealth for sexual minority men and women were based on marketing and polling surveys that relied on non-random, biased samples. Further, such studies were burdened with methodological flaws in that findings were not adjusted for education, failing to account for the higher level of education of same-sex oriented men and women. In fact, Badgett found that income was similar for same-sex and opposite-sex behaved women, but same-sex behaved men had lower incomes than opposite-sex behaved men after controlling for confounding variables. Black, Gates, Sander, and Taylor (1997, as cited in Black et al., 2000; 1998, as cited in Black et al., 2000) confirmed Badgett’s 1997 findings of relative income disadvantage for gay men in their study of data from a larger number of United States General Social Surveys and Censuses. However, other studies have found that same-sex oriented women earn 20 -
35% more than equally educated and skilled opposite-sex oriented women (Black, Makar, Sanders, & Taylor, 1998, as cited in Black et al., 2000; Klawitter, 1997, as cited in Black et al., 2000). A 2000 study of Census cohabitation data conducted by Black, Gates, Sander, and Taylor themselves found that after controlling for confounding variables (eg, education and age) same-sex cohabiting males received substantially less income than married men, and that same-sex cohabiting females earned substantially higher income than both heterosexual and unmarried opposite-sex partnered women. In conclusion, same-sex oriented women appear to have a higher income compared to equally qualified heterosexual women; same-sex oriented men appear to have a relative lower income, compared to equally qualified heterosexual men.

**Occupation.** There has been sound international empirical research on the association between sexual orientation and occupation. The 1996 French study based on the ASCF Survey found that same-sex behaved men were less likely than opposite-sex behaved men to work as farmers and manual workers and that same-sex and both-sex behaved respondents were more likely than opposite-sex behaved respondents to be managers and professionals (Messiah & Mouret-Fourme, 1996). A 2003 Australian study found that gay identified men were overrepresented amongst male managers, professionals, and white-collar workers, and that lesbian identified women were overrepresented, but bisexual identified women underrepresented, amongst female managers (Smith et al.).

**Unemployment and home ownership.** There is one international study each on the association between sexual orientation and unemployment and homeownership respectively. The 1996 study of data from the ASCF Survey found that exclusively same-sex behaved respondents were more likely to be unemployed with no previous occupation, compared to those who were both-sex and opposite-sex behaved, although this might have been an effect of the exclusively same-sex behaved group’s relatively young age (Messiah & Mouret-Fourme). The United States study of General Social Survey and Census data found that homeownership rates were lower amongst male and female same-sex cohabitating couples compared to opposite-sex cohabitating couples, but that when same-sex couples are homeowners the values of their houses exceed those of opposite-sex cohabitating couples (Black et al., 2000).

**Conceptual research.** There is little research on how sexual orientation is conceptualised across different socio-economic groups, but Martin and Knox (2000) note that working class men engaging in same-sex sexual behaviour might avoid self-identifying as ‘gay’ as long as they conform to a masculine gender role in their social behaviour.

### 7.8 Summary and recommendations

1. The SODCS has produced a demographic profile for sexual minority populations. Once this profile is robust, it can be used to evaluate sexual orientation data and to develop stratified probability-sampling approaches.

   **Recommendation:**
   Strengthen the demographic profile produced by the SODCS by adding key findings from official surveys in the future. Once the demographic profile is sufficiently robust, to use national information about the geographic and other demographic distribution of sexual minority men and women to evaluate sexual orientation data and to design stratified probability sampling approaches that increase the size of sexual minority sub-samples in official surveys.
2. There is conclusive empirical New Zealand and international evidence that sexual minority men and women are overrepresented in urban centres and micro-clustered in certain suburbs, from both official probability survey data on sexual orientation and Census data on couple cohabitation. This empirical evidence is supported by conceptual research in this area suggesting that these empirical findings are due to actual differences in population prevalence rather than due to reporting bias.

**Recommendation:**
Use available geographic information to evaluate the representativeness of collected sexual orientation data and to design stratified probability sampling approaches that increase the size of sexual minority sub-samples in official surveys.

3. Evidence about the age, ethnic, educational, gender, religious, and socio-economic distributions of populations defined by sexual orientation is emerging.

**Recommendation:**
Produce demographic break-downs of sexual orientation survey data to generate further evidence about the demographic distribution of sexual minority populations.

4. The SODCS assessed the existing OSS survey data on sexual orientation, as not suited to be used to robustly establish demographic distributions of sexual minority populations through these data (see Sexual Orientation Data in New Zealand Probability Surveys: Technical Report; Gray, 2009).

**Recommendation:**
Collect high-quality sexual orientation data through several large-scale surveys, pool these sexual orientation data sets, and develop demographic profiles for sexual minority populations from these data, following the examples set by the Census Snapshots produced by the UCLA Williams Institute.
8 Sampling

In the past, research on sexual minority populations has often had to rely on convenience sampling. This has occurred due to a lack of funding for the collection of probability samples of sexual minority populations and because sexual orientation data were not collected in probability surveys (Binson et al., 2007). Over the last 15 years, however, probability samples of sexual minority populations have become increasingly available (Binson et al., 2007; Rothblum, 2007), including through official surveys (Taylor, 2008b). Studies of probability samples of sexual minority populations have produced significantly more reliable knowledge on these populations than studies of convenience samples (Binson et al., 2007; Julien & Chartand, 2005).

Critical reviews of sexual orientation research on public health issues (Sell & Petrulio, 1996), workplace experiences (Croteau, 1996), and social services (Sullivan & Losberg, 2003) concluded that research in these areas suffers from a lack of probability samples. Furthermore, conceptual and operational definitions applied for sampling purposes were not always sound or consistent (Sell & Petrulio, 1996; Croteau, 1996; Sullivan & Losberg, 2003). Demographic and other sampling-related variables that could permit an evaluation of a sampling approach were not provided in many research articles (Croteau, 1996; Sell & Petrulio, 1996; Sullivan & Losberg, 2003). While diverse sampling limitations are evident in many studies of sexual minority populations, Black, Gates, Sanders, and Taylor (2000) have evaluated the quality of some available data sets from United States probability surveys, identifying those considered viable for conducting credible empirical research, and noting specific limitations of each.

This chapter outlines the challenges associated with sampling sexual minority populations. Convenience sampling and probability sampling of sexual minority populations are discussed.

8.1 Convenience sampling of sexual minority populations

Historical overview. Up until the 1970s, same-sex sexual behaviour was still criminalised in many places and the Diagnostic and Statistical Manual of Mental Disorders (DSM) classified homosexuality as a mental illness. As a result, the great majority of studies on sexual minority populations relied on institutionalised or clinical samples (e.g., imprisoned individuals or clients of mental health services) (Binson et al., 2007; Fish, 2006; Rothblum, 2007). These early samples were generally very small and drawn from at-risk sub-populations of sexual minority populations (Rothblum, 2007), with the associated biases.

Hooker's 1957 landmark study was the first to recognise that such early studies of sexual minority persons relied on non-representative samples; namely, that they oversampled at-risk members of sexual minority populations. Hooker's study addressed this sampling bias by sampling research participants from gay/lesbian organisations (1957). That this study could not reproduce the same psychological adjustment issues documented by previous studies demonstrated the strong impact of sampling practices on research findings.

In the 1980s, sexual minority groups began conducting their own studies to counter the negative bias in the research that was being conducted 'on' rather than 'with' them (Fish, 2006; Rothblum, 2007). These studies often recruited participants at big gay/lesbian community events, gay sex on-site venues, and gay bars, as well as through lists of subscribers of gay and lesbian magazines and networks of those organised in lesbian and gay community and political organizations. Fish (2006) notes
that the gay bar was the main site of sampling before recruitment focused on gay and lesbian organizations that hosted more confident and politically active sexual minority persons. These recruitment strategies achieved larger and less ‘at-risk’ samples of sexual minority persons, but were still biased in that samples consisted mainly of openly out, gay-community-attached or even politically active persons.

Limitations of convenience samples. These convenience samples of sexual minority persons had two main methodological shortcomings. Firstly, it was easy to discredit the findings from studies of such convenience data by arguing that the non-random sampling challenged the representativeness and hence generalisability of the findings from the obtained sample (Blair, 1999; Rothblum, 2007). Yet, there is emerging evidence that some convenience samples may indeed constitute representative samples. For example, a New Zealand study found that a national, self-selected, large online sample of MSM (respondents of the Gay Online Sex Survey) geographically matched a probability sample of male same-sex cohabitating couples (1996 and 2001 New Zealand Census) (Hughes & Saxton, 2006). Another study found that sexual minority participants had siblings who were demographically representative of the Census population, with the implication being that demographic differences observed amongst the sexual minority samples were due to sexual orientation and not to selection bias (Rothblum, 2007). However, while one may find that the results from a given non-probability sample correspond to particular variables in a probability sample or to the population, there is no guarantee that the next non-probability sample of the same population will have similar results.

Secondly, it was challenging to draw samples of heterosexual people that could act as comparison groups for these convenience samples, which meant that robust comparisons of social and health outcomes could not be made (Rothblum, 2007). Heterosexual siblings of sexual minority respondents could potentially prove to be strong comparison groups (Rothblum, 2007); however, disadvantages of such an approach include that sexual minority persons without siblings do not qualify for such research, and, although useful for differentiating variations in many social and health outcomes by sexual orientation, the sibling method is unable to determine other issues such as, for example, the population prevalence of sexual minority populations.

Advantages of convenience samples. It needs to be emphasised that, in spite of these limitations, convenience samples have contributed a wealth of community-generated, affirmative knowledge about sexual minority people. This knowledge can be used to guide the design, implementation, and analysis of probability surveys, amongst other purposes.

Some argue that convenience samples might be advantageous to probability samples for researching certain hard-to-reach sexual minority sub-populations of policy interest. For example, Kontula (2004) found that MSM men recruited through convenience-sampling were more sexually promiscuous than samples of MSM recruited through probability sampling. On the contrary, others have argued that probability samples are more suitable and effective in eliciting information for the study of certain difficult-to-reach sexual minority sub-populations than convenience samples (Binson et al., 2007). This line of argument is supported by evidence that demonstrated that MSM who engage in high-risk behaviour are less likely to be reached by standard convenience sampling techniques such as snowball or network sampling because high-risk men are less likely to disclose networks of high-risk men for research and low-risk men tend to refer on other low-risk men for research (Martin et al., 2003, as cited in Binson et al., 2007). In any way, it must be considered that respondents recruited through one convenience sampling technique (eg, snowball sampling) might differ from those recruited through another convenience sampling technique (eg, a quota sample).
8.2 Probability sampling of sexual minority populations

Since the 1990s, the increasing availability of landline telephones and the world-wide web have increased the feasibility of collecting probability samples through random-digit-dialling and on-line surveys with randomly selected individuals respectively (Rothblum, 2007). Such techniques have also provided an increased level of anonymity for survey respondents (Rothblum, 2007). Today, many large-scale population-based probability surveys are conducted, and probability sampling of the general population is the undisputed benchmark upon which every other sampling methodology is evaluated.

8.2.1 Issues associated with sampling populations defined by sexual orientation in general population surveys

Probability samples of populations defined by sexual attraction, sexual behaviour, and sexual identity can be achieved by including questions on these concepts in general population surveys. A number of large-scale general population surveys have included sexual orientation questions, generating probability data for both sexual minority and heterosexual sub-samples from the same general population sample (Binson et al., 2007).

From a sampling perspective, the main issue is that the inclusion of sexual orientation questions in official surveys of the general population does not necessarily result in representative samples of sexual minority populations. The uneven age, educational, ethnic, geographic, and income distributions of sexual minority populations mean that general population samples do not return representative samples of sexual minority populations (Hughes & Saxton, 2006). For example, a general population survey that collects an Auckland sub-sample that is geographically representative of the general population will undersample sexual minority populations that are geographically clustered in Auckland such as MSM (Hughes & Saxton, 2006). However, robust knowledge of the demographic distribution of sexual minority populations will support the development of sample weightings that can be applied to adjust for the unrepresentative sub-samples of sexual minority populations collected in general population surveys (see Chapter 6: Population size, pp. 57-73; and Chapter 7: Demographic distribution, pp. 74-83).

One technique commonly employed to increase the sample size of minority populations (e.g., ethnic minorities) in general population surveys is to apply disproportionate stratified sampling designs. This technique uses demographic information to oversample a demographic group that has the demographic profile of the minority population, leading to an increased number of respondents from the minority population being sampled at random. A disproportionately stratified sampling design that samples participants from strata in which a certain minority population is overrepresented is likely to sample a more representative sub-sample of this minority population than could be achieved in a sample that is representative of the general population. Such an approach needs to be based on sound knowledge about the geographic distribution of the minority population or it risks collecting non-representative samples.

8.2.2 Conducting probability surveys of sexual minority populations

There are a number of sampling strategies that can be used to sample sexual minority populations. Much can be learnt about the sampling of sexual minority populations from established sampling techniques targeting other minority population groups (e.g., ethnic minority populations) and from epidemiological techniques for studying rare conditions such as HIV. This section discusses the use, advantages, and disadvantages of a range of sampling strategies including:
Simple random sampling. Sampling sexual minority populations through simple random sampling, where every individual member of the target population has a random chance of being included in the sample, has two main disadvantages (Binson et al., 2007). Firstly, this sampling strategy tends to be cumbersome as it requires a large number of participants to be randomly chosen and duplicates recorded (Binson et al., 2007). Secondly, this strategy may lead to unrepresentative distributions of sexual minority samples being obtained, especially when the drawn sample is small (Binson et al., 2007).

Systematic random sampling. Systematic random sampling uses sampling intervals to sample every \( n \)th person from a sampling frame (Binson et al., 2007). This technique has the general advantage that it is simple, avoids duplicate selection of members from the sample frame, and produces a representative sample (Binson et al., 2007). However, systematic random sampling is often impossible to implement for the sampling of sexual minority populations, because it requires sample frames that enumerate all members of the target population, and these are generally not available for sexual minority populations (Binson et al., 2007).

Stratified sampling. In stratified sampling, survey participants are sampled through systematic selection from strata defined by population parameters such as education, income, and ethnicity (Binson et al., 2007). The goal of stratified sampling is to increase efficiency of sampling, although this sampling is only possible if the sampling frame contains information about the population parameter that stratification is based on (Binson et al., 2007). Disproportionate stratified sampling is one particularly powerful stratified sampling technique that enables collection of larger samples of sexual minority survey respondents for the same costs (Binson et al., 2007). This sampling strategy is commonly used for the purpose of ensuring a large enough sub-sample of survey respondents from groups with small population sizes to allow separate, population-specific analyses (Binson et al., 2007). For example, sampling men from geographic areas in which there are high concentrations of gay identified men is likely to produce a larger survey sub-sample of gay identified men than simple or systematic sampling would achieve. However, “for the procedure to be effective, some geographic areas need to have both a higher prevalence of the target group and include a large proportion of the total target population” (Binson et al., 2007, p. 386).

Considering that stratified sampling is commonly used in OSS surveys and the increasing availability of demographic information from more robust data sources (see Chapter 7: Demographic distribution, pp. 74-83), disproportionately stratified sampling could be a feasible approach to utilise in order to collect sufficiently large sub-samples of sexual minority populations in probability surveys.

However, the SODCS used existing New Zealand survey data on sexual orientation to explore the potential of stratified sampling approaches to be used in the OSS context (see Sexual Orientation Data in New Zealand Probability Surveys: Technical Report; Gray, 2009). The conclusion reached was that disproportionate stratified sampling has some potential for the OSS (especially once a robust demographic profile is available).
that can be used for targeting); but this sampling strategy is likely to increase the size of sexual minority sub-samples in OSS probability surveys only slightly.

Clustered sampling. In clustered sampling, clusters defined as “naturally occurring groups of potential respondents” (Binson et al. 2007, p. 388) are sampled as opposed to selecting respondents on a “one by one” basis. “Although the main rationale for cluster sampling is lower sampling errors for the available fixed costs, there are other reasons as well such as the unavailability of sampling frames for many populations.” (Binson et al., 2007, p. 388).

When rare populations are geographically clustered, telephone cluster sampling presents an important sampling technique that reduces sampling costs (Binson et al. 2007). Here, a telephone number from within a bank of numbers is dialled and the household screened for eligible respondents (Binson et al., 2007). If an eligible respondent is identified, sampling continues within the bank, if no eligible person is identified the bank is skipped (Binson et al., 2007). The two main factors that need to be considered to determine whether clustered sampling is appropriate for the sampling of a population of interest are, the rareness of the target population and the degree to which the target population is geographically concentrated (Binson et al., 2007). The use of cluster sampling, although not commonly used in official surveys to date, could also be considered.

Complex sampling strategies. There are a variety of complex sampling strategies that might be useful for the sampling of sexual minority populations such as adaptive sampling, network sampling, and site or time/location sampling (Binson et al., 2007). These complex sampling strategies were developed specifically for the cost-effective sampling of rare populations and have previously been used to sample sexual minority populations. However, these sampling strategies need to be applied cautiously for a range of reasons (Binson et al., 2007). Specifically, such strategies require specialised expertise concerning both sampling methodology and the population of interest (Binson et al., 2007). They generally rely on sampling procedures that are difficult to execute (even when the underlying strategy appears fairly simple) such that poor implementation might undo the advantages of the technique, especially in the case where inappropriate execution leads to convenience rather than probability samples (Binson et al., 2007). In addition, it might be impossible to robustly calculate sampling errors for samples drawn with these complex techniques, due to a lack of formulas for calculating sampling error for many of these (Binson et al., 2007). However, considering that these sampling strategies are not commonly used in the OSS, it does not appear feasible to apply these complex sampling strategies in official surveys at the current point in time.

Emerging sampling strategies. A range of new sampling designs such as respondent-driven sampling are emerging (Binson et al., 2007). In respondent-driven sampling a chain-referral procedure is used to recruit participants not from a set sampling frame, but from social networks of the participating sample members (Binson et al., 2007). In turn, the characteristics of the sample and the social network that it relied on are used to make inferences about the population for which the recruited sample is representative, especially with respect to deriving the percentile proportion of certain sub-populations of interest (eg, HIV positive versus HIV negative groups) (Binson et al., 2007).

The three key assumptions that ensure an unbiased sample are: (1) that the first wave of study participants (the ‘seeds’) are drawn so that their probability of being part of the sample is proportional to the size of their network; (2) that study participants recruit from their network at random; and (3) that study participants know the precise number of people contained in the network they belong to (Binson et al., 2007). Careful assessment of the degree to which these assumptions held for a particular study would
need to be made prior to the utilisation of this sampling method. Binson et al (2007) suggest that pilot studies be conducted to test the use of this potentially cost-effective sampling approach, wherever feasible. Again, this sampling technique is unlikely to be used in the OSS, given its emerging character.

8.2.3 Probability sampling considerations

Binson et al. (2007) identified the key steps in the probability sampling of sexual minority populations. This procedure involves, in chronological order:

- defining the target population
- developing a suitable sampling strategy
- determining the required sample size
- drawing the sample
- computing sample estimates of selected population parameters

Enumeration of survey population. A starting point for probability sampling is the enumeration of the survey population. It has been pointed out that defining sexual minority populations conceptually and operationally is a difficult task that needs to be mastered before an effective sampling design can be constructed and implemented (Binson et al., 2007; Martin & Knox, 2000; Sell & Petruilo, 1996). Definitions provide clarity about which potential survey respondents fulfil eligibility criteria for participation in the survey. That is, "if the population is defined more generally as a subset of the general population, questions of overall prevalence, differential prevalence by location, and screening response rates must be addressed before a sample design and sample size can be determined." (Binson et al., 2007, p. 379). For a detailed discussion of which dimension of sexual orientation to assess in which sampling context see Martin and Knox (2000) and Savin-Williams (2006).

The relative fluidity and variability of sexual orientation, especially sexual identity expression amongst women and adolescent population groups, presents another challenge. This fluidity requires researchers to factor a number of points into their definitions; namely, different labelling practices, reporting timeframes, the life-stage of target populations, and the differing social, economic, cultural, psychological, legal, and political contexts, situations, and settings, in which sexual orientation data are collected (Martin & Knox, 2000).

In view of the above, sampling of sexual minority populations in official surveys should be guided by conceptual and operational definitions developed as part of a statistical standard for the sexual orientation topic and the associated measurement concepts. The SODCS has developed various aspects of a statistical standard for the sexual orientation topic (ie, working definitions of the topic and key measurement concepts, a description of the key conceptual dimensions of sexual orientation, preliminary questions and classifications for the key measurement concepts) in this document and the Sexual Orientation Conceptual Framework (Pega, 2009a). The application of the proposed standards enables sexual minority populations to be robustly defined conceptually and operationally for sampling purposes.

Sexual minority populations are hard to enumerate, because sexual orientation can generally not be identified from the sampling frame and because information relating to sexual orientation is sensitive. The inability to enumerate a population to be surveyed makes sampling more difficult. To address this issue in the absence of population-specific information on sexual minority populations of interest, the general population needs to be screened for eligible sexual minority persons. Such screening of the general population is likely to be extremely costly, given that sexual minority populations
appear to have low population prevalence, but the exact costs are hard to estimate because of the lack of availability of benchmarking demographic information as a sound basis for the calculation of screening rates (Binson et al., 2007). However, the availability of time-inexpensive and sensitive telephone screening instruments for bisexual and lesbian women (Meyer, Rossano, Ellis, & Bradford, 2002), and bisexual and gay men (Meyer & Colten, 1999) is likely to reduce screening costs significantly. Whether these telephone screeners could be adapted for use in face-to-face screening in household surveys needs to be investigated; then, if feasible, such screening could be conducted in OSS household surveys (see Sexual Orientation Data in New Zealand Probability Surveys - Technical Report; Gray, 2009). In conclusion, telephone screening for sexual minority persons appears feasible and tested and trialled screening tools are available; face-to-face screening needs to be investigated, with tools still to be developed.

One strategy to avoid having to screen the general population has been to over-sample or sample exclusively in areas for which robust information indicates a high density of the sexual minority population to be sampled (Binson et al., 2007). This explains why many probability samples have been drawn from cities such as San Francisco (eg, in the area of substance use research: Bloomberg, 1993; Stall & Willey, 1988). However, even this strategy can result in a very high amount of telephone numbers dialled to achieve a reasonable sample size of sexual minority persons. For example, in the Urban Men's Health Study conducted in four United States cities (San Francisco, New York, Los Angeles, and Chicago), 53,050 telephone numbers needed to be dialled to complete just over 900 interviews (Pollack, 1999, personal communication, as cited in Binson et al., 2007). “Given the lack of reliable prevalence data of LGB [lesbian, gay, and bisexual] households, how large a sample one needs to start with to end up with “X” number of interviews involves significant guesswork.” (text in brackets added; Binson et al., 2007, p. 378). However, considering that the Office for National Statistics currently engages in a data collection programme that will enable the production of robust estimates of the prevalence of populations defined by sexual identity in the foreseeable future (2008), official statisticians will soon be able to profit from these robust estimates.

**Sampling frames.** A sampling frame is “a set of elements from which a subset is selected during each stage of the process of sampling population members” (Binson et al., 2007, p. 381). Different sampling frames might be needed for different stages of the sampling process resulting, for example, in primary and secondary sampling frames. The better the match between the members enumerated in a sampling frame and all eligible members of the survey population, the more accurate the sampling frame. When frames are available for sampling (eg, electoral roles), these must be carefully evaluated with respect to four potential issues:

1. non-inclusion of eligible persons
2. inclusion of ineligible persons
3. duplication due to eligible persons appearing multiple times
4. single representation of some groups of eligible persons (reverse of duplication)

Exclusion of eligible persons leads to under-coverage, whereas inclusion of ineligible persons results in over-coverage. That is, “if those people who are omitted in error differ (in terms of study variables) from those included this clearly represents a source of error in the resulting sample estimate. Inadvertently including non-population members in the sample means that the sample estimates do not fully correspond to the target population” (Binson et al., 2007, p. 382). Both the duplication of eligible persons in the sampling frame, and the reverse effect - the chance of an enumerated person's
selection either increasing or decreasing systematically, have implications for the sample estimate’s quality.

Sample size. Kontula (2004) argues that overall survey samples should be in excess of \( N = 20,000 \) to elicit a gay, lesbian and bisexual sub-sample with sufficient numbers to permit robust statistical analysis, especially if the research aim is to produce more than simple prevalence estimates.

The SODCS (Alistair Gray, personal communication) has come to the conclusion that the current lack of reliable prevalence data on populations defined by sexual orientations in New Zealand makes it difficult to confidently estimate the sample size required to obtain a sufficient minimum target sub-sample of sexual minority respondents. However, while robust estimates cannot currently be made, the prevalence rate for populations defined by say minority sexual identity (as the presumably smallest sexual minority population group) is likely to be in the range 2 - 7%. In addition, it needs to be noted that the size of a minimum target sub-sample of sexual minority respondents depends very much on what purpose the sub-sample is to be used for. Different analyses that were aimed at producing more than simple prevalence estimates would have different implications for the minimum target sub-sample.

To explain further, suppose the prevalence rate for the population defined by minority sexual identity is indeed in the range of 2-7%, and that we want to detect differences between various subgroups of this population (eg, urban versus rural, people under 25 versus people 25-34, Māori versus Pacific people). We want the chance of finding there is a significant difference when actually there is not (ie, Type 1 error) to be small (\( p < .05 \)) and the chance of finding that there is not a significant difference when in fact there is (Type 2 error) to be moderate (\( p < .30 \)). Suppose also that we want to be able to detect a difference which is around 40% of the assumed prevalence rate for the smaller of the groups: that is, if the actual prevalence was 2.5% then we want to be able to detect a difference of 1% using our sample. If we could carry out simple random sampling then the sample size for each group would be around 4500, 3000, 2200, 1700, 1400, 1200, if the lower prevalence rates were 2%, 3%, 4%, 5%, 6%, 7% respectively and the detectable difference 0.8%, 1.2%, 1.6%, 2%, 2.4%, 2.8% respectively.

However, it is more likely that a stratified multi-stage cluster sampling scheme with some targeting and screening will be employed rather than simple random sampling. Based on such schemes targeting ethnic groups, we would expect an efficient targeting and screening design to have a design effect of 1.2-2.0. In other words we might expect to have a sample size anywhere from 20% more than the simple random sample size to double the simple random sample size.

So in general, the sample sizes required to detect differences in sub-populations are likely to be comparable to the minimum total sample size of \( N = 30,000 \) respondents. Within the Programme of Official Social Surveys (POSS), two surveys currently collect data from more than 30,000 individuals. These are the:

1. The Household Labour Force Survey (HLFS), which provides official measures of unemployment, employment and those not in the labour force. The HLFS is produced quarterly and questions 15,000 households/30,000 individuals.

2. The Disability Survey, which provides statistics on the prevalence of disability in the New Zealand population, participation in paid work, and support that disabled people require to engage in everyday activities, including work.
Conducted 5-yearly, the Disability Survey questions 40,000 individuals (post-census sample) and 1,000 individuals in residential facilities.

Provided that the prevalence rates are fairly stable over a 2-3 year timeframe, one solution to achieve a total sample size in excess of N = 30,000 might be pooling the results from smaller household surveys.

8.2.4 Sampling strategies and drawing the sample

Sampling strategies. In terms of sampling strategies, Binson et al. (2007) recommend drawing too large a sample rather than beginning with too small a sample and then having to design and draw a second sub-sample to achieve the desired number of interviews. Starting with a larger sample has the advantage that a first sub-sample can be used to determine screening rates, and as many sub-samples from the larger sample as needed can then be drawn, rather than having to expend more effort to construct a second sample after learning that the numbers from the initial sample did not yield sufficient numbers of sexual minority respondents (Binson et al., 2007).

Non-response and misreporting. Non-responding and misreporting need to be considered in the context of sampling. As noted elsewhere, sexual minority persons might misreport their sexual orientation as opposite-sex, not reveal their sexual orientation (a non-response), and/or might be less likely to answer a survey due to fear of social stigma and confidentiality concerns. The elusive nature of sexual minority populations means that the identification of sexual minority persons is difficult, as well as that response rates might be difficult to predict due to the current absence of benchmarking information on these populations (Binson et al., 2007).

Drawing the sample. Drawing the sample requires consideration of a range of activities. With respect to deciding which kind of telephone interviewing practice to apply, Binson et al. (2007, p. 412) advise that, “for telephone interviewing, if the target group has zero tendency to cluster geographically, RDD with no clustering is the best option. If the target group has a non-zero tendency to cluster geographically, TCS [telephone cluster sampling] is preferable” (for a detailed discussion of the advantages and limitations of different survey modes see Chapter 10: Surveys modes, pp. 102-110). The synthesis of research regarding non-responses and misreporting, and acceptability/disclosure issues, provide further guidance in relation to sampling (see Chapter 11: Misreporting and non-response, pp. 111-123; and Chapter 12: Acceptability/disclosure, pp. 124-132).

8.2.5 Sampling error

Sampling error has been defined by Binson et al. (2007) as follows:

One source of variation in a sample estimate is due solely to the fact that a sample, not the entire population, is selected. This source of variation is called the sampling error. [...] Sampling error is defined (conceptually) as the average variation and a particular statistic between all possible samples of sizes n selected from the same population in the same manner. Sampling error depends on (eg, is a function of) the sample size, the sample design, and the amount of variation in the target population on the variable being measured.

(pp. 382-383).

Binson et al. (2007) point out that representativeness should be seen as continuous, so that various degrees of representativeness can be achieved as defined; for example,
through sampling error calculated as a function of various variables including the sample size.

### 8.3 Summary and recommendations

1. Because the demographic characteristics of sexual minority populations are not as evenly distributed as in the heterosexual population, sampling approaches that aim to ensure a representative sample of the general population are likely to result in non-representative sexual minority sub-sample. The demographic profile produced from the most robust survey data on sexual orientation from New Zealand and internationally is presented in Chapter 7: Demographic distribution (pp. 74-83). The inclusion of sexual orientation questions in probability surveys of the general population nevertheless achieves high-quality probability samples of sexual minority populations for study.

**Recommendation:**
Adjust sexual orientation data from probability samples for the bias arising from differential demographic distribution of sexual minority populations, compared to the general population.

2. Disproportionate stratified probability-sampling approaches have some potential to achieve larger samples of sexual minority populations. However, for such approaches to be designed, robust demographic information is required.

**Recommendation:**
Once robust demographic information about sexual minority populations has become available, design stratified sampling approaches targeting population groups with higher percentages of sexual minority people in order to obtain a larger sample of sexual minority respondents than would be obtained through a general population survey.

3. Telephone screening tools for sexual minority men and women are available and fit for use in telephone surveys. Equivalent screening tools for face-to-face surveys (eg, OSS household surveys) are currently not available.

**Recommendations:**
Use telephone screeners in telephone surveys to achieve larger sub-samples of sexual minority women and men.

Conduct research into the potential of screening for sexual minority individuals in face-to-face and household surveys and develop appropriate screening tools, if feasible.

4. The conceptual definitions developed in the Sexual Orientation Conceptual Framework (Pega, 2009a), together with the operational definitions (see Chapter 5: Question design, pp. 34-56) and classifications (see Chapter 9: Aggregation/disaggregation of data, pp. 95-101) developed in this document can be used to enumerate populations defined by sexual attraction, sexual behaviour, and sexual identity.

**Recommendation:**
Apply the conceptual and operational definitions developed by the SODCS as part of a statistical standard for sexual orientation as measured by sexual attraction, sexual behaviour, and sexual identity for the purpose of enumerating sexual minority populations defined by sexual attraction, sexual behaviour, and sexual identity.
9 Aggregation/disaggregation of sexual orientation data

There is little methodological research on issues relating specifically to the aggregation and disaggregation of sexual orientation data. But it appears that only the standardisation of conceptually sound sexual orientation response categories in sexual attraction, sexual behaviour, and sexual identity questions will provide data that can be meaningfully aggregated/disaggregated. To date, standard sexual attraction, sexual behaviour, and sexual identity questions that could ensure that high-quality, reliable, accurate, consistent, and comparable sexual orientation data are collected have not been developed by the OSS, but the preliminary sexual attraction, sexual behaviour, and sexual identity questions proposed by the SODCS (see Chapter 5: Question design, pp. 34-56) could be used to collect data on conceptually robust and standard categories in New Zealand, contingent on further question development. It is acknowledged that in official surveys, the need for detail in the sexual orientation data needs to be balanced with the amount of space and time allocated for sexual orientation questions.

The ability to disaggregate sexual orientation data is related to the size of a probability sample of sexual minority respondents. The goal is to achieve as large a sample of sexual minority respondents as possible, and a sample with a near-equal split between the sexual minority categories that are to be analysed separately.

The OSS is not currently guided in its aggregation/disaggregation of sexual orientation data by classification standards for the sexual attraction, sexual behaviour, and sexual identity concepts. Such standard classification systems would demonstrate how responses can be grouped in a conceptually meaningful and sound manner are developed in this chapter.

When groups defined by sexual attraction, sexual behaviour, and sexual identity are compared statistically, careful consideration needs to be given to determining appropriate comparison groups. For example, should bisexual identified women be compared with heterosexual identified or with lesbian identified women, or should sexual minority indigenous people be compared with the sexual minority non-indigenous group, sexual minority groups of the dominant ethnic group only, or with sexual minority indigenous people from other countries.

This chapter reports on issues relating to the aggregation/disaggregation of data on sexual orientation. A discussion of data requirements is followed by an exploration of aggregation/disaggregation of data by sexual orientation. At last, the chapter discusses aggregation/disaggregation of sexual minority population data by demographic characteristics.

9.1 Data requirements

Response categories. Meaningful aggregation/disaggregation of sexual orientation data requires these data to be collected in a way that allows identification of sexual minority populations according to conceptually robust operational definitions as outlined in the Sexual Orientation Conceptual Framework (Pega, 2009a) and applied in the preliminary sexual attraction, sexual behaviour, and sexual identity questions presented in this report (Chapter 5: Question design, pp. 34-56). For example, a standard sexual attraction question that measures gradients of sexual attraction, including the intermediary 'mostly' same-sex or opposite sex attracted categories, will provide a richer data source than a question that asks respondents to report merely whether they are...
same-sex, both-sex, or opposite-sex attracted. The first question enables
disaggregation of data into five groups (exclusively same-sex attracted, mostly same-
sex attracted, equally attracted to both sexes; mostly opposite-sex attracted, and
exclusively opposite-sex attracted), whereas the second question merges the ‘mostly’
and ‘equally’ categories into one (both-sex attracted), achieving data that can only be
disaggregated into three groups. These apparently subtle differences can have
important implications; for example, one of the first comprehensive analyses of ‘mostly
heterosexual’ identified women’s sexual behaviours and identity development has show
that this group of women has characteristics that are distinct from those of women on
other parts of the sexual orientation spectrum (Thompson & Morgan, 2008).

‘Other’ response categories. Empirical research generally finds that only very small
numbers of survey respondents report a non-gay, non-lesbian, non-bisexual, non-
heterosexual, (ie, ‘other’) sexual orientation. For example, only 0.1% of respondents of
the New Zealand Health Behaviour Surveys: 2003 Drug Use and 2004 Alcohol Use (ie, 1: 1000) selected the response category ‘some other sexual identity’ (Pega & Coupe,
2007). If survey respondents were given a follow-up option to specify their ‘other’ sexual
identity these data could possibly be used to disaggregate the ‘other’ category. This
might provide valuable information for analysis, especially for very small populations
such as takatāpui-identified men and women. If no additional information is collected
from those with ‘other’ sexual orientations, these data are difficult to analyse and
interpret.

Three other issues need to be considered relative to their implications for the
aggregation/disaggregation of data. First, the preliminary sexual attraction, sexual
behaviour, and sexual identity questions proposed by the SODCS for inclusion in OSS
surveys pending extensive testing (see Chapter 5: Question design, pp. 34-56), provide
a source of initial guidance as to which response categories could be used in sexual
orientation questions for implementation through the OSS. The proposed question
categories have been selected on the basis of findings outlined in the Sexual
Orientation Conceptual Framework (Pega, 2009a) about the key conceptual dimensions
of sexual orientation and its preliminary operational working definitions and initial pre-
testing of the questions with a small number of takatāpui, fa’aafafine, lesbian, gay, and
bisexual individuals and producers and consumers of official statistics (see Summary of
Focus Groups and Interviews; Pega, 2009c).

Second, if research aims to investigate the demographic patterning of sexual orientation
or interaction effects with sexual orientation, a range of socio-demographic data need to
be collected in addition to sexual orientation data. However, it is not anticipated that this
would be an issue as OSS surveys generally assess a broad range of demographic
variables in all surveys.

Finally, with respect to data requirements there is the need for sufficiently large samples
of sexual minority survey respondents to enable disaggregation. Currently, for certain
data analyses, researchers are forced to aggregate different sexual minority groups in
order to achieve a large enough sample size to conduct the analyses. However, such
aggregation of different population groups defined by sexual orientation is likely to limit
the accuracy and reliability of the analyses and to limit the conclusions which can be
drawn from the findings. For example, aggregation of ‘gay’ and ‘lesbian’ respondents is
likely to mask disparities between the two distinct groups. For example, Pega and
Coupe had to combine ‘bisexual’ and gay identified men, and ‘bisexual’ and lesbian
identified women to obtain sufficient numbers to carry out multiple regression analyses
investigating substance use amongst sexual minority and heterosexual groups (2007).
This is likely to be a common problem even in large-scale official surveys, given that in
some surveys small percentages of respondents report sexual minority orientations

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(Taylor, 2008b). However, there is a potential solution to this problem: Even if only small sub-samples are achieved in surveys, it is possible to pool sexual minority sub-samples from different official surveys to achieve pooled samples that are sufficiently large to enable detailed disaggregation.

9.2 Aggregation/disaggregation by sexual orientation

As we have made clear, people with minority sexual orientations constitute a highly diverse group of individuals. Again, as conceptual research has highlighted, sexual orientation is a complex variable with multiple expressions, meaning that sexual minority persons can have a wide range of sexual attractions, engage in a variety of sexual behaviours, and adopt various sexual identities. Given this diversity, when sexual orientation is assessed in surveys, decisions need to be made as to which groups should be aggregated, both for the purpose of data collection and for data analysis. There is some empirical evidence about which groups to aggregate for particular purposes. One study on ‘mostly straight’ identified women concluded that this group of women should not be aggregated with the ‘exclusively heterosexual’ identified respondents, nor excluded from studies, but should instead be grouped with the ‘lesbian’ and ‘bisexual’ identified respondents (Thompson & Morgan, 2008).

However, respondents of the Great, Late Lesbian and Bisexual Women’s Discrimination Survey strongly opposed the aggregation of findings from lesbian identified and bisexual identified survey respondents (Rankine, 1997). Lesbian identified women wanted to see the findings presented separately, “preferably in a different book” (p. 12), citing reasons such as respect for the rights of bisexual and lesbian women to have their own research. Other arguments were that data from bisexual women may “muddy” that from lesbian women and that bisexuality and lesbianism were seen as “two totally different issues” (p. 13). Bisexual women were concerned that if their data were combined with that of lesbian women, discrimination that they experienced from lesbians would be masked.

Different aggregation practices have been used in the past with respect to the ‘other’, ‘don’t know’ and ‘uncertain’ categories. One frequently-used approach has been to combine all responses other than exclusively opposite-sex oriented into one ‘non-heterosexual’ group (ie, aggregating data into two categories – ‘heterosexual’ and ‘non-heterosexual’). For example, the Youth2000 Study took such an approach when reporting on ‘non-heterosexual youth’ in 2005 (Le Brun et al.), but amended this in their 2009 report on sexual minority youth, disaggregating sexual orientation data from the Youth2007 Study into same-sex oriented and both-sex oriented categories. Sometimes such an approach (ie, aggregation of responses into one ‘non-heterosexual’ category) might appear attractive as such aggregation provides a larger sample for quantitative analysis. At other times, aggregation may serve a philosophical imperative for inclusiveness or not making within-group disparities public. However, such aggregation practices are unlikely to produce reliable and robust findings in the context of official surveys, considering the complexity of the diverse sexual minority populations that are subsumed in one category.

The study described earlier (Sullivan & Losberg, 2003) reviewing sampling issues in social work research concluded that research on sexual minority populations needs to provide clarity and reasoning about the aggregation and disaggregation criteria that are applied to studies that include samples of more than one clearly defined sexual minority population. Acknowledging that the conceptual complexities of sexual orientation, and in particular the variability and fluidity of sexual orientation self-expression, make research on sexual minority populations a difficult endeavour, the researchers highlight the risks
involved in drawing conclusions from aggregate sexual minority samples (eg, samples of lesbian identified women and gay identified men). Sullivan and Losberg noted that conclusions based on such aggregate samples can be "misleading or simplistic" (p. 159).

9.3 Aggregation/disaggregation by demographic characteristics

Within a clearly defined sexual minority population, individuals differ on a range of socio-demographic variables, some of which might be of particular interest for an analysis. For example, Gruskin and Greenwood (2007) called for investigation of the effect of ethnicity on sexual minority population’s alcohol and tobacco use. To be able to test an assumed interaction effect between sexual orientation and ethnicity, sexual minority samples will need to be disaggregated by ethnicity. Aggregating same-sex oriented survey participants from various ethnic minority groups might prevent a study from providing insights into the ethnic-specific patterning of social outcomes among sexual minority populations (Zea et al., 2003).

Indigenous and ethnic minority sub-samples. However, in studies where sexual minority samples are disaggregated by ethnicity (or by other demographic variables) additional analytical issues might arise. Croom pointed out that the use of white sexual minority control or comparison groups for minority ethnic sexual minority groups is often problematic (2000). Similarly, it might be inappropriate to compare the health and social well-being outcomes of an indigenous sexual minority sample with those of non-indigenous populations, because this could lead to further stigmatization of the group; rather, an indigenous sexual minority sample might better be compared with an indigenous sexual minority sample from another country. However, some quantitative surveys have aggregated 'takatāpui tāne-identified individuals with those from the 'other' category, resulting in data about this indigenous group being masked in the reported findings (Saxton, Dickson, & Hughes, 2006). Possibly, the inclusion of a separate reporting stream for takatāpui tāne-identified men was not feasible in the context of this study due to small numbers of the indigenous sexual minority group. Sample size. Meaningful and robust analysis of data of sexual minority persons with respect to sub-population characteristics defined by sexual orientation or other socio-demographic characteristics requires the size of a sexual minority sample to be large enough to enable disaggregation of the sexual minority sample by the respective characteristic. Croom (2000, p. 266) has elaborated this point in the context of ethnicity:

When LGBT [lesbian, gay, bisexual, and transgender] people of color are included sample sizes are too often too small to be statistically rigorous, relevant, or generalizable. Hence, they are not indicative of behaviour beyond the grouped sample. In some cases, they are subsumed with the larger group being studied. This does not allow readers to discern how the LGBT persons of color, who are subjects, respond to those measurements as ethnic groups. These subgroups of people of color typically remain absent from empirical research as hidden, invisible members whose presence is assumed or ignored but whose voices are rarely heard.

Fortunately, increasingly larger probability-samples of sexual minority populations have become available for analysis in recent times, especially through the inclusion of sexual orientation questions in large-scale, population-based official surveys (Binson et al., 2007). Probability studies assessing sexual orientation generally also include collection of diverse demographic variables from the respondents. This will allow further
investigation of the age, ethnic, educational, gender, religious, and socio-economic patterning and wellbeing of a diverse range of sexual minority populations.

9.4 Summary and recommendations

1. An appropriate selection of conceptually and operationally defined response categories for sexual attraction, sexual behaviour, and sexual identity questions needs to be used in official surveys to ensure that rich sexual orientation data is available. The Sexual Orientation Conceptual Framework (Pega, 2009a) provides a sound conceptual basis that was operationalised in the proposed preliminary sexual attraction, sexual behaviour, and sexual identity questions (see Chapter 5: Question design, pp. 34-56).

**Recommendation:**
*Use the Sexual Orientation Conceptual Framework and the proposed response categories as the basis for aggregation/disaggregation practices.*

2. Data should always be disaggregated to the smallest possible group defined by sexual attraction, sexual behaviour, and sexual identity. Reporting on aggregate groups such as ‘non-heterosexual’ groups masks potential differences in the aggregated sexual minority sub-groups.

**Recommendations:**
*Always disaggregate official sexual orientation data to the smallest possible sexual minority group that ensures sufficient statistical power.*

*Never report on too broadly aggregated groups such as ‘non-heterosexual’ groups.*

3. As part of the development of a statistical standard for the sexual orientation statistical topic, standard classifications are needed that can standardise official data aggregation and disaggregation practices. The SODCS has developed preliminary classification standards on the basis of Sexual Orientation Conceptual Framework (Pega, 2009a) and this chapter on aggregation/disaggregation (pp. 95-101) and pre-tested these with a small number of takatāpui, fa’afafine, lesbian, gay, and bisexual individuals as well as producers and consumers of official statistics.

**Recommendations:**
*Use the following classification for sexual attraction, (pending any changes following further testing and development):*

**Classification criteria**
A classification system for sexual attraction should have three levels. At level 1 the classification should differentiate on the basis of whether persons report having a sexual attraction or not, plus whether they experience uncertainty about their sexual attraction. At level 2 the classification should differentiate between those who are exclusively opposite-sex attracted and those with any same-sex attraction. And at level 3 the classification differentiates between different gradients of same-sex attraction.
## Classification: Sexual Attraction

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Any sexual attraction</td>
<td>1.1 Only attracted to opposite sex</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.2 Any same-sex attraction</td>
<td>1.2.1 Mostly opposite-sex attracted</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.2.2 Equally attracted to females and males</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.2.3 Mostly attracted to same sex</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.2.4 Only attracted to same sex</td>
</tr>
<tr>
<td>2. Not attracted to members of either sex (asexual)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Unsure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Residual categories</td>
<td>4.1 Don’t Know</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.2 Refusal</td>
<td></td>
</tr>
</tbody>
</table>

### Use the following classification for sexual behaviour (pending any changes made following further testing and development).

**Classification criteria**

At level 1 the classification should differentiate between those who have engaged in any sexual behaviour and those who did not engage in sexual behaviour during the reporting period. At level 2 the classification should differentiate survey respondents according to whether they have engaged in sexual behaviour with the same sex only, with the opposite sex only or with both sexes.
### Classification: Sexual behaviour

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Any sexual behaviour</td>
<td>1.1 only with same sex</td>
</tr>
<tr>
<td></td>
<td>1.2 only with opposite sex</td>
</tr>
<tr>
<td></td>
<td>1.3 with both sexes</td>
</tr>
<tr>
<td>2. No sexual behaviour</td>
<td></td>
</tr>
<tr>
<td>3. Residual categories</td>
<td>3.1 Don’t Know</td>
</tr>
<tr>
<td></td>
<td>3.2 Refusal</td>
</tr>
</tbody>
</table>

### Classification criteria

At level 1 the classification differentiates between heterosexual or straight participants and sexual minority participants. At level 2 it differentiates between different sexual minority identities.

### Classification: Sexual identity

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Heterosexual or straight</td>
<td></td>
</tr>
<tr>
<td>2. Sexual minority</td>
<td>2.1 Gay man</td>
</tr>
<tr>
<td></td>
<td>2.2 Lesbian</td>
</tr>
<tr>
<td></td>
<td>2.3 Bisexual (male)</td>
</tr>
<tr>
<td></td>
<td>2.4 Bisexual (female)</td>
</tr>
<tr>
<td></td>
<td>2.4 Takatāpui (male)</td>
</tr>
<tr>
<td></td>
<td>2.5 Takatāpui (female)</td>
</tr>
<tr>
<td></td>
<td>2.6 Fa’aafafine</td>
</tr>
<tr>
<td></td>
<td>2.7 Other</td>
</tr>
<tr>
<td>3. Residual categories</td>
<td>3.1 Don’t Know</td>
</tr>
<tr>
<td></td>
<td>3.2 Refusal</td>
</tr>
</tbody>
</table>
10 Survey mode

Modes of data collection vary with respect to whether they are self-, interviewer-, or computer-administered. They also vary with respect to the equipment used for responding; for example, pen-and-paper, telephone, or computer. A range of prominent data collection modes are commonly used, including: pen-and-paper personal interviews (PAPI); pen-and-paper self-administered questionnaires (SAQ); audio self-administered questionnaires (audio-SAQ); computer-assisted personal interviews (CAPI); computer-assisted telephone interviews (CATI); computer-assisted self-administered interviews (CASI); and audio computer-assisted self-administered interviews (ACASI).

Mode effects in the collection of sexual orientation data relate to the relative degree to which different survey modes ensure respondents’ privacy and confidentiality of their response, or impose cognitive burdens on respondents, and to the degree with which a study is perceived as credible (Catania et al., 1990; ONS, 2008). Survey respondents evaluate these factors in order to decide whether or not to disclose a minority sexual orientation (e.g., minority sexual behavior, Catania et al., 1990). While general advantages and disadvantages of different modes can be established, some sexual minority populations (such as those from certain ethnic backgrounds) might hold culture-specific beliefs or preferences about how to best contribute their information to a study (Croom, 2000). However, it is unlikely that OSS surveys would be able to accommodate such specific preferences of certain ethnic groups given the practical constraints.

There is a lack of research on mode effects in the collection of sexual attraction data, but some evidence is available about the effects on measurement error of different survey modes in the collection of sexual orientation data (e.g., sexual behavior, Catania et al., 1990). There is a substantial body of evidence from the United Kingdom Office for National Statistics about survey modes which are most appropriate for collecting sexual identity data in official surveys (ONS, 2008).

This chapter discusses survey modes for collecting data on sexual orientation in probability surveys. Firstly, the chapter discusses self administration versus interviewer administration. Sections investigating the use of face-to-face interviews, telephone interviews, and computer-assisted survey administration follow. The chapter closes with a discussion of household versus individual respondent surveys.

10.1 Self administration versus interviewer administration

Strengths of self-administration. Tourangeau & Smith reported that in empirical, non-official studies, self-administration of sensitive questions achieved higher response rates than interviewer administration of sensitive questions (1996).

Self-administration of sexual orientation questions may have several advantages over interviewer administration. For example, self-administration of sexual behavior questions can, under suitable conditions, have the following advantages over interviewer-administered surveys:

- enhance survey respondents’ feeling of privacy and provide the highest sense of anonymity to survey respondents.
- be perceived as less threatening than socially interactive face-to-face or telephone interviewing modes, thus eliciting responses from individuals who may not otherwise agree to participate in more interactive survey modes.
• be cost-effective, especially if used in group situations such as school classrooms or clinical and health service settings (Catania et al., 1990).
• facilitate more careful consideration of questions (Reddy et al., 2006), possibly because respondents can go back and forth between questions as needed on pen-and-paper questionnaires (Tourangeau & Smith, 1996).

There is currently no research that compares self- and interviewer administration of sexual attraction questions. One study from the 1990s has drawn together findings from previous non-official studies about sexual behaviour questions, concluding that self-administration achieved higher response rates than interviewer administration (Catania et al., 1990).

Limitations of self-administration. Several disadvantages to using survey self-administration have been noted. For example, self-administered surveys:

• depend heavily on respondents' education, including their literacy skills (Catania et al., 1990; Tourangeau & Smith, 1996).
• can lead to respondents feeling unable to clarify questions and/or terminology used (Catania et al., 1990).
• give the researcher less control over the environment that the survey is administered in.

However, the dependence of self-administered modes on respondents' ability to read can be circumvented by the use of ACASI (Tourangeau & Smith, 1996). With regard to requirements for clarification, self-administration modes depend strongly on survey designers’ ability to choose appropriate terminology that matches verbal choices made in the target survey population, or suit diverse respondents respectively (Catania et al., 1990). Usually in self-administered modes there is no interviewer present; however, where this is the case (eg, CASI), there is usually a facility to get help or clarification from another source, such as help files.

Limitations of interviewer-administration. In interviewer administered interviews, where the questions are only read aloud, the respondent has less control over the interviewing pace. Respondents may also be more prone to primacy effects; that is, “favoring options presented early in the list of permissible answer categories over those presented toward the end” (Tourangeau & Smith, 1996, p. 283). Similarly, it is possible that recency effects would more likely occur in interviewer-administered surveys, compared to self-administered surveys.

Office for National Statistics findings. There is a strong body of research into differences between self and interviewer administration of sexual identity questions in official surveys from the United Kingdom Office for National Statistics Sexual Identity Project. In Trials 1 and 2 of sexual identity questions in the Omnibus Survey the question was administered in CASI (computer assisted self-administered interview) mode only, but survey administrators considered this administration the biggest hindrance for asking the question and pointed out that asking the sexual identity question in CASI disrupted the flow of the interview and made the question stand out unnecessarily, particularly when the question was not grouped with other questions on sensitive topics (Taylor, 2008b). The Trial 3 of sexual identity questions in the United Kingdom Omnibus Survey administered the questions to the majority of respondents in CASI, but used CAPI (computer-assisted personal interview) when respondents were unable to answer in CASI (eg, due to illness, disability, lack of computer literacy, or language barriers) or preferred personal administration (Taylor & Ralph, 2008). This trial found that a higher percentage of respondents reported a ‘heterosexual or straight’ sexual identity in CASI.
than in CAPI, but pointed out that this might be due to demographic differences in the
two samples such as older people being overrepresented amongst those interviewed in
CAPI (Taylor & Ralph, 2008). This trial also trialled a sexual identity question in
telephone interviews, finding few problems with this survey mode (Taylor & Ralph,
2008). In Omnibus Survey Trial 4, a concealed showcard system was trialled in CAPI
mode to enable private responding even when other people were in the room during the
survey (Malagoda & Traynor, 2008). This trial concluded that in United Kingdom surveys
CAPI mode should be used because it reduced administration times and was effective
in maintaining privacy and because there was no significant difference in item non-
response rates between administration in CAPI and CASI (Malagoda & Traynor, 2008).
The Office for National Statistics concluded that in official surveys sexual identity
questions should be administered in personal interviews (CAPI) using concealed
showcards or in telephone interviews using questions that ensure confidentiality of
responses (ONS, 2008). Cognitive/in-depth interviews confirmed that informants from a
broad range of backgrounds (including people who identified with a minority ethnic
group; older and younger people; transgender people; people with lower levels of
education; and people with strong religious affiliations) found that “the system of
concealed show cards was broadly successful in helping to maintain privacy without
drawing undue attention to the administration” (Betts, 2009, p. 7).

New Zealand research. The SODCS analysed existing interviewer-administered survey
data on sexual orientation from New Zealand, finding acceptably low non-response
rates (see Sexual Orientation Data in New Zealand Probability Surveys - Technical
Report; Gray, 2009). In Te Rau Hinengaro - The New Zealand Mental Health Survey
(CAPI mode) a sexual behaviour questions achieved a item non-response rate of 0.18%
and a sexual attraction/identity question a non-response rate of 0.05%; the New
Zealand Health Behaviours Surveys on Drug Use (2003) and on Alcohol Use (2004)
(CATI mode) achieved a sexual identity item non-response rate of 0.5%. These very low
non-response rates were found despite the surveys on which this analysis was based
not having been conducted by interviewers specifically trained in the administration of
sexual orientation questions, which is likely to enhance response and disclosure rates
(see ONS, 2008). This national finding suggests that sexual orientation data can well be
collected via interviewer-administered interviews in OSS surveys.

10.2 Face-to-face interviews

Strengths. Face-to-face interviews have the advantage of being credible and might
therefore engender a relatively high level of trust amongst respondents (Catania et al.,
1990). This mode allows interviewers to build rapport, thereby encouraging responding.
Misperceptions, as well as conceptual and comprehension difficulties with questions,
can be addressed and resolved between the survey respondent and the survey
administrator in an interactive way (Catania et al., 1990), although some respondents
may feel uncomfortable asking for help.

Limitations. In face-to-face interview settings, survey administrators, and survey
respondents, are able to send and receive both visual and auditory cues, making social
desirability bias a problem for this surveying mode (Catania et al., 1990) - at least if
interviewers are not sufficiently trained in how to administer sexual orientation questions
effectively. The perceived demographic characteristics of survey administrators (eg,
their sexual orientation, gender, and ethnicity) appear to be a central factor influencing
whether sexual minority survey respondents feels safe in disclosing their sexual
orientation (interviewer effects). Empirical evidence suggests that face-to-face
interviews might result in less disclosure of socially stigmatised sexual behaviours than
other modes (eg, telephone and self-administered interviewing modes) (Catania et al.,
1990). Thus while, increasing rapport and credibility, face-to-face modes offer less anonymity than self-administered modes and telephone interviews.

**ONS findings.** The Office for National Statistics concluded from its trialling of survey modes that face-to-face interviews were a feasible mode for the collection of official sexual orientation (sexual identity) data (ONS, 2008). In particular, the Office for National Statistics uses concealed showcards in face-to-face collections that enable privacy and confidentiality of responses, also in household surveys, where several individuals are interviewed at the same time (ONS, 2008).

**New Zealand research.** The SODCS concluded from its analysis of existing official sexual behaviour and sexual attraction/identity data collected by the OSS in face-to-face interviews that face-to-face interviews were an adequate mode of sexual orientation data collection in OSS surveys (see *Sexual Orientation Data in New Zealand Probability Surveys - Technical Report*; Gray, 2009). More specifically, to reiterate what has already been highlighted above, the SODCS analysis found that data from the 2006 Te Rau Hinengaro – The New Zealand Mental Health Survey achieved very low non-response rates, suggesting that the survey respondents regarded the administration of the posed sexual orientation questions in this face-to-face survey as acceptable. The implication from this finding is that face-to-face surveys are a valid mode for sexual orientation data collection in OSS surveys.

### 10.3 Telephone interviews

**Strengths.** Telephone interviews have been found to be a cost-effective mode of sexual orientation data collection. Even brief telephone interviews screening for sexual minority respondents have effectively been used, proving a valid method for cost-effectively collecting data from representative samples of sexual minority men and women (Meyer & Colten, 1999; Meyer et al., 2002). Researchers from the United Kingdom have endorsed Meyer and colleagues’ (2002) use of random telephone screening surveys for the recruitment of sexual minority populations and suggest that such techniques might prove a robust and cost-effective method also in official statistics systems (Purdam et al., 2008).

**Limitations.** Landline telephone interviews suffer from the generalised problem that they are unable to reach populations that do not have access to a landline, but might be of interest to social wellbeing and health outcomes research (eg, homeless people, run-away youth, socio-economically disadvantaged groups, and drug users). Surveys that include sub-samples of cell phone users are able to capture population groups that might have the financial means to have a landline, yet prefer to rely entirely on their cell-phone.

Telephone surveys on sexual behaviours may have their credibility challenged by what is known as the ‘obscene-caller phenomenon’ (Catania et al., 1990; Giami, 1996), which is likely to cause an increase in non-response rates. Researchers, however, can offset this phenomenon by providing, free-of-charge, call-back numbers and by the use of advance letters that make potential telephone respondents aware of the up-coming survey (Catania et al., 1990; Giami, 1996), although the OSS is unlikely to follow such practices due to financial and practical constraints in implementing such practices.

**ONS findings.** The Office for National Statistics (United Kingdom) trialled telephone administration of standard sexual identity questions in Omnibus Surveys in 2008 (Malagoda & Traynor; Taylor & Ralph) and the General Lifestyle Survey in 2009 (Joloza, Traynor, & Haselden). It found that administering sexual orientation (identity) questions
over the phone was feasible, and now administers sexual identity questions via telephone on a standard basis, using a specially designed sexual identity question (ONS, 2008).

**New Zealand research.** Echoing Office for National Statistics findings, analyses of existing sexual orientation data from two New Zealand telephone surveys (Ministry of Health) concluded that sexual orientation (sexual identity) data can well be collected via telephone in OSS surveys (see *Sexual Orientation Data in New Zealand Probability Surveys: Technical Report*; Gray, 2009).

### 10.4 Computer-assisted survey administration

**Strengths.** Since the 1980s, the introduction of computerised survey methodology has transformed surveying in that it is now possible to use progressively complex computer programmes for the production of questionnaires, administration (including self-administration) of surveys, data entry, and data analysis (Tourangeau & Smith, 1996). Computer-assisted modes have widely been used to assess sexual orientation in official surveys conducted in North America (Taylor, 2008a). Computerised data collection yields higher data quality through producing lower rates of missing data (Tourangeau & Smith, 1996). Data are also delivered more quickly and cost-effectively, while reducing administrative human errors. There may also be a perception that surveys involving computers are more important, and this is likely to increase both respondents' motivation to answer and the acceptability of a sexual orientation question (Tourangeau & Smith, 1996). Computerisation of data collection by itself might increase the accuracy of response data on sensitive topics, but appears to have little effect on the overall level of reporting (Tourangeau & Smith, 1996).

**Confidentiality.** Data collection methods in which survey respondents use a computer to answer the questionnaire are thought to provide significantly more assurance of confidentiality to sexual minority persons than more interactive survey modes such as telephone interviews or face-to-face interviews. Turner et al. showed that computer survey methodology increased disclosure due to providing increased assurance of confidentiality (1989). Another of the first studies to use such a computerised method concluded that computerised survey administration reduced underreporting of sexual minority orientation amongst men (Bagley & Trembley, 1998). Survey respondents were more likely to disclose their minority sexual orientation in computer-assisted telephone surveys than in traditional methods (eg, pen-and-paper questionnaires, face-to-face interviews, and telephone interviews), probably because they offer a higher level of confidentiality (Reddy et al., 2006). Respondents answering in this survey mode also reported a higher level of comfort when answering the survey and being more careful, honest, and confident in their responses (Reddy et al., 2006).

**International research.** One study compared the impact of three different computerised interviewing modes, question formats, and question contexts on reporting of sensitive topics (including sexual behaviour) amongst a sample of adults in the United States (Tourangeau & Smith, 1996). No differences in response rates across the three survey modes (CAPI, CASI, and ACASI) were found. However, survey modes differed with respect to the reporting of sexual behaviours such that the two self-administered modes (CASI and ACASI) produced less misreporting than the personal interviewing technique. For example, congruence between the number of sex partners reported by women and men was higher when data w collected through these modes (Tourangeau & Smith, 1996).
Kontula (2004) reported that in national European sex surveys, prevalence rates of same-sex sexual behaviour did not vary by mode of survey (ie, telephone, self-administered, and face-to-face interview). However, Kontula supported the use of ACASI techniques, in which an audio questionnaire is administered and respondents’ answers are audio-recorded by a computer system (Kontula, 2004). This technique has been shown to generate higher prevalence rates of same-sex sexual behaviour amongst men than when the same questionnaire is provided in pen-and-paper mode (Turner et al., 1996, as cited in Kontula, 2004).

Official surveys from the United States and Canada that have collected sexual orientation data are generally computer-administered (Taylor, 2008a).

ONS findings. Office for National Statistics research has shown that survey respondents who are not familiar with computers, have physical impediments, or are older people may have difficulty using computers (Taylor, 2008b). Testing of sexual identity questions in the Omnibus Surveys showed CASI techniques lead to non-responses due to four reasons: illiteracy, fear of using computers, physical impediments, and key stroke errors (Taylor, 2008b). In official United Kingdom surveys, survey administrators perceived presentation of sexual identity questions in CASI mode as organisationally difficult because handing over the computer for self-completion of the sexual identity question was seen as disrupting the flow of the interview and as making the question stand out unnecessarily (Taylor, 2008a). After trialling different survey modes for their suitability in achieving high-quality sexual identity data, the Office for National Statistics chose CAPI and CATI, but not CASI, to collect sexual identity data (ONS, 2008).

10.5 Household versus individual respondent surveys

There are some important methodological challenges relating to the administration of sexual attraction, sexual behaviour, and sexual identity questions in household surveys compared to administration of these questions in individual respondent surveys. These include issues of privacy and the validity of proxy reporting.

Administration in household surveys. There is no specific research on the collection of sexual attraction and sexual behaviour data in official household surveys; however, findings on sexual identity might be transferable to the area of sexual attraction and sexual behaviour data collection in official household surveys.

The Office for National Statistics Sexual Identity Project developed an official sexual identity question for the use in household surveys where more than one survey respondent is interviewed at the same time. The administration mode utilised was CAPI with concealed showcards, ensuring privacy of response. Survey respondents from a household who are interviewed together are supplied with showcards containing an individualised set of non-sequential numbers, and read out the number on their individual showcard for the sexual identity question, thereby concealing their response from the other survey respondents (ONS, 2008). Administered correctly (ie, with the survey administrator being guided by and trained in the adherence to strict interviewing rules), this system has been shown to be effective in ensuring privacy of responding to sexual identity questions in group interviewing settings (ONS, 2008). This mode has been implemented in OSS surveys since 2009.

Proxy response. There is little research on responding by proxy (ie, a person responding on behalf of the individual concerned) for sexual attraction and sexual behaviour. It is known however that proxy responses for sexual identity questions should not be used in official surveys as survey respondents might not have disclosed their sexual identity to
the person who provides the proxy response for a range of reasons. Cognitive/in-depth interviews conducted as part of the Office for National Statistics Sexual Identity Project demonstrated that the participants from a diverse range of backgrounds voiced major concerns regarding the acceptability and accuracy of sexual identity questions administered by proxy (Betts, 2009).

In conclusion, first, given that most OSS surveys (other than business surveys and the Census) are now administered by way of computer assisted personal interviews (CAPI) or computer-assisted telephone interviews (CATI) for both of which it has been shown that sexual identity questions can be collected, sexual identity data collection can be considered feasible in OSS surveys with respect to issues related to survey modality. These findings can likely be transferred to issues related to survey mode for the administration of sexual attraction and sexual behaviour questions. Second, although an audio computer assisted self-administered interview (ACASI) module or a self-complete paper form could be added if necessary, this might not confer any advantage for questions on sexual orientation and would incur additional costs.

10.6 Summary and recommendations

1. Although evidence for effective survey modes for sexual identity and sexual behaviour data collection could be transferable to sexual attraction data collection, there is a lack of research on which survey modes are most suited for the administration of sexual attraction questions in official surveys.

Recommendation:
Test administration of sexual attraction questions in different survey modes to determine which mode best suits such questions.

2. There is emerging research on the relative suitability of different survey modes for the administration of sexual behaviour questions in non-official surveys. However, there is a lack of research on which survey modes are most suited for the administration of sexual behaviour questions in official surveys. Information from research on mode effects for the collection of official sexual identity data could be transferable to sexual behaviour data collections.

Recommendation:
Test the administration of sexual behaviour questions in different survey modes to find out which survey mode best suits such questions.

3. There is significant evidence showing that sexual identity questions can be collected in CASI, CATI, and CAPI mode in official surveys. CASI mode appears impractical in official surveys and might lower acceptability of such a question unless self-interviewing is also used for other sensitive items, with which sexual identity questions are placed. CAPI, using concealed showcards, might potentially offer more confidentiality and privacy than CATI.

Recommendations:
Collect sexual identity data through computer-assisted personal interviews (CAPI) in household-based surveys and computer assisted telephone interviews (CATI) in telephone surveys.
When sexual identity questions are administered in computer assisted personal interview (CAPI) mode, use showcards that conceal respondents’ answers for the purpose of ensuring confidentiality.

When sexual identity questions are administered in computer-assisted telephone interview (CATI) mode, questions that ensure privacy of response need to be used (see Chapter 5: Question design, pp. 34-56).

4. There is conclusive Office for National Statistics evidence that sexual identity questions can be effectively administered in household surveys, as long as concealed showcards are used and interviewers adhere to interviewing rules to ensure privacy of responding. The presence of persons in the same room as a respondent asked sexual identity questions over the phone is also not problematic as long as questions are used that enable the respondent to answer privately. These findings are likely transferable to questions on sexual attraction and sexual behaviour.

**Recommendations:**

In group interviews, use computer assisted personal interview (CAPI) mode with concealed showcards and ensure that survey administrators adhere to the set interviewing protocols.

In computer assisted telephone interview (CATI) mode, use questions that enable a respondent to answer the sexual orientation question in confidence, even when other people are in the room (for appropriate preliminary questions see Chapter 5: Question design, pp. 34-56).

5. Proxy responding to sexual identity (and probably also not sexual attraction and sexual behaviour) questions is not feasible.

**Recommendation:**

Do not collect sexual identity data (and probably also not sexual attraction and sexual behaviour data) through proxy responding.

6. In conclusion, considering that most OSS surveys (other than business surveys and the Census) are now administered by way of computer assisted personal interviews (CAPI) or computer-assisted telephone interviewing (CATI) for both of which it has been shown that sexual identity questions can be collected, issues related to survey mode do not appear to constitute a barrier for the collection of sexual identity data in OSS surveys. These findings can likely be transferred to collection of sexual attraction and sexual behaviour data, although this requires further research. Although an audio computer assisted self-administered interview (ACASI) module or a self-complete paper form could be added if necessary, this might not confer any advantage for questions on sexual orientation and would incur additional costs.

**Recommendation:**

Consider issues around survey mode to not be a barrier for sexual identity (and likely also sexual attraction and sexual behaviour) data collection, but monitor critical issues related to survey mode in OSS surveys.
11 Misreporting and non-responding

Misreporting is a source of measurement error and occurs whenever survey participants provide a response that does not reflect their actual situation or view with regard to the question. Deliberate misreporting is particularly likely to occur when survey respondents are asked to disclose socially stigmatising or sanctioned beliefs, behaviours, or identities. Misreporting can also occur for accidental reasons; for example, as a function of limitations in respondents’ conceptual and language skills or recall.

There are two different situations that lead to a non-response in surveys: First, potential survey respondents might decide to refuse participation in a survey from the start; or second, survey respondents who do agree to participate can decide to skip particular questions. Similar to misreporting, the causes for non-responding are complex and can vary. One of the biggest problems associated with non-responses is that those potential respondents with the most sensitive information to report might also be the most likely to provide a non-response (Tourangeau & Smith, 1996). A systematic pattern of non-response results in a participation bias.

Misreporting and non-responding challenge the accuracy and reliability of survey data, likely contributing to the underreporting of socially stigmatised sexual attraction, sexual behaviour, and sexual identity. Levels of misreporting are difficult to assess, but non-response rates can be calculated relatively easily and are hence often used as a measure of data quality. Although sampling error as a result of misreporting and non-response is a common problem facing statistical research, questions on sensitive topics are particularly likely to lead to misreporting and non-responding. Research on sexual orientation may also be affected by these phenomena, considering the perceived sensitivity of sexual attraction, sexual behaviour, and sexual identity questions (Catania et al., 1990).

Adjusting survey figures for measurement error arising from misreporting and non-responding requires complex sample-weighting designs, and significant guesswork, although increasingly information about the phenomena and the actual demographic distribution of sexual minority populations has become available and can be used to guide such endeavours (see Chapter 6: Population size, pp. 57-73). Various studies have modelled these phenomena to achieve better population prevalence estimates or estimates of social well-being outcomes (Berg & Lien, 2006; Fay et al., 1989; Izazola-Licea et al., 2000; Rogers & Turner, 1991). Such imputation of non-responses and misreporting in studies on sexual orientation has increased prevalence estimates greatly in some studies (eg, Berg & Lieu, 2006); yet in other studies, imputed figures are virtually identical with the observed percentages (eg, Rogers & Turner, 1991). This may be a function of the significant guesswork involved in these imputations or the degree to which the original data were indeed representative of the target population.

This chapter discusses issues related to the phenomena of misreporting and non-responding; more specifically: misreporting, non-responses, and factors impacting on misreporting and non-response.

11.1 Misreporting

Misreporting of sexual orientation is most likely to lead to heterosexual assignment of sexual minority respondents, given that sexual minority respondents are asked to report sensitive information that they might not be willing to disclose. That heterosexuals would deliberate misreport by self-assigning a sexual minority orientation seems unlikely
Although potentially non-deliberate errors by heterosexual respondents, if in sufficient numbers, could distort estimates because of their disproportionate numbers.

Methods have been developed to measure the effect of misreporting of sexual behaviours. For example, “test-retest correlations provide an index of the stability of people’s estimates of their sexual activities for some interval of time.” (Catania et al., 1990, p. 343). Such indices can be calculated by correlating responses from one respondent to the same question at two points in time. Alternatively, asking two people who engage in sexual behaviours with each other to report their sexual behaviours with each other over a given time period (‘interpartner reports’) also provides insight into reporting errors, although such reports have been found to vary depending on emotional circumstances of the behaviours and the perceived level of satisfaction with the behaviour (Catania et al., 1990). Another procedure has been to ask participants about where they lied in the interview as part of their interview debriefing (Coxon, 1996). Catania et al. reviewed a range of early studies on gay male samples, heterosexual samples and adolescent samples for which test-retest correlations have been conducted (see 1990, pp. 343-4).

Psychological processes related to uncertainty about sexual orientation, exploration of, or development of sexual identity can play a role in whether a survey respondent decides to disclose a minority sexual attraction, sexual behaviour, and/or sexual identity. For example, if a survey respondent is asked to report their sexual identity prior to (and sometimes also during or even after) the coming out process, significant distortions of the reported degree of minority attraction and behaviour and the adoption of a minority sexual identity can occur, due to the person adopting a defensive stance with regard to their realisation (Gonsiorek & Rudolph, 1991, as cited in Gonsiorek et al., 1995). Furthermore, “non-disclosure may also reflect personal or political resistance to being categorised or defined by their sexual orientation” (Savin-Williams & Cohen, 2007, p. 30), for example, amongst queer identified survey respondents (see Sexual Orientation Conceptual Framework; Pega, 2009a, pp. 35-36; Warner, 2004). However, this latter issue is unlikely to be a significant issue for the OSS considering the small percentages of queer identified sexual minority persons in New Zealand.

As detailed in Chapter 4: Population size (pp. 57-73), several studies have adjusted sexual orientation data for misreporting (Berg & Lien, 2006; Fay et al., 1989; Izazola-Licea et al. 2000; Rogers & Turner, 1991). The SODCS has developed a model to adjust for misreporting that is fit for use in the OSS, which has been developed and tested with existing OSS data on sexual orientation (Sexual Orientation Data in New Zealand Probability Surveys - Technical Report; Gray, 2009).

11.2 Non-responding

Non-response rates are a common indicator of overall survey data quality. There have been three main concerns related to non-responding and sexual orientation questions, namely, that:

- administering sexual orientation questions in official surveys might cause respondents to not complete the survey, with implications for overall survey response rates
- that such questions could negatively affect the response rates of the items immediately following them
that sexual attraction, sexual behaviour, and sexual identity questions could have a low item-response rate, making the collected data unsuitable for analysis.

Impact on overall survey response rates. There is no evidence concerning the impact of the inclusion of sexual attraction and sexual behaviour questions on survey response rates from non-official or official surveys. However, the Office for National Statistics Sexual Identity Project found that inclusion of a sexual identity question in official surveys did not have any discernable impact on survey response rate (Omnibus Survey Trials: Taylor, 2008b; Ralph & Taylor, 2008) or household response rates respectively (General Lifestyle (GLF) split-sample pilot: Joloza, Traynor, & Haselden, 2009). Reporting findings from the Omnibus Survey Trial 4, Ralph and Taylor noted that, "as in trial 1 and 2, no-one dropped out of the Omnibus interview immediately after being asked the sexual identity question, suggesting that it was not detrimental to Omnibus response overall." (2008, p. 8).

In addition, the General Lifestyle (GLF) split-sample pilot showed that respondents who had been asked a sexual identity item were as willing to be contacted again for an interview (eg, for the purpose of longitudinal study) as were respondents from the same sample who had not been administered the sexual identity question (control group) (Joloza, Traynor, & Haselden, 2009).

In conclusion, all trials of sexual identity questions conducted by the Office for National Statistics have identified no discernable impact of the inclusion of sexual identity questions on overall response rates in official surveys (ONS, 2008); this evidence seems sufficient to conclude that sexual identity questions do not pose any threat to overall survey response rates in official surveys. Although equivalent evidence is currently not available for the impact of inclusion of sexual attraction and sexual behaviour items, it could be argued that the evidence on sexual identity is transferable to questions on other sexual orientation measurement concepts.

Impact on item-response rates of immediately following questions. There is a lack of research on whether the administration of sexual attraction, sexual behaviour, and sexual identity questions has any negative impact on the response rates of questions immediately following such questions. The impact of sexual orientation question administration on non-responding to items immediately following such items might require investigation. However, this issue appears to not have been considered problematic by Office for National Statistics in its Sexual Identity Project, considering that the impact of sexual identity items on immediately following questions was not systematically investigated (ONS, 2008).

Item non-response. No studies have investigated non-response rates to sexual attraction items in official surveys; however, there is emerging research on survey response rates for sexual behaviour questions. For example, in the 1996 French ACSF telephone-survey conducted more than 10 years ago, non-response rates for a question on whether a respondent has ever engaged in same-sex sexual behaviour over the lifetime returned a non-response rate of only 1.1% (Messiah & Mouret-Fourme, 1996).

There is a significant body of research on item non-response to sexual identity items in official surveys with non-response rates. In Canadian and United States official surveys, item non-response for sexual identity items ranged from 0.4-6.7% (Taylor, 2008a). The Office for National Statistics Sexual Identity Project found that over the course of trialling sexual identity questions in four Omnibus Surveys, question development was linked with a reduction of non-response rates from 5% in the first trial to 1% in the fourth trial (Malagoda & Traynor, 2008; ONS, 2008).
‘Prefer not to answer’ category. One conclusion reached on the basis of Office for National Statistics findings was that in order to minimise non-response rates, ‘prefer not to answer’ or ‘object to answer’ options should not be included in official sexual identity questions (2008). However, Statistics New Zealand research carried out with a small number of focus group participants found that these participants felt there was a need for such response categories (SNZ, 2003a); although the major limitations of these findings have previously been described. Nevertheless, producers of official statistics interviewed as part of the SODCS wanted the inclusion of such an option investigated, considering that many OSS surveys are mandatory (see Summary of Focus Groups and Interviews; Pega, 2009c).

Sexual orientation compared to other sensitive items. It is important to consider how item non-response rates for sexual orientation questions compare to non-response rates for other sensitive questions. For example, a Canadian study found that non-response rates for sexual orientation questions were lower than the non-response rates for income questions (Fridion, 1996). However, sexual identity questions had higher item non-response rates (1.05%) than questions on ethnicity (0.04%), national identity (0.00%) and illness (0.20%) in the final Office for National Statistics trial (Omnibus Survey Trial 4). This was attributed to a variety of reasons such as the sensitivity of the sexual identity question and difficulties with comprehension (Malagoda & Traynor, 2008). However, in a later trial (the General Lifestyle (GLF) split-sample pilot), less favourable non-response rates were found for sexual identity (5.4%), compared to ethnicity (0.03%), national identity (0.03%), limiting long standing illness (0%) and religion (0.1%); it appears that a small number of interviewers might have accounted for this relatively higher sexual identity item non-response rate (Joloza, Traynor, & Haselden, 2009). In conclusion, although sexual orientation items might have higher non-response rates than other sensitive items, their item non-response rates are sufficient and do not pose a threat to sexual orientation data collection in official surveys, as the Office for National Statistics case demonstrates (2008).

Adolescent survey populations. A 2004 study systematically reviewed eight large-scale adolescent health surveys from Canada and the United States with respect to relative item non-response rates to sexual attraction, sexual behaviour, and sexual identity questions (Saewyc et al.). Findings indicated that the number of students who missed the sexual orientation item or items was relatively consistent across surveys (3.0% to 6.3%; adolescent women and men combined) (Saewyc et al., 2004). However, the British Columbia 1992 (BC92) survey achieved a significantly lower nonresponse rate (adolescent women: 0.6%; adolescent men: 0.7%). The second exception was the 1990 National American Indian Adolescent Health Survey (NAI-AHS), in which the rate for missing responses as well as ‘unsure’ responses were disproportionately elevated (eg, missing responses; adolescent women: 16.2%; adolescent men: 18.2%), likely due to the fact that questions were not suited to the question design needs of the indigenous adolescents participating in the survey (Saewyc et al., 2004).

In the same study, items about the gender of sexual partners resulted in the lowest non-response rates amongst adolescents (Saewyc et al., 2004). For almost all sexual attraction, sexual behaviour, and sexual identity questions, adolescent boys were less likely to answer than adolescent girls (Saewyc et al., 2004). The only exception was that girls were less likely to answer questions on sexual behaviour with other females in questions assessing the gender of sexual partners (Saewyc et al., 2004). This study also showed that adolescents who chose the ‘unsure’ or ‘don’t know’ categories provided these responses due to a lack of sexual attraction and behaviour, and not because of a lack of understanding of the question (Saewyc et al., 2004). This is an example of how aggregation of such responses into a combined ‘non-response’
category can limit our understanding of the findings. In this instance, a response set bias occurred, where adolescents who provided ‘unsure’ or ‘don’t know’ responses to sexual orientation questions were also more likely, than both those reporting and those skipping the sexual orientation questions, to provide similar ‘unsure’ or ‘don’t know’ responses to other survey questions (Saewyc et al., 2004).

New Zealand research. The SODCS calculated item non-response rates for the sexual orientation questions administered in OSS surveys (see Sexual Orientation Data in New Zealand Probability Surveys - Technical Report; Gray, 2009). This analysis concluded that item non-response rates were surprisingly low in official New Zealand surveys: 0.50% for a sexual identity item used in the New Zealand Health Behaviours Surveys (2003 Drug Use and 2004 Alcohol Use); 0.18 for a sexual behaviour item and 0.05% for a sexual attraction/identity item used in Te Rau Hinengaro – The New Zealand Mental Health Surveys. These findings imply that non-responses do not constitute a significant challenge for the collection of sexual orientation data in the OSS. However, despite this strong evidence, non-response rates should always be monitored when sexual orientation questions are implemented in OSS surveys.

Furthermore, the SODCS developed a statistical model for adjusting OSS survey data on sexual orientation for non-responding, as described in Gray's Sexual Orientation Data in New Zealand Probability Surveys - Technical Report (2009). Applying this model, Gray found that non-responders in the Health Behaviours Surveys on Drug Use (2003) and on Alcohol Use (2004) were demographically similar to the group of people identifying with a sexual minority identity, and not those identifying as heterosexual; this information could be used to improve estimates.

11.3 Factors impacting on misreporting and non-responding

11.3.1 Question format and question location
The format of sexual orientation questions impacts on response rates with readability, comprehension, and wording being important factors. For example, Saewyc et al.’s 2004 study found that the lowest non-response rates were achieved by sexual attraction, sexual behaviour, and sexual identity questions with short stems and fewer and brief response options, which closely matched the adolescents' experiences and self-labels respectively.

Non-responding may also depend on the placement of sexual attraction, sexual behaviour, and sexual identity questions in the survey questionnaire. For example, response rates for sensitive items placed at the end of surveys are generally lower than for sensitive items placed at the beginning of the survey, probably due to increased respondent burden in terms of time constraints and decreasing motivation to answer survey questions (Saewyc et al., 2004). However, Saewyc et al. found that sexual orientation questions that were placed at the beginning of Canadian and United States adolescent health pen-and-paper surveys conducted in a school setting were more likely to be skipped, especially if participants were of the opinion that fellow respondents were able to judge which question a respondent was answering (Saewyc et al., 2004).

Questions that directly follow sensitive questions, or that follow a conceptually complex question, generally demonstrate higher item non-response rates (Saewyc et al., 2004). In Canadian and United States adolescent health surveys, placement of sexual orientation questions just after a question on sexual abuse lead to higher non-response rates than when the sexual orientation item was placed before the item assessing sexual abuse (Saewyc et al., 2004). As noted above, questions on sexual abuse should never be placed in proximity to sexual orientation items.
11.3.2 Survey mode
Non-response rates are related to factors determined by the survey mode, such as respondents’ sense of the privacy and confidentiality of their responses as well as their trust in the credibility of the survey. Privacy and confidentiality concerns amongst survey respondents arise when respondents believe that survey administrators are able to identify them, to trace their responses back to them, or to see or hear the respondents’ responses during the survey. Concerns about a survey’s credibility are a function of the degree to which a respondent believes that the collection of information (for research or survey purposes) is scientifically sound and offers substantial scientific advance.

According to Badgett & Rogers (2003), confidentiality remains a concern for same-sex couples, causing some couples to not disclose their same-sex relationship in the United States Census. These concerns include the fear that sexual orientation information could be leaked and concerns regarding the government knowing about one’s sexual orientation (Badgett & Rogers, 2003). Some same-sex couples did not disclose their relationship status in the United States Census, because their definition of their relationship did not match any of the offered response categories, or because they did not think of their relationship as being ‘unmarried partners’ (due to seeing themselves as married) (Badgett & Rogers, 2003). Another study found that for adolescents, trust in the confidentiality and privacy of a pen-and-paper survey conducted in a group setting was influenced by who administered the survey, how close together adolescents sat while completing the survey, and whether students could privately clarify sensitive questions (Saewyc et al., 2004).

Catania et al. (1990) compared face-to-face and telephone interviews with respect to the relative levels of privacy and credibility they can attain. They concluded that, “the various modes […] provide different mixes of privacy and credibility, which vary with the use of visual and auditory communication channels and the extent to which procedural variations are limited (eg, interview length, authentication materials)” (Catania et al., 1990, p. 350). Visual cues such as support letters or identification badges worn by survey administrators can enhance the credibility of a study in face-to-face interviews, whereas telephone interviewing modes are unable to use these means to enhance study credibility. Face-to-face interviews are generally longer, allowing survey administrators to build more rapport with their survey respondents than in (on average) shorter telephone interviews, leading to face-to-face interview being more likely to be perceived as credible. On the other hand, telephone surveying modes (and also self-administered computerised surveying modes) have the advantage of being more anonymous, and are therefore more likely than face-to-face surveying to allay respondents’ privacy concerns. In particular, the presence of the survey administrator and the requirement to verbalise behaviours that are highly intimate to a complete stranger are potentially key privacy concerns (Catania et al., 1990).

An example of how research can effectively deal with confidentiality issues are the procedures employed by Project SIGMA, a research project on gay men’s HIV-risky sexual behaviours (Coxon, 1993). These procedures involved the drafting of a statement of informed consent for research participants and protection of confidential survey responses from being accessed by public agencies, as well as rules for research staff that included instant, non-negotiable dismissal for violations of confidentiality (Coxon, 1993).

11.3.3 Interviewer effects
Interview administration rules. When survey modes involve social interaction (eg, face-to-face and telephone interviews), the behaviours and socio-demographic
characteristics of the survey administrator have an impact on reporting of sexual orientation. Coxon (1996) identified the role demand guiding survey administration in the form of, for example, standardised interviewing rules as one area that can influence misreporting and non-response rates. How survey administrators follow the script provided for sexual behaviour questions can depend on the survey administrators’ attitude towards the acceptability of the behaviours to be assessed (Catania et al., 1990; Giami, Olomucki, & de Poplasvsky, 1997). For example, when survey administrators read out questions containing terms describing behaviours that they are not completely comfortable with or hold a negative opinion about, respondents are likely to receive non-verbal cues that might influence them to not disclose these behaviours (Catania et al., 1990).

Interviewer behaviour. Secondly, actual behaviours displayed by the survey administrator which occur as a result of discomfort with asking questions about sensitive topics might also motivate survey respondents to misreport or not respond to the question (Coxon, 1996). This issue can be addressed through thorough survey administrator training, strict control of survey administrators’ adherence to prescribed interviewing roles, and replacement of survey administrators if necessary to ensure that response-discouraging behaviours are eliminated (Coxon, 1996; Giami et al., 1997).

It may also be appropriate for survey administrators to clarify terminology preferences for the interviewing situation with survey respondents (Catania et al., 1990). Conrad and Schober (2000, p. 1) concluded from their study comparing strictly standardised with more conversational style interviewing (the respondent and interviewer engage in a conversation until they have arrived at a joint meaning of the question) that, "more standardized comprehension may require less standardized interviewer behaviour". That is, conversational interviewing lead to increased comprehension amongst survey respondents.

Interviewer attitudes. To provide an example, a recent analysis of survey administrators’ attitudes to asking about sexual identity in large-scale United Kingdom probability surveys identified problematic attitudes amongst non-professional survey administrators which resulted in their making attributions of sexual orientation from observations without asking the sexual identity question of the survey respondent. Some non-professional survey administrators were of the opinion that it was inappropriate to ask survey respondents about their sexual identity. Even professional survey administrators held some reservations regarding the administration of sexual identity questions. Refusal rates for the sexual identity question were related to how much training survey administrators had received regarding how to ask the sexual identity question, illustrating the importance of survey administrator training (Betts, 2008; ONS, 2008). In order to avoid biases arising from interviewer attitudes and behaviour, the Office for National Statistics has developed strict interviewing rules the adherence to which the department’s interviewers are trained and monitored in (ONS, 2008); this approach has shown to be a useful one and should be adopted by the OSS, possibly including use of Office for National Statistics interviewing rules and training in the OSS. Taylor (2008a, p. 5) concluded from the Sexual Identity Project’s Omnibus Survey Trials 1 and 2 that “Reassurance should be given to interviewers about the acceptability of the question as some interviewers had anticipated the question would be more problematic to administer that it was in reality”.

Personal characteristics of interviewers. When the personal, extra-role characteristics of the survey administrator (eg, their perceived sexual orientation, gender, ethnicity, and age) systematically influence the responses of survey respondents, data will show an interviewer effect (Coxon, 1996). Although the effects of survey administrator characteristics have not been researched comprehensively to date, some intuitive
strategies have proven useful in counteracting these interviewer effects. For example, giving survey respondents the chance to choose a survey administrator or to refuse an assigned survey administrator is one strategy that is likely to contribute to higher respondent comfort and perceived control, and have positive effects on disclosure (Coxon, 1996). Another proposed strategy has been to match survey administrator and survey respondent on vital socio-demographic characteristics (eg, ethnicity) (Croom, 2000). Croom proposes that research teams who conduct research on ethnic minority sexual minority people should be representative of the survey population they study or, at least ensure inclusion of at least one member of the researched ethnic group in the research team who should fully participate in the management of the research (2000). However, while this kind of matching is not always possible in OSS household surveys, the use of sexual minority interviewers might increase response rates.

11.3.4 Respondent effects

**Personal characteristics of survey respondents.** Socio-demographic characteristics of respondents are likely to have a profound impact on non-response rates to sexual orientation questions. A systematic review of evidence found that although determinants of non-response varied over different studies, those who provided a non-response to questions on sexual behaviour tended to be older, have less education, have lower reading abilities, and be sexually less experienced (and hence possibly more inhibited sexually) than responders (Catania et al., 1990).

Amongst adolescent samples, generally speaking, adolescent girls appear to omit fewer questions than adolescent boys (although empirical evidence shows the reverse pattern for questions on same-sex sexual behaviour) (Catania et al., 1990). Older adolescents omit fewer items on sexual behaviour than younger adolescents, possibly due to younger adolescents' lack of sexual experience and associated uncertainty about the meaning of some of the terms used (Catania et al., 1990). Adolescents with learning disabilities or developmental delays may also find understanding sexual orientation questions more challenging (Catania et al., 1990). Ethnic minority adolescents, especially those from migrant backgrounds, might find it difficult to understand questions on sexual orientation due to their different cultural experiences or language abilities (Catania et al., 1990). Adolescents might be particularly likely to misreport sexual identity, or to not participate in survey research due to a reluctance or unwillingness to adopt a socially stigmatised sexual identity (Savin-Williams & Cohen, 2007). Savin-Williams & Cohen suggest that adolescents who provide a non-response to sexual orientation questions may be 'questioning' their sexual orientation or be uncertain about it, may not yet be sexually experienced, might have conservative sexual beliefs and attitudes, have low sexual interest, and might self-monitor their sexual behaviour (2007). In addition, whether sexual minority survey respondents perceive it as safe to disclose sexual orientation will be a motivating factor in the decision to respond to sexual orientation questions.

**Recall, motivation, language ability, and conceptual skills.** Recall might affect the reporting of sexual orientation in various ways. Reporting of sexual behaviours might be affected by how complex, vivid, emotionally charged, and salient the assessed sexual behaviours are (Catania et al., 1990). Differently sexually behaved respondents might employ different recall strategies (Catania et al., 1990). For example, in questions that ask for a frequency count of sexual behaviour, those in monogamous relationships with a relatively steady frequency of sexual behaviour might use a strategy whereby they use a calculation system to project from a known frequency over a short time period to the requested frequency count that covers a longer time period (Catania et al., 1990). In contrast, people with a large, unsteady number of sex partners might extrapolate from their most recent sexual experiences (Catania et al., 1990). Memory problems about reporting same-sex sexual behaviour that occurred during adolescence might lead to
significant underreporting of lifetime same-sex sexual behaviour (Messiah & Mouret-Fourme, 1996).

Respondents’ level of motivation to adopt the role of the respondent could also be an important source of misreporting and non-response. In general, but especially when respondents have difficulties recalling behaviours, “highly motivated respondents may try harder to understand and answer a question, whereas less motivated participants may skip items or give less thoughtful answers” (Catania et al., 1990, p. 347). However, the OSS would not be able to address this issue.

Finally, the general English language and conceptual ability to understand the item on sexual behaviour can influence misreporting and non-response rates. Strategies to increase participation of migrant populations in research concerned with sexual orientation include involving researchers and community leaders from the migrant populations concerned, and explicitly describing the potential benefits of a research project to the researched community (Zea et al., 2003).

Self-presentation bias. While stigmatised sexual orientations are likely to result in underreporting of same-sex behaviours, there are some situations in which survey respondents might over-report certain sexual behaviours. Firstly, sexual bragging may lead to over-reporting of certain sexual behaviours (Catania et al., 1990). While in many countries sexual behaviour is seen as private, confidential, and even embarrassing, “in cultures with strong machismo values, in which sexual potency may be highly prized, over-reporting of sexual behaviours might result in a noteworthy overreporting of socially accepted sexual behaviours” (Catania et al., 1990). Secondly, higher rates of reported sexual behaviours amongst male adolescents relative to female adolescents might reflect over-reporting amongst adolescent males (Catania et al., 1990).

However, self-presentation bias, that is bias arising from the desire to receive approval and escape feelings of fear, leads to over-reporting of socially acceptable behaviours and under-reporting of socially less acceptable behaviours. For example, a cross-cultural study of men from Australia, Finland, Ireland, and Sweden showed that men who expected the most negative reactions to their reporting of their same-sex behaviour were the least likely to report same-sex sexual behaviour (Ross, 1985, as cited in Gonsiorek et al., 1995). Non-response rates have been found to be negatively associated with survey respondents’ willingness to disclose sexual behaviours.

Certain groups defined by sexual identity might also have group-specific values attached to certain sexual behaviours, which might lead to differences in misreporting and non-response rates to questions concerning these sexual behaviours (Catania et al., 1990). For example, heterosexual identified MSM might be less willing to disclose same-sex behaviour than gay identified MSM. Research into differences in disclosure rates in New Zealand official surveys could provide the OSS with information that could be used to statistically adjust for these differences.

Question design can impact on the degree to which respondents feel impelled to respond in a socially desirable way. Enhanced items (see Chapter 5: Question design, pp. 34-56) may reassure respondents that they won’t be judged for reporting a stigmatising sexual attraction, sexual behaviour, or sexual identity. Questions can be worded non-judgmentally, using adequate, shared, and judgment-free terminology. There has been much debate about which terms behaviours are most adequate and workable in survey questionnaires (eg, sexual behaviour, Catania et al., 1990; Kontula, 2004; Sanders & Reinish, 1999, as cited by Brogan et al., 2001). Terminology has been mapped for the purpose of shared meaning-making and to achieve common definitions (eg, Davies, 1994), yet the cultural and situational specificity of many such terms
presents a challenge to the surveying of sexual behaviours. Catania et al. (1990) suggest that terms for objects or behaviours used in questionnaires are often either standard terms or sub-culture affiliated (“poetic”) terms (e.g., ‘femme’ or ‘dyke’), with the latter category having a much higher variability than the former. Problems are likely to arise if questions contain standard or poetic terms that the targeted respondents are unfamiliar with. However, if certain behaviours are unclear to respondents, terms can be described to the respondent by the survey administrator, pictures can be used to explain the behaviour, questions can include a variety of alternative terms in brackets behind a specific term, or definition sheets can be provided alongside the questionnaire. The use of familiar wording has been shown to potentially decrease misreporting and non-responding, although question structure appears to be a greater determinant of disclosure than the familiarity of terms used (Catania et al., 1990). The terms used in the preliminary sexual attraction, sexual behaviour, and sexual identity questions developed by the SODCS are commonly understood terms nationally, as shown in the Sexual Orientation Conceptual Framework (Pega, 2009a) and found in the pre-testing of the questions with takatāpui, fa’afafine, lesbian, gay, and bisexual focus group participants and key-informants (consumers and producers of official statistics; see Summary of Focus Groups and Interviews; Pega, 2009c).

11.4 Summary and recommendations

Misreporting
1. The lack of research on misreporting of sexual attraction in official and non-official surveys makes it difficult to make recommendations regarding this measurement concept. There is more research on misreporting of sexual behaviour, but this research is largely limited to non-official surveys and often explores questions on specific sexual behaviours, which are likely to be much more sensitive/explicit than the very general sexual behaviour questions proposed for inclusion in official surveys (i.e., only differentiating between same-sex, both-sex, and opposite-sex behaviours). There is little research on misreporting of sexual identity in official or non-official surveys.

Recommendation:
Conduct research on the reasons for and the extent of misreporting of sexual attraction, sexual behaviour, and sexual identity in official surveys

2. Emerging research suggests that misreporting is likely to lead to an underreporting of minority sexual attraction, sexual behaviour, and sexual identity, but, as with items on other sensitive topics, the degree of this misreporting is very difficult to determine.

Recommendation:
Acknowledge that the figures produced from sexual orientation data underrepresent and undercount sexual minority populations.

3. Several studies have imputed for misreporting to improve estimates of population characteristics of sexual minority populations. On the basis of these models, the SODCS has developed a model adjusting for misreporting tailored to be fit for application in the OSS and has effectively tested this model with existing survey data.

Recommendation:
Use the existing model developed by the SODCS adjusting OSS data for misreporting to impute for the misreporting phenomenon (see Sexual Orientation Data in New Zealand Probability Surveys - Technical Report; Gray, 2009).

Non-responding
4. There is a lack of research on non-response to sexual attraction questions in official and non-official surveys. However, the SODCS found that a sexual attraction/identity item administered in an OSS survey achieved a very low non-response rate (0.05%), suggesting that item non-response does not constitute a significant problem for sexual attraction data collection. However, it is difficult to predict the likely impact of sexual attraction questions on overall survey response rates and the item non-response rates of items immediately following sexual attraction items in official surveys in New Zealand. Findings from official sexual identity items might be transferable to sexual behaviour items, suggesting that non-response issues do not constitute a significant barrier to the collection of official sexual attraction data.

Recommendation:
Monitor the potential impact of survey non-response rates, potential impact on the response rates for items immediately following sexual attraction items, and item response rates for sexual attraction items when implementing sexual attraction questions in official surveys.

5. There is a lack of research on non-response to general sexual behaviour questions in official and non-official surveys. However, the SODCS found that a sexual behaviour item administered in an OSS survey achieved a very low non-response rate at 0.18%, which suggests that sufficiently low item non-response rates can be achieved in OSS surveys. However, as with sexual attraction items, it is difficult to predict the likely impact of sexual behaviour questions on overall survey response rates and the item non-response rates of items immediately following sexual behaviour items in official surveys in New Zealand. Findings from official sexual identity items might be transferable to sexual behaviour items, suggesting that non-response issues do not constitute a significant barrier to the collection of official sexual behaviour data.

Recommendation:
Monitor the potential impact of survey non-response rates, potential impact on the response rates for items immediately following sexual behaviour items, and item response rates for sexual behaviour items when implementing sexual behaviour questions in official surveys.

6. There is a strong body of research on non-response to sexual identity questions in official United Kingdom surveys (Office for National Statistics) demonstrating that not having ‘prefer not to answer’ and ‘don’t know’ response categories in sexual identity questions increases response rates. Furthermore, training in administration of sexual identity questions increases adherence to interviewer rules, reducing non-responding. The administration of sexual identity questions in official surveys does not impact on overall survey response rates. There is currently a lack of research on whether items placed directly after sexual identity questions might suffer from higher non-response rates. Item non-response for official sexual identity questions was found to be acceptable, though higher than for other sensitive official questions such as ethnicity in Office for National Statistics surveys. When systematically developed
questions were used, item-non response could be reduced to approximately 1% in United Kingdom official surveys; this rate was assessed by the Office for National Statistics as being sufficiently low to warrant the inclusion of sexual identity items in official surveys on a standard basis. The SODCS found that item non-response rates to sexual identity items administered in two OSS surveys were low at 0.5%, suggesting that item-non response does not constitute a threat to sexual identity and sexual behaviour data collection.

Recommendations:
If feasible in OSS surveys, do not include an opt-out response option in sexual identity items in order to reduce item non-response.

Monitor the potential impact of sexual identity questions on survey non-response rates, potential impact on the response rates for items immediately following sexual behaviour items, and item response rates for sexual identity items when implementing sexual attraction questions in official surveys, despite overseas evidence demonstrating that the collection of sexual identity data in official surveys does not have a discernable impact on non-response.

7. Several studies have imputed for item non-responding to improve estimates of population characteristics of sexual minority populations. On the basis of these models, the SODCS has developed a model adjusting for non-responding tailored to be fit for application in the OSS and has effectively tested this model with existing survey data.

Recommendation:
Use the existing model developed by the SODCS to adjust OSS data for item non-response (see Sexual Orientation Data in New Zealand Probability Surveys - Technical Report; Gray, 2009).

Interviewer and respondent effects
8. Interviewer effects on misreporting and non-responding are related to survey administrators’ commitment to professionally administering sexual orientation questions, the behaviours they display during administration, and their personal, extra-role characteristics (eg, their perceived sexual orientation, ethnicity, gender, and age).

Recommendations:
Specifically train survey administrators in the administration of sexual orientation questions, and closely monitor their adherence with interviewer rules, in order to reduce misreporting and non-responding caused by interviewer effects.

Adopt, or adapt, interviewing rules developed for the Office for National Statistics official sexual identity questions in the OSS.

Replace survey administrators who have been found to have problems with administering sexual orientation questions as their negative attitudes and/or behaviours are likely to lead to increased non-response rates to sexual orientation items.
9. Emerging research suggests that misreporting and non-responding rates vary by survey respondents’ social characteristics, but this research is not yet comprehensive enough to draw final conclusions.

**Recommendation:**
Consider potentially conducting research on the influence of respondent social characteristics on misreporting and non-responding at a later stage.
12 Acceptability/disclosure

This final chapter discusses issues of question acceptability and likelihood of disclosure in relation to sexual orientation data collection. The chapter commences with a discussion of issues associated with the acceptability of sexual orientation questions. Subsequently, public acceptability of sexual diversity is discussed, followed by an exploration of acceptability of official collection of sexual orientation data. We then discuss which population groups are critical in terms of acceptability and disclosure. Finally we explore other factors impacting on acceptability and disclosure (ie, question design, survey mode, credibility, confidentiality, and privacy), as well as disclosure strategies.

12.1 Acceptability

Acceptability concerns have been cited at times as a reason for not assessing sexual orientation in official probability surveys. Two main concerns have been raised; namely, that low acceptability of sexual orientation questions may have detrimental effects on overall survey response rates, and that low acceptability could lead to increases in misreporting as well as non-responding and, hence, decrease the quality of sexual orientation data obtained.

In response to the first concern, there is strong, contemporary evidence that sexual orientation questions do not affect overall survey response rates and that item non-response rates are sufficiently small (see Chapter 11: Misreporting and non-responding, pp. 111-123). Confirming earlier findings cited by Purdam, Wilson, Afkhami, and Olsen (2008), trials of sexual identity questions in United Kingdom official surveys conducted by the Office for National Statistics Sexual Identity Project found that the inclusion of these questions was not detrimental to overall survey response rates (ONS, 2008; Taylor, 2008b; Taylor & Ralph, 2008). Indeed, to reiterate, in three Omnibus Survey trials (1, 2 and 4), no one dropped out immediately after the sexual orientation (identity) question had been asked (Taylor, 2008b; Taylor & Ralph, 2008).

Concerns about the impact of acceptability on the quality of sexual orientation data obtained have some validity; however, a significant body of research on how to augment the acceptability of collecting sensitive information is available. Methodological research has produced findings that can help address concerns regarding the negative impact of non-disclosure and non-participation. We know that in order to enhance acceptability of sexual orientation questions, such questions should be as short as possible - to minimise respondent burden - and should only use acceptable and comprehensible terms (see Chapter 5: Question design, pp. 34-56). We also know that sexual orientation questions should be administered in survey modes that guarantee adequate levels of privacy and confidentiality, and a high degree of credibility (eg, CAPI and CATI) (see Chapter 10: Survey mode, pp. 102-110).

It is important to consider the acceptability of sexual orientation questions amongst the general population. However, it is particularly relevant to know how diverse sexual minority individuals themselves feel about the inclusion of a question on sexual orientation (given they are the holders of this information). Amongst sexual minority persons, sexual orientation questions are likely to be particularly sensitive for those who have not disclosed their minority sexual orientation to others (Coxon, 1993) and those who believe that sexual orientation questions are too private to be asked by government agencies (Badgett & Rogers, 2003). However, it needs to be acknowledged that sexual minority populations are used to being researched, and that may have an effect on how acceptable such questions are - surely the more often people are asked questions the...
more used to replying they are. In other words, heterosexuals are not used to being asked ‘intrusive’ questions, but sexual minorities are.

In addition, population groups for which reporting of sexual orientation is relatively less acceptable need to be identified. Public attitudes towards same-sex sexual orientations are an indicator of the social stigma attached to these orientations and have been measured for some time. Information on these public attitudes can provide indirect insight into the sensitivity of sexual orientation questions. It can help to compare acceptability both across population groups and across countries. However, there is also emerging research that has produced direct information related to the acceptability of sexual orientation questions amongst different survey populations. Official statistics systems have produced such direct information, generally in the context of population censuses, with transferability to official surveys. For example, a small 2003 Statistics New Zealand focus group study found some population groups perceived sexual orientation questions as less acceptable and that sexual minority groups were relatively more accepting of sexual orientation questions in official surveys (2003a). However, these findings require replication with a larger and more representative sample.

### 12.2 Public attitudes to sexual orientation diversity

A significant body of evidence on sexual minority stigma has accumulated and theoretical models have been developed to explain social stigmatisation of sexual minority populations (Meyer, 2003, 2007). Levels of sexual orientation stigma are likely to be closely related to willingness to disclose minority sexual orientation in surveys. Factors that might impact on sexual minority respondents’ willingness to disclose their sexual orientation in official surveys include the relative recency of legal sanctioning of sexual orientation discrimination and the degree to which sexual minority populations are included in public policy, as well as the continued threat of sexual orientation harassment or discrimination, whether actual or perceived (eg, Purdam et al., 2008).

Social climates and societal attitudes towards minority sexual orientations provide some insight into the possible pressure on sexual minority survey respondents not to disclose their sexual orientation. As noted above, it could well be argued that the level of public approval of sexual minorities has implications for the willingness of sexual minority respondents to disclose their sexual orientations in surveys. At the least, it can be assumed that in countries with high levels of disapproval it can be difficult for survey respondents to disclose same-sex sexual experiences (Kontula, 2004). In New Zealand, social attitudes towards the notion of same-sex sexual behaviour appear to be somewhat less hostile than in the United Kingdom and United States. However, more than one-third (36.3%) of men and one-fifth (22.2%) of women aged 26 (from a small, nationally unrepresentative Dunedin birth cohort) thought in 1999 that sex between two men was ‘always wrong’ or ‘mostly wrong’ (Dickson et al., 2003). This compares to 64.7% of men and 52.7% of women between the ages of 25 and 35 in an earlier United Kingdom sample (Wellings et al., 1994) and 70.7% of men and 66.8% of women (of the same age group) in a United States sample (Laumann, Gagnon, Michael, & Michaels, 1994, as cited in Dickson et al., 2003). However, despite attitudes being more hostile in these countries than in New Zealand, the United Kingdom and the United States are both collecting sexual orientation data, implying that producers of official statistics in these countries consider acceptability to be sufficient for these collections to be justified.

Not surprisingly, evidence suggests that tolerance of minority sexual orientations has increased over time (Butler, 2000, as cited in Dickson et al., 2003). In New Zealand, same-sex sexual behaviour between men was decriminalised over 20 years ago (1986 Homosexual Law Reform Act), sexual orientation discrimination has been illegal since
1993 (Human Rights Act), and same-sex and opposite-sex civil unions were introduced in 2005 (Civil Union Act). These changes reflect the increasing social acceptability of minority sexual orientations. That young people in New Zealand report sexual minority orientations at higher rates than the general population can also be read as an indication of this increasing social acceptance of sexual minority orientations (see Sexual Orientation Data in New Zealand Probability Surveys - Technical Report; Gray, 2009).

Laumann et al. (1994) identified clusters of people with similar attitudes towards sexuality, including attitudes towards pre- and extra-marital sex, same-sex sexual behaviour, and the attitude that religious beliefs guided respondents' sexual behaviour. These social groups with distinctly different attitudes were marked by race/ethnicity, age, marital status, education, and religious affiliation (Laumann et al., 1994). The level of personal approval of same-sex sexual orientations appears to be positively correlated with reporting of same-sex sexual behaviour over the lifetime (Kontula, 2004). Confirming earlier findings (Sanfort, 1998, as cited in Dickson et al., 2003), Kontula demonstrated that reports of same-sex sexual behaviour were more numerous in countries with more tolerant public attitudes towards same-sex sexual behaviours (2004). However, more tolerant climates are likely to impact on both occurrence and reporting of same-sex sexual orientations, and these are not easily disentangled (Dickson et al., 2003).

12.3 Acceptability of official collection of sexual orientation data

Office for National Statistics findings. The Office for National Statistics concluded from its development, testing, and trialling of a sexual identity question that such a question is acceptable for inclusion in United Kingdom official surveys and in turn implemented such a question in several surveys (ONS, 2008). Furthermore, cognitive/in-depth interviews conducted by the Sexual Identity Project with a broad range of participants (including potentially critical respondent groups such as older and younger people; people with lower educational attainment; and people residing outside of major urban areas) concluded that a sexual identity question was considered acceptable for inclusion in official social surveys (Betts, 2009).

New Zealand research. Statistics New Zealand commissioned focus group research to test the acceptability of including a sexual orientation question in the New Zealand Census (SNZ, 2003a). A number of limitations of this study have been discussed above. However, in general,

A majority voiced acceptance or grudging acceptance to the idea of a question on sexual orientation being included in the Census, but this acceptance was often based on the proviso that respondents could choose to not answer the question. Although there was muted acceptance there were a number that could not perceive the value of collecting such information. This view was often linked to views that sexual orientation was a behavioural issue.

(p. 9).

Those who were relatively less accepting of the inclusion of sexual orientation questions in the Census were older people, those from the South Island, and Pacific, Māori, and Asian people (SNZ, 2003a). However, even these less accepting groups were of the opinion that times were changing and that minority sexual orientations were becoming increasingly more acceptable and more visible than they had been in the past (SNZ, 2003a). Amongst these groups, there was the perception that sexual orientation data
were inevitably going to be collected through public channels at some point (SNZ, 2003a). Many expressed the view that official health surveys were a more appropriate vehicle for sexual orientation questions than the Census (SNZ, 2003a). Figure 3 below provides an overview of the general level of acceptance of the inclusion of a sexual orientation question in the Census across different groups of focus group participants (reproduced from SNZ, 2003a, p. 25). Sexual minority populations, as well as those populations who are least accepting of the inclusion of sexual orientation questions, are the groups of main concern, given their potential impact on data quality through non-disclosure and non-responding respectively.

Figure 1: General level of acceptance across different demographic groups to asking sexual orientation questions in the New Zealand Census

Implications for Official Data Collection. One issue of acceptability that would need to be addressed in the OSS is that survey respondents are legally required to honestly answer official surveys. The mandatory nature of answering questions included in official surveys means that the OSS is required to include questions that are acceptable to survey respondents and to minimise the burden of response. This might require consideration of the addition of a ‘prefer not to answer’ response category to increase the acceptability of sexual attraction, sexual behaviour, and sexual identity questions. This is despite the fact that the inclusion of such a category is likely to increase non-response rates as shown in United Kingdom official surveys (ONS, 2008) and is hence not included in United Kingdom surveys, which would result in New Zealand data being less comparable with United Kingdom data.

12.4 Critical population groups

12.4.1 Sexual minority populations

New Zealand research. The Statistics New Zealand focus group research concluded that:

Most gay and lesbian participants supported inclusion of a question on sexual orientation in the Census. It was seen to encourage acceptance and provide much needed information on this population. It should be noted that participants in the gay and lesbian groups were those that were comfortable disclosing their sexual orientation.

There were indications that older gays and lesbians may be more reticent disclosing their sexual orientation due to negative reactions.
to their sexuality in the past. These respondents were seen to take a ‘wait and see approach’ to the question. While only one participant voiced this reservation personally, a number of participants in the gay and lesbian groups felt that concerns over confidentiality may be held by those that were older, younger, in the closet, and employed in certain occupations.

(SNZ, 2003a, p. 29)

Confirming these Statistics New Zealand findings that sexual minority people are generally willing to disclose their minority sexual orientation, 86.7% of the large sample of self-selected sexual minority participants of the Lavender Islands Study reported that they would honestly answer a question about their sexual identity (Henrickson, Neville, Jordan, & Donaghey, 2007), suggesting a high level of acceptance of such a question amongst sexual minority people.

Bisexual people. Unfortunately, both-sex attracted, both-sex behaved, and bisexual identified respondents were not separated from gays and lesbians in the 2003 Statistics New Zealand focus group study. Bagley and Tremblay suggest that both-sex oriented males might be less likely to disclose their minority sexual orientation than exclusively same-sex oriented individuals (1998). For bisexuals, coming out processes follow quite different trajectories to those of gay men and lesbian women, which might mirror differential willingness to disclose in probability surveys (McLean, 2007). McLean concludes that “full disclosure may not be the most important part of living with a bisexual identity for many men and women” and that “non-disclosure is often seen as the better alternative” (2007, p. 164).

12.4.2 Other groups of interest

New Zealand research. The Statistics New Zealand focus group research has identified the level of acceptance for the inclusion of sexual orientation questions in the Census, but findings from this study need to be interpreted with caution due to the small unrepresentative sample. The study suggests that a range of population groups might be less accepting of the inclusion of a sexual orientation question in the Census, citing various reasons. Firstly, Pacific focus group participants were amongst the groups least accepting of sexual orientation data collection in the New Zealand Census; they perceived sexual orientation as a private and personal matter that was not open to discussion (SNZ, 2003a). Secondly, focus group participants from strong religious backgrounds voiced uneasiness with sexual minority orientations, quoting church doctrine; several participants of the Statistics New Zealand focus group research were of the opinion that people with strong religious affiliations would not accept a sexual orientation question being included in the Census and would be vocal in their opposition (SNZ, 2003a). Thirdly, older and more rural people were also perceived as likely opponents to sexual orientation data collection through the Census; focus group participants saw them as unwilling to discuss sexual orientation as it was private and believed that such respondents would potentially perceive sexual orientation questions as intrusive (SNZ, 2003a). Finally, there was also a select group of focus-group participants who held what the authors of the study termed ‘fundamentalist’ views on minority sexual orientations, seeing these orientations as the signs of a decline in New Zealand’s social and family values (SNZ, 2003a).

The findings from this research indicate that other population groups might be moderately accepting. Firstly, Māori focus group participants were divided in their support for the inclusion of a sexual orientation question; some focus group participants were of the opinion that Māori men as a group could be particularly concerned about an inclusion because of their regular exposure to strong opposition to such an inclusion (SNZ, 2003a). Secondly, amongst Asian research participants there was ‘grudging
acceptance’, although sexual orientation was generally not discussed openly amongst these participants’ circles and there was some disquiet about sexual minority orientations (SNZ, 2003a). Rural, recently immigrated, and older subsets of the Asian population were seen as possibly the least accepting Asian groups with respect to the inclusion of a sexual orientation question in the Census. There was some evidence that Chinese immigrants might be more accepting than Indian immigrants (SNZ, 2003a).

Finally, the Statistics New Zealand focus group research findings suggest that some population groups might be accepting or welcoming of sexual orientation data collection in the Census. Besides gay and lesbian focus group participants, especially young people and the group that report authors called ‘liberal’ participants saw a range of benefits in collecting sexual orientation data. Auckland residents appeared to be the most likely geographically defined group to accept the collection of sexual orientation data in the Census.

12.4.3 Adolescent populations
Overseas research has investigated disclosure amongst adolescents in some detail. For example, Saewyc et al. found that “adolescents appear to be less willing to disclose a stigmatised identity, even in presumably anonymous and confidential surveys, than they are to disclose attractions and behaviours” (2004, p. e12). Sexual orientation items are equally likely to be skipped as commonly asked sexual risk behaviour questions in adolescent health surveys (Saewyc et al., 2004). Motivations for non-disclosure of sexual orientation amongst adolescents include fear of consequential negative repercussions, the wish to not hurt or disappoint others, and privacy concerns (Savin-Williams & Cohen, 2007). Young people might not yet have entered the developmental stage in which they acknowledge their sexual orientation; or alternatively, they might not have disclosed their sexual orientation to others (Savin-Williams, 2001). Response categories might use labels (eg, ‘gay’, ‘lesbian’, ‘bisexual’) that youth might not like to adopt, due to dislike of the political associations attached to these or the opinion that the labels are too reductionistic or simplistic to adequately capture their sexual identity (Savin-Williams, 2001). Same-sex sexual behaviour might also not constitute a valid criterion, given that some adolescents who have same-sex sexual encounters might not be same-sex oriented and that not all same-sex attracted adolescents engage in same-sexual behaviour, hence the need for questions on all three measurement concepts (Savin-Williams, 2001). Disclosure might be motivated by the wish for sympathy and acceptance, to relieve the social stresses associated with non-disclosure or for the purpose of making a political statement, amongst other factors (Savin-Williams & Cohen, 2007). The OSS could use these findings to develop information designed to increase responding amongst adolescents.

12.4.4 Effects of ethnicity on disclosure
Overseas evidence also supports the Statistics New Zealand finding that disclosure might be affected by ethnicity (2003a). It has been noted that some indigenous people have a tradition of positive, sexual minority identities resulting in less social stigmatisation of same-sex and both-sex oriented persons and minority sexual identities prior to the introduction of opposing views by colonialist immigrant groups (see Saewyc et al. 1998). Despite intense governmental and missionary efforts to abolish these traditions, some American Indian tribes, for example, have maintained positive sexual minority identities, either covertly or overtly when relatively more isolated from the influence of the colonial forces (Saewyc et al., 1998). It has similarly been noted that amongst Māori, minority sexual orientations were less stigmatised before the arrival of settler colonials (Aspin, 2005, 2008), but the degree to which minority sexual orientations are stigmatised in different iwi is unknown.
Hispanic migrants to the United States might also be more likely not to disclose socially stigmatised sexual behaviours due to a particularly strong, culturally-determined social-desirability effect (Catania et al., 1990). At the same time, some behaviour might be over-reported due to positive values associated with sexual proneness and activity in cultures with machismo (Catania et al., 1990).

Survey participation amongst migrant sexual minority populations (eg, Latino MSM as described in Zea et al., 2003) might be reduced if migrants are from countries where there is little or no tradition of research participation. Populations that are both ethnically and sexually in the minority might also have experienced diverse forms of oppression and discrimination, including the combined burden of both racism and homophobia. This combined burden might influence their willingness to participate in research, possibly leading to different participation rates than amongst other citizens of a country (Zea et al., 2003). Savin-Williams (2001) found that for Asian-American and Latino-American sexual minority adolescents, non-disclosure of minority sexual orientation was associated with high levels of internalised homophobia.

12.5 Question design and survey mode, credibility, confidentiality, and privacy

Aspects of question design (see Chapter 5: Question design, pp. 34-56) are likely to impact on acceptability and disclosure. Likewise, terminology choices are likely to have importance for the acceptability of a question (Catania et al., 1990). The length of a question and its response format are likely to influence disclosure. For example, one early study found that longer questions with open response formats were most likely to encourage disclosure of sexual intercourse (Catania et al., 1990). The use of enhanced items, such as explicitly stating in the preamble of question or the survey that a sexual orientation is not uncommon, could encourage disclosure (Kontula, 2004). To date, the use of enhanced items to official sexual identity questions has not been explored by the Office for National Statistics Sexual Identity Project, United Kingdom.

Providing information on some sexual orientation dimensions might be more acceptable than others for certain population groups. For example, questions on sexual behaviour are sensitive for both heterosexual participants and participants from minority sexual orientations (Coxon, 1996). However, areas of sensitivity may be differently distributed in that behaviours that might have a high level of social stigma and sanction attached for heterosexual communities might be less socially stigmatised and sanctioned amongst sexual minorities, and vice versa (Coxon, 1996).

The survey mode is likely to have a significant impact on disclosure of sexual behaviours (see Chapter 10: Survey mode, pp. 102-110). Sexual orientation data collection over the internet or telephone does not require face-to-face contact, and these modes are thus likely to increase survey respondents’ sense of privacy, and in turn their willingness to disclose sensitive information (Catania et al., 1990; Reddy et al., 2006). At the same time, these more personally removed data collection modes also decrease rapport, with possible negative consequences for data quality and accuracy (Reddy, 2006).

With regards to the importance of ensuring anonymity of response, Reddy et al. (2006, p. 500) have noted that:

*Disclosure rates for information that is embarrassing, stigmatizing, and potentially incriminating might be most influenced by the degree of anonymity in an experimental design. When research participants are asked to self-report about these behaviors (eg, domestic violence,*
sexual activities, drug and alcohol use), they may feel that it is not in their best interest, legally or socially, to answer honestly.

### 12.6 Disclosure strategies

One possible strategy to increase disclosure in official surveys is to develop and implement public education campaigns targeting sexual minority populations through sexual minority-targeted and mainstream media. The United States statistics department collaborated with sexual minority community organizations on the delivery of such a campaign in the 2000 Census, with the specific goal being to increase disclosure of same-sex couples in the ‘unmarried partner’ category (Badgett & Rogers, 2002). Exposure to the campaign was associated with higher rates of disclosure (an estimated 12% minimum), indicating the campaign’s success (Badgett & Rogers, 2003). Focus group participants of the SODCS thought that such public education campaigns could be effectively run in New Zealand, stressing that such campaigns needed to address people of all sexual orientations in order to be effective.

Several focus group participants interviewed as part of the SODCS wanted survey respondents to be informed from the very start about the use of the information and the agency which received the collected sexual orientation data (see Summary of focus groups and interviews; Pega, 2009c). Transparency from government departments about the use of the sexual orientation data was seen as a paramount obligation. Focus group participants were of the view that government departments could not simply introduce the questions without providing information about the need for these and their benefit for people of all sexual orientations in order to increase acceptability of the sexual orientation questions amongst New Zealanders. Furthermore, focus group participants expected government agencies to be explicit about the fact that sexual orientation questions apply to everybody. There may be a greater risk for data quality from the sexual majority (eg, higher refusal and item non-response rates). Baseline data around this potential issue might be beneficial before the OSS could target its efforts to increase acceptability of sexual orientation items.

### 12.7 Summary and recommendations

1. Research on public attitudes towards minority sexual orientation suggests that minority sexual orientation might be relatively well accepted amongst the general public in New Zealand, compared to in other countries collecting sexual orientation in official surveys (eg, the United Kingdom and the United States).

2. An official 2003 focus group study conducted on behalf of Statistics New Zealand found that the majority of focus group participants perceived the collection of official sexual orientation data as acceptable. The study identified Pacific people, people from religious backgrounds, older people, rural people, and people with ‘fundamentalist’ views on sexual minorities as groups that might find sexual orientation data collection least acceptable. Gay men and lesbians, young people, ‘liberal’ people, and people residing in Auckland were likely to be most accepting of sexual orientation data collection according to the study. Although the findings from this study are limited by the small, unrepresentative sample, the study provides some guidance as to which population groups should be monitored for disclosure and non-response rates; that is, the identified least accepting groups.
Recommendation:
Test proposed preliminary sexual attraction, sexual behaviour, and sexual identity questions with the population groups that might potentially be least accepting of sexual orientation data collection, as identified by the 2003 Statistics New Zealand study and international research.

3. Question design, survey mode, credibility, confidentiality, and privacy are key factors relating to acceptability and disclosure rates.

Recommendations:
Use the preliminary sexual attraction, sexual behaviour, and sexual identity questions that have been developed by the SODCS on the basis of the evidence reviewed about acceptability (see Chapter 5: Question design, pp. 34-56).

Administer sexual orientation questions in the survey modes that have been identified as optimal for the OSS (see Chapter 10: Survey mode, pp. 102-110).

Inform survey respondents about the use that their sexual orientation data will be put to and which public agencies will have access to the data, if feasible.

Consider the inclusion of a ‘prefer not to answer’ response category, despite such a category having a negative effect on item response and hence data quality, in order to cater for the mandatory nature of answering official surveys.

4. Public education campaigns have been used internationally to increase disclosure of sexual minority orientations.

Recommendations:
Consider running public education campaigns about the use of sexual orientation data.

Publicly promote the sexual attraction, sexual behaviour, and sexual identity questions and their benefit for people of all sexual orientations.
Glossary

ACASI – audio computer-assisted self-administered interview
CAPI – computer-assisted personal interview
CATI – computer-assisted telephone interview
CASI – computer-assisted self-administered interview
Fa'afafine – Fa’afafine is a Samoan term that literally means ‘like a woman’. Fa’afafine is often used to refer to people born male who express feminine gender identities in a range of ways, but is sometimes used more broadly to refer to all Pacific people who do not identify with or live according to common understandings of their birth gender. Sometimes the term ‘third sex’ is used. Other similar Pasifika terms include Fakaleiti (Tongan), Akava’ine (Cook Islands Māori), Fiafifine (Niuean), Vaka sa lewa lewa (Fijian).
Gay – Gay can refer to homosexual/same-sex attracted women and men, but is more often used in relation to males. Note: In this report, the term ‘gay’ refers to same-sex oriented men, or to the ‘gay’ sexual identity.
GLB – Gay, lesbian, and bisexual
Gender Identity – Gender identity is an aspect of identity that can be understood as the psychological sex. It is an individual’s internal sense of being male or female or something other or in between. It may or may not correspond to a person’s physical sex. One’s sexual orientation cannot be assumed on the basis of their gender identity.
Intersex – Intersex people are born with any of a number of physical variations that means they do not fit expectations of either male or female physical sex (eg, they have genitals that are atypical, XXXY chromosomes, etc). Intersex anatomy is not always visible at birth, and may become apparent at puberty, later or not at all. Surgery is performed on some intersex infants and children to physically align them with the sex they are assigned. This practice is criticised, particularly by intersex people. A child’s sex assignment may not match the gender identity the person develops as they grow up. This can mean that some intersex people can face gender identity issues similar to a transgender person.
Lesbian – Lesbian is used exclusively in relation to homosexual/same-sex attracted women. Note: in this report, the term ‘lesbian’ refers to same-sex oriented women, or to the ‘lesbian’ sexual identity.
MSD – Ministry of Social Development (New Zealand)
MSM – The abbreviation of ‘men who have sex with men’, MSM is used to include both gay and bisexual men and men who identify as heterosexual or otherwise but who at least occasionally engage in sexual activities with other men. Commonly used in the context of sexual health.
ONS – Office for National Statistics (United Kingdom)
OSS – Official Statistics System (New Zealand)
POSS – Programme of Official Social Statistics (New Zealand)
Queer – Queer has been used as a derogatory term for gay and lesbian people in particular. Although some people continue to reject the term, it has recently been reclaimed and used in a positive sense by some to describe sexual orientation and/or

42 The definitions for fa’afafine, gender identity, intersex, MSM, queer, takatāpui, and transgender are from the Ministry of Social Development’s Selected GLBTI Definitions document (2008).
gender identity or gender expression that does not conform to heteronormative expectations. It is sometimes used as an umbrella term for same-sex attraction and gender/sex diversity, including but not exclusive to people who are gay, lesbian, bisexual, transgender, takatāpui, fa'afafine, intersex or somewhere in between. This is more common among youth. It is sometimes used to express rejection of traditional gender categories and distinct sexual identities such as lesbian, gay, bi, and straight (heterosexual).

**Sexual minority population** – Population groups defined by minority sexual attraction, minority sexual behaviour, and/or minority sexual identity

**SNZ** – Statistics New Zealand

**SODCS** – Sexual Orientation Data Collection Study

**Takatāpui** – The traditional meaning of takatāpui is ‘intimate companion of the same sex’. Many Māori people have adopted this term to describe themselves, instead of or in addition to terms such as lesbian, gay, bisexual, queer or trans. It refers to cultural and sexual/gender identity. Also spelt takataapui.

**Transgender** – The term transgender is used by different groups in different ways. It is often used as a catch-all umbrella term for a variety of people who feel that the sex they were assigned at birth is a false or incomplete description of themselves. Transgendered people may or may not use some form of medical intervention to better align their physical sex with their gender identity, and may or may not have any interest in such a procedure. Gender reassignment services are sometimes called gender realignment by trans people. They include but are not limited to hormone treatment and surgeries, such as mastectomy and genital reconstruction. The term transgender can include a number of sub-categories, including, among others, transsexuals, cross-dressers, transvestites, gender queer and consciously androgynous people.

The adjective ‘trans’ is increasingly preferred as a general term, for example ‘trans person’. If a gender term is also used, this refers to the person’s gender identity, eg, a ‘trans man’ was born in a body defined as female but identifies as male.
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Appendix 3: SODCS Report 3: Current Best Practice in Sexual Orientation Data Collection

Sexual Orientation Data Collection Study

Report 3:

Current Best Practice in Sexual Orientation Data Collection

Frank Pega

July 2009
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Executive summary

Introduction

There is currently little data available on sexual orientation for the New Zealand population, limiting the ability of policy-makers to quantify the issues affecting populations defined by sexual orientation and to develop measures to adequately address the health and social needs of these populations.

Government agencies, service providers, and communities need to be able to access timely, accurate, reliable, comparable, and high-quality sexual orientation data in order to develop appropriate policies and strategies to address issues relating to sexual orientation. However, until such sexual orientation data are available it is difficult to accurately quantify, prioritise, and address issues associated with sexual orientation.

Members of sexual minority populations43 (i.e., people with minority sexual attraction, sexual behaviour, and/or minority sexual identity) are disadvantaged across a range of social wellbeing, health, and economic indicators. For example, there is robust national and international evidence that sexual minority groups experience higher rates of suicide, physical and verbal assault, bullying victimisation, depression, alcohol use, tobacco smoking, other drug dependence, and more workplace discrimination and impediments to career progression in comparison with the heterosexual population.

New Zealand legislation guarantees non-discrimination on the basis of sexual orientation through the Human Rights Act of 1993, and the Civil Union Act of 2004 which allows civil union registrations for both opposite-sex and same-sex couples. Furthermore, the *Yogyakarta Principles on the Application of International Human Rights Law in Relation to Sexual Orientation and Gender Identity* of 2007 affirm the binding international legal standards which all member states of the United Nations must comply with in respect to the provision of human rights for populations defined by sexual orientation. In addition, sexual orientation has also become a relevant topic for public policy in New Zealand and internationally, with legislative provisions having been anchored in government policy. The monitoring of outcomes relating to the provisions made in national and international legislation and public policy requires access to timely, accurate, reliable, comparable, and high-quality sexual orientation data.

There is a clear need for information on sexual orientation in the broad areas of enumeration and demographic characteristics, discrimination, and social well-being and health. These are just a few examples of where the need for sexual orientation data has been identified; it is certain that data on sexual orientation will have wide utility across a range of policy and programme development areas.

Sexual orientation data collection in official statistics systems

Steps to include sexual orientation data in official surveys have been taken in several countries. For example, producers of official statistics in Canada and the United States have collected sexual orientation data for some time, starting in the early 43 For a definition of ‘sexual minority populations’ see Glossary (p. 60).
1990s. The United Kingdom Office for National Statistics is now collecting standard sexual orientation data in six, large-scale household surveys (Integrated Household Survey, HIS) following an intensive two-year programme to develop, test, and trial sexual orientation questions. Statistics Norway is also currently actively considering how best to collect sexual orientation data. Closer to home, the Ministry of Health has commenced collection of official sexual orientation data; the Ministry has included sexual orientation questions in the New Zealand Health Behaviours Surveys on Drug Use (2003) and on Alcohol Use (2004), as well as in Te Rau Hinengaro – The New Zealand Mental Health Survey conducted in 2006. Hence, valuable national and international knowledge and experience in the area of collecting official data on sexual orientation is available.

Statistics New Zealand is currently part-way through a process of reviewing and updating the Official Statistics System (OSS). This process, known as the Programme of Official Social Statistics (POSS), was initiated in 2003 and its main objective is to provide a coherent system of official social and population statistics across the government sector. As part of this programme, Statistics New Zealand is considering the inclusion of sexual orientation as an official social statistic. As part of the Review of Culture and Identity Statistics, Statistics New Zealand has supported the documentation and prioritisation of sexual orientation information needs (relative to other information needs) across government.

All official social statistics are required to have a high degree of relevance (i.e., to meet user needs) and to be able to inform decision-making in relation to improving New Zealand’s social wellbeing. Specifically, official social statistics must:

- address issues of enduring concern to government departments, local authorities, businesses, and to the general public
- be useful for improving knowledge about New Zealand’s population
- inform decision making relating to New Zealand’s social well-being
- provide an accurate reflection of the population of interest
- provide information that will help inform and evaluate policy
- be a trusted source
- be publicly acceptable
- be accurate and of high quality

(Statistics New Zealand [SNZ], 2008, pp. 5-6).

With regard to sexual orientation data, Statistics New Zealand has indicated particular interest in being able to determine the size of sexual minority populations (i.e., enumeration) and the demographic distribution of these populations. Prerequisites for this include consideration of the refinement of measurement concepts, issues around the aggregation/disaggregation of sexual orientation data, advantages of particular survey modes, and issues around public acceptability of questions on sexual orientation. Current best practice regarding these issues is addressed in this report.

**Sexual Orientation Data Collection Study (SODCS)**

In response to the identified need to address conceptual and data collection issues in relation to sexual orientation, the Ministry of Social Development established the Sexual Orientation Data Collection Study (SODCS), together with co-sponsors Statistics New Zealand and the Ministry of Health. External researchers and statisticians were commissioned to independently conduct the study on behalf of Ministry of Social Development.
The study was granted competitive funding from the Official Statistics Research (OSR) scheme administered by Statistics New Zealand. The stated purpose of the OSR scheme is to improve methodologies for official statistics and to increase statistical capability in the state sector.

The key aim of the SODCS is to provide a sound theoretical and methodological basis for improving the coverage, reliability, and quality of sexual orientation data collected in and available to the OSS. Specific aims of SODCS are to build capability to collect and analyse robust, high quality data on sexual orientation in New Zealand by:

- developing a coherent and theoretically robust conceptual framework to guide the measurement of sexual orientation in New Zealand
- developing a framework for the robust and effective collection of sexual orientation data in OSS probability surveys
- assessing the capability of existing New Zealand OSS to provide reference data for sexual orientation
- developing a model for estimating gay, lesbian, and bisexual population groups in order to provide reference data for public sector information needs and to inform the development of sampling strategies for surveys.

Research findings have been collated into four reports, of which the SODCS Report 1: Sexual Orientation Conceptual Framework, (in the New Zealand context), is the first. This conceptual framework underpins this report, SODCS Report 3: Current Best Practice in Sexual Orientation Data Collection, as well as SODCS Report 2: Issues in Sexual Orientation Measurement and Data Collection and SODCS Report 4: Sexual Orientation Data in New Zealand Probability Surveys: Technical Report. Findings from all four specialist reports are brought together in the a final SODCS report (Sexual orientation data in probability surveys: Improving data quality and estimating core population measures from existing New Zealand survey data), with recommendations for improving the collection of official sexual orientation survey data in New Zealand.

This report (Current Best Practice in Sexual Orientation Data Collection) synthesises current best practice recommendations from the Sexual Orientation Conceptual Framework, the Issues in Sexual Orientation Measurement and Data Collection report, and the Sexual Orientation Data in New Zealand Probability Surveys: Technical Report. Current Best Practice in Sexual Orientation Data Collection focuses on best practice for the definition and measurement of sexual orientation and the collection of sexual orientation data in probability surveys conducted through the OSS. The document aims to provide clarity about how the best practices discussed will impact on survey data and which practices will best meet the identified information needs that stakeholder agencies have in relation to sexual orientation. Areas where best practice evidence is not available, or is relatively untested, and where a need for further research is indicated are identified.

**Defining sexual orientation – conceptual framework overview**
The Sexual Orientation Conceptual Framework describes how culture and gender-related perspectives frame the conceptualisation of sexual orientation and discusses the conceptual dimensions of sexual orientation. The framework culminates in the proposal of working definitions for the sexual orientation statistical topic and the associated key measurement concepts (sexual attraction, sexual behaviour, and sexual identity).

Culture and gender-related frames of sexual orientation
At the broadest conceptual level, both culture and gender frame the way in which sexual orientation is conceptualised. In terms of culture, Māori, New Zealand European, Pacific, Asian, and other cultural paradigms differ with respect to their conceptualisation of sexual orientation, and these cultural dimensions have implications for the collection of sexual orientation data. Sexual orientation concepts have been in use by Māori both in contemporary times and historically, with takatāpui (wahine, tāne) being a sexual identity specific to Māori.\(^{44}\) New Zealand Europeans are familiar with sexual orientation as a concept and frequently adopt common Western sexual identity labels. In general terms, amongst Pacific Peoples, while sexual orientation might not be a familiar concept, same-sex behaviour is relatively common amongst some young, unmarried men and there are social identities related to male same-sex sexual relationships (eg, the fa'afafine of Samoa).\(^{45}\) People from Asian backgrounds might also not traditionally have an equivalent sexual orientation concept although segments of this population engage in same-sex behaviour. As in other life domains, new migrants tend to adopt the sexual orientation concepts of the host culture; however, this depends on several factors including country of origin, and level of acculturation to the host culture. As these examples illustrate, cultural conceptualisations of sexual orientation vary widely and need to be taken into careful consideration.

Dimensions such as gender, gender role, sex role, and gender identity also impact on the conceptualisation of sexual orientation by various groups. For example, there are gender differences in how men and women conceptualise sexual orientation, and adherence or non-adherence to gender-typical roles can influence conceptualisations of sexual orientation, amongst Pacific males for example. Similarly, amongst some groups (such as Pacific males) a deciding factor for the conceptualisation of sexual orientation is whether an individual takes an active or passive role during (same-sex) sexual behaviour. Finally, gender identity is an important factor with respect to the conceptualisation of sexual orientation, with transgender people conceptualising their sexual orientation to others either in relation to their sex or their gender identity.\(^{46}\)

Conceptual dimensions of sexual orientation
There are several key conceptual dimensions of sexual orientation. First, there is widespread consensus that the umbrella concept of sexual orientation encompasses three key measurement concepts: sexual attraction, sexual behaviour, and sexual identity. Other concepts such as sexual fantasy or sexual desire are sometimes used to describe aspects of sexual orientation, but are not central to the conceptualisation of sexual orientation for official purposes.

While at first glance it may appear that one concept (eg, sexual identity) could be inferred from another (eg, sexual behaviour), this is in fact not the case, and

\(^{44}\) For a definition of 'takatāpui' see Glossary (p. 60).
\(^{45}\) For a definition of 'fa'afafine' see Glossary (p. 59).
\(^{46}\) For definitions of ‘gender identity’, ‘transgender’, and ‘intersex’ see Glossary (pp. 59-60).
individuals often do not respond consistently across these three domains. For example, while many women who have sex with women identify as lesbian or bisexual, some identify as heterosexual. The multi-component nature of sexual orientation has implications for measurement in that it means that no one measure can accurately differentiate populations defined by three key different measurement concepts.

A second conceptual issue which has implications for the measurement of sexual orientation is the notion of sexual orientation as a continuum rather than as a set of mutually exclusive categories. Discussions about definitional and classification criteria for both-sex oriented populations have advanced the field to understand sexual orientation as continuous, rendering dichotomous (heterosexual/homosexual) or other simple categorisation schemes inaccurate or even meaningless. Conceptualisation of sexual orientation as a continuum, allows for greater flexibility and inclusiveness. For example, asexuality (ie, absence of sexual attraction) can be included as an extension of the sexual orientation continuum.

Finally, the notion that sexual orientation can be fluid over time and social context, rather than fixed is discussed. There is growing evidence of changes in sexual orientation over time and social context and these can result in significant sexual orientation fluidity (in much the same way that ethnicity can be fluid). Several phenomena and processes explain and underlie fluidity of sexual orientation. First, differing levels of certainty about one’s sexual orientation and the extent of sexual orientation exploration are two factors that can result in changes in sexual orientation over time. Second, there are individuals who choose not to label their sexual orientation, challenging traditional sexual orientation categories. Third, some individuals adopt an alternative socio-political sexual identity (eg, ‘queer’) rendering classification norms and rigid classifications of sexual orientation inaccurate. Fourth, the emergence of new sexual orientation categories, particularly amongst dynamic youth populations, indicate increasing fluidity of sexual orientation (and increasing social acceptability of this), along with a merging of sexual orientation, gender, gender identity, and gender role dimensions.

**Working definitions of sexual orientation**

Given that the umbrella concept of sexual orientation is defined by three key measurement concepts, we propose that sexual orientation should be treated as a statistical topic, with three measurement concepts: sexual attraction, sexual behaviour, and sexual identity. Working definitions for the statistical topic of sexual orientation and the associated measurement concepts are proposed (see p. 9).

**SODCS: Current Best Practice for Sexual Orientation Data Collection**

**Question design**

The use of question preambles and enhanced survey items for sexual orientation questions needs to be tested, to determine the extent to which these might enhance disclosure of minority sexual attraction, sexual behaviour, and sexual identity.

We provide sample questions for measuring sexual attraction (p. 29), sexual behaviour (p. 29), and sexual identity measurement concepts (p. 31), for use in individual and household interviewing, and for personal and telephone survey

47 For a definition of ‘queer’ see Glossary (p. 59).
administration. The recommended questions are based on items used in official surveys internationally, and are intended as a starting point for further development and testing within New Zealand.

Table 1: Proposed working definitions for the sexual orientation statistical topic and the associated measurement concepts (sexual attraction, sexual behaviour, and sexual identity)

<table>
<thead>
<tr>
<th>Statistical Topic</th>
<th>Proposed Working Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual Orientation</td>
<td>Sexual orientation is defined by three key concepts: sexual attraction, sexual behaviour, and sexual identity. The relationship between these components is that sexual orientation is based upon sexual attraction and that sexual attraction can result in various sexual behaviours and the adoption of sexual identities. The three key concepts are related, but not necessarily congruent continuous variables, each of which can independently change over time and by social context.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measurement Concept</th>
<th>Proposed Working Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual Attraction</td>
<td>“Attraction towards one sex or the desire to have sexual relationships or to be in a primary loving, sexual relationship with one or both sexes” (Savin-Williams, 2006, p. 41)</td>
</tr>
<tr>
<td>Sexual Behaviour</td>
<td>“Any mutually voluntary activity with another person that involves genital contact and sexual excitement or arousal, that is feeling really turned on, even if intercourse or orgasm did not occur” (Laumann et al., 1994, p. 67)</td>
</tr>
<tr>
<td>Sexual Identity</td>
<td>“Personally selected, socially and historically bound labels attached to the perceptions and meanings individuals have about their sexuality” (Savin-Williams, 2006, p. 41)</td>
</tr>
</tbody>
</table>

Both cognitive testing and pilot testing with interviewer feedback are recommended for these questions. Testing should target sexual minority populations to test respondents’ willingness to disclose minority sexual attraction, sexual behaviour, and sexual identity, as well as groups (such as Pacific people, rural people, older people, and people with strong religious affiliations) that Statistics New Zealand research has suggested might be less accepting of questions regarding sexual orientation data. The results of this preliminary testing can be used to inform the development of a final set of standard sexual orientation items for use in official surveys in New Zealand.

In general, findings in the literature suggest that items likely to be perceived as sensitive are best placed at the end of questionnaires, when respondents have already invested time and effort in responding to previous items so are therefore less likely to opt out. The location of sexual attraction and sexual behaviour items in surveys requires further attention, but sexual identity questions should not be located after an item that filters them in an unintended way (eg, questions on sexual abuse or
Prevalence figures cannot be accurately derived from the only available (indirect) sexual orientation data from the Census - data on same-sex cohabitating couples – as this does not include sexual minority individuals who are not cohabiting, thereby omitting a large proportion of the sexual minority population. However, large-scale probability samples have been used to estimate population prevalence figures more robustly. Some studies have increased the accuracy of the estimates obtained through utilising statistical data imputation techniques to control for misreporting and non-responses.

There are currently no reliable prevalence estimates of the sexual minority sub-population for the New Zealand general population; the currently available OSS data on sexual orientation are not suitable for the purpose of producing robust prevalence estimates. The Office for National Statistics approach to achieving robust prevalence estimates is to collect sexual orientation (sexual identity) data in several large-scale surveys, enabling the agency to pool this data over surveys and/or over time as to conduct robust analyses on a sufficiently large sexual minority sample. This approach constitutes a good, transferable model.

Demographic distribution
High-quality sexual orientation data is required in order to revise and improve the demographic profile produced by the SODCS to the point that it can be used to reliably inform for example the use of disproportionately stratified sampling techniques (based on socio-economic variables). Estimates of the socio-demographic distributions of sexual minority populations need to take misreporting and non-response phenomena into consideration, and adjust for these wherever possible.

Sampling
Official sexual orientation data are most likely to be collected as part of general population surveys on a range of topics. Preliminary assessment of the usefulness of disproportionately stratified sampling based on existing New Zealand survey data has not been promising; nevertheless, in our view improved knowledge about the demographic profile of sexual minority populations will provide further insights to inform the feasibility of using disproportionately stratified sampling approaches in the future.

Screening is a promising sampling strategy for improving the size of sexual minority samples. Telephone screening for sexual minority respondents is feasible, and well-tested screeners are available. While the potential of face-to-face screening has not been systematically investigated to-date, such screening would also be valuable for OSS household surveys, if shown to be feasible. The use of screening methods would lead to mixed-methods surveys, with their concomitant disadvantages; however, these challenges have already been successfully addressed in OSS surveys that have screened for ethnic minorities. Even if targeting or screening is not pursued, pooling of sexual minority samples drawn as part of general population surveys can be implemented to achieve a large enough sample size to ensure sufficient statistical power for subsequent analyses.

In the case that the OSS conducts surveys of sexual minority people only, a set of steps should be followed in the sampling process; this report describes these steps in detail.
Aggregation/disaggregation of data
Meaningful and fine-grained disaggregation of sexual orientation data requires collection of rich data on both sexual orientation and relevant socio-demographic characteristics in the first instance. In addition, sexual minority sub-samples ought to attain large enough sample sizes to ensure there is sufficient statistical power to carry out the required analyses. Data from different sexual minority populations should not be aggregated in analyses, and research findings should be presented separately for different groups defined by sexual orientation. For example, data from gay, lesbian, and bisexual identified respondents should not be aggregated, if they can be meaningfully presented separately. Data from a defined sexual minority population should also be disaggregated by socio-demographic parameters of interest to advance the knowledge-base on aspects of social wellbeing for sexual minorities. In a similar vein, data from the ‘other’, ‘uncertain’, ‘don’t know’ or ‘prefer not to say’ response options ought not be combined with data from other categories, but analysed separately to the extent this is possible.

Preliminary statistical classifications (Levels 1-3) for sexual attraction, sexual behaviour, and sexual identity) for use as a starting point for further development are provided (see p. 47).

Survey modes
Various survey modes provide different degrees of survey credibility, privacy, and confidentiality, all of which may significantly impact on the disclosure of stigmatised sexual orientations as with other sensitive concepts. Official sexual orientation data has been effectively collected in various survey modes. There is a strong body of evidence from the Office for National Statistics (United Kingdom), indicating that sexual orientation (identity) data can robustly be collected in computer-assisted self-interviewing (CASI) and that this mode is potentially preferred by young people. However, practical limitations may make it difficult to use this mode in official surveys, and self-administration might also impose an additional temporal burden. The Office for National Statistics is currently collecting sexual orientation (identity) data in computer-assisted telephone interview (CATI) and computer-assisted personal interview (CAPI) modes, after a long and intensive course of testing. If CATI is used questions need to ensure privacy of responding, and with this in mind, we propose questions for CATI based on the Office for National Statistics questions. Sexual orientation data can be collected in CAPI mode, in surveys where household members are interviewed in parallel or concurrently, as long as concealed showcards are used; as such, the proposed CAPI questions use concealed showcards.

There is limited evidence about which survey modes are best suited for collecting sexual attraction and sexual behaviour data in official surveys, but CASI, CAPI, and CATI have been used effectively in the collection of sexual identity data in United Kingdom official surveys, suggesting that the same modes could potentially be used to collect official sexual attraction and sexual behaviour data.

Misreporting and non-responses
There is a lack of evidence on misreporting rates as these are by nature difficult to accurately quantify. However, statistical models have been developed to adjust for misreporting of sexual orientation. While misreporting presents a considerable challenge to the collection of sexual orientation data, a general willingness of sexual minority people to disclose their sexual orientation has been found. In addition, the establishment of interviewing protocols and survey administrator training are likely to
lead to further decreases of misreporting. However, additional research into the extent of this phenomenon would be helpful.

According to Office for National Statistics (United Kingdom) research findings, the inclusion of sexual orientation (identity) questions in official surveys has no discernible effect on survey response rates and the Office for National Statistics has not observed any impact of sexual orientation questions on response rates for items immediately following these items. Item non-response rates have been found to be surprisingly low in the three official New Zealand surveys which have assessed sexual orientation (Te Rau Hinengaro – The New Zealand Mental Health Survey: sexual attraction/identity 0.05%, and sexual behaviour 0.18%; in the New Zealand Health Behaviours Surveys: sexual identity 0.50%), suggesting that non-responses do not constitute a significant challenge for the collection of sexual orientation data in New Zealand. However, until further data confirming these initial findings are available, non-response rates should closely be monitored whenever sexual orientation items are included in official surveys.

A model to adjust data for misreporting and non-responses fit for use in the OSS has been developed by the SODCS (see Sexual Orientation Data in New Zealand Probability Surveys - Technical Report; Gray, 2009, p. 16).

Acceptability/disclosure

Findings from exploratory focus group research conducted on behalf of Statistics New Zealand suggest that collection of sexual orientation data in official surveys is likely to meet with ‘acceptance’ or at least ‘grudging acceptance’ from New Zealanders. In fact, there appears to be somewhat less acceptability of sexual minority orientations in countries which currently collect sexual orientation data than in New Zealand. Findings from this study indicated that some population groups may be less accepting of the inclusion of sexual orientation questions in official surveys, and that lesbians and gay men were likely to be more accepting of sexual orientation questions in official surveys. Public education campaigns designed to increase disclosure rates amongst sexual minority groups and decrease non-response rates amongst less accepting groups may have positive effects. However, cost/benefit analyses would be needed to ascertain the feasibility these.
1 Introduction

There is currently little data available on sexual orientation for the New Zealand population, limiting the ability of policy-makers to quantify the issues affecting populations defined by sexual orientation and to develop measures to adequately address the health and social needs of these populations.

Government agencies, service providers, and communities need to be able to access timely, accurate, comparable, and high-quality sexual orientation data in order to develop appropriate policies and programmes to address issues relating to sexual orientation. However, until such sexual orientation data are available it is difficult to accurately quantify, prioritise, and address issues associated with sexual orientation.

While the rights of sexual minority populations are protected in law and public policy, there is growing evidence of disparities in social well-being outcomes in comparison with the heterosexual population. Members of sexual minority populations (i.e., people with minority sexual attraction, sexual behaviour, and/or minority sexual identity), are disadvantaged across a range of social wellbeing, health, and economic indicators. For example, there is robust national and international evidence that sexual minority groups experience higher rates of suicide, physical and verbal assault, bullying, victimisation, depression, alcohol use, tobacco smoking, other drug dependence, and more workplace discrimination and impediments to career progression in comparison with the heterosexual population (Ministry of Social Development [MSD], 2006). However, without the necessary official data it is difficult to precisely determine needs in order to develop policies and programmes to address inequalities in these areas.

New Zealand legislation guarantees non-discrimination on the basis of sexual orientation through the Human Rights Act of 1993, and the Civil Union Act of 2004 which allows civil union registrations for both opposite-sex and same-sex couples. Furthermore, the Yogyakarta Principles on the Application of International Human Rights Law in Relation to Sexual Orientation and Gender Identity of 2007 affirm the binding international legal standards which all member states of the United Nations must comply with in respect to the provision of human rights for populations defined by sexual orientation.

In line with legislative progress in this area, sexual orientation has also become a relevant topic for public policy in New Zealand and internationally. The following recent examples of national policy development are amongst those that have clear implications for sexual minority populations:

- changes in income support benefit entitlements for same-sex couples living together (Work and Income)
- changes relating to adoption and family law
- re-working of health and education policies to acknowledge and include a wide range of family structures
- a range of roll-on effects from Civil Union legislation

(SNZ, 2008, p. 8).

The monitoring of outcomes relating to the provisions made in national and international legislation and public policy requires access to timely, accurate, comparable, and high-quality sexual orientation data.

Government agencies have identified a clear need for information on sexual orientation in the broad areas of enumeration and demographic characteristics, discrimination, and social well-being and health (Ministry of Health, 2006; Ministry of
Social Development [MSD], 2006; Statistics New Zealand [SNZ], 2008). These are just a few examples of where the need for sexual orientation data has been identified; it is certain that data on sexual orientation will have wide utility across a range of policy and programme development areas.

1.1 Sexual Orientation Data Collection Study (SODCS)

As described in detail in the next chapter, Statistics New Zealand supports the view that sexual orientation potentially meets the criteria for an official social statistic, assuming that methodological concerns can be adequately dealt with (2008). In response to the need to address conceptual, measurement, and data collection issues in relation to sexual orientation identified by Statistics New Zealand (2008), the Ministry of Social Development established the Sexual Orientation Data Collection Study (SODCS) in a collaborative effort with co-sponsors Statistics New Zealand and the Ministry of Health. External researchers and statisticians were commissioned to independently conduct the study on behalf of the Ministry of Social Development. The study was granted competitive funding from Official Statistics Research (OSR) scheme, under the auspices of Statistics New Zealand. The stated purpose of the OSR scheme is to improve methodologies for official statistics and to increase statistical capability in the state sector.

The key aim of SODCS is to provide a sound theoretical and methodological basis for improving the coverage, reliability, and quality of sexual orientation data available to the Official Statistics System (OSS). Specific aims of SODCS are to build capability to collect and analyse robust, high quality data on sexual orientation in New Zealand by:

- developing a coherent and theoretically robust conceptual framework for sexual orientation measures in New Zealand
- developing a framework for the robust and effective collection of sexual orientation measures in OSS probability surveys
- assessing the capability of existing New Zealand official statistics to provide reference data for sexual orientation
- developing a model for the estimation of lesbian, gay, and bisexual population groups that can provide reference data for public sector information needs and inform the development of sampling strategies for surveys.

In order to achieve these objectives, the SODCS was implemented in two phases. The SODCS Report 1: Sexual Orientation Conceptual Framework was developed during the initial phase of the study and provides the theoretical basis for the later detailed reports, including the SODCS Report 2: Issues in Sexual Orientation Measurement and Data Collection report, a companion document for SODCS Report 3: Current Best Practice in Sexual Orientation Measurement Data Collection presented here. During the second phase of the SODCS, existing New Zealand sexual orientation data collected as part of official surveys were analysed. Data from these official surveys analysed and their potential to improve current estimates of the population size and demographic profile of sexual minority populations in New Zealand were assessed (SODCS Report 4: Sexual Orientation Data in New Zealand Probability Surveys: Technical Report). Findings from these analyses and modelling of OSS data were integrated in the second set of key documents produced by the
SODCS. The SODCS final report (Pega, Gray, & Veale, 2010) provides an overview of the project’s findings and is accompanied by four specialist reports:

- **SODCS Report 1: Sexual Orientation Conceptual Framework** (Pega, 2009a)
- **SODCS Report 3: Current Best Practice in Sexual Orientation Data Collection** (the current report)

### 1.2 Current Best Practice in Sexual Orientation Data Collection

*Current Best Practice for Sexual Orientation Data Collection* (in the New Zealand context) synthesises best practice evidence in relation to the measurement and data collection issues outlined in *Issues in Sexual Orientation Measurement and Data Collection* (Pega, 2009b). These issues are discussed here and strategies to address them are described in detail, along with the respective evidence bases. Recommendations for sexual orientation data collection in the New Zealand context are made on the basis of this review of current evidence and practice (both in New Zealand and internationally). Furthermore, the document specifies areas where a best practice is not available or is relatively untested, so further research is required.

*Current Best Practice in Sexual Orientation Data Collection* is intended as a companion document for *Issues in Sexual Orientation Measurement and Data Collection* (Pega, 2009b), which provides a detailed review of the relevant evidence. It is further intended that *Current Best Practice in Sexual Orientation Data Collection* will be used to inform the development of a set of statistical standards or guidelines for sexual orientation.
2 Sexual orientation data collection in official statistics

This chapter introduces the Official Statistics System (OSS) of New Zealand and defines statistics and surveys. It then describes Statistics New Zealand’s current consideration of sexual orientation as a potential official social statistic, followed by a discussion of the requirements and constraints of the OSS. Finally, the collection of official sexual orientation data in New Zealand and other countries is reviewed.

2.1 New Zealand’s Official Statistics System

The government has a responsibility to provide official statistics and to maintain their long-term sustainability. Production of official statistics is guided mainly by the Statistics Act of 1975. However, the Privacy Act of 1993, the Official Information Act of 1982, and the Public Records Act of 2005 also have implications for the collection and dissemination of statistical information. The United Nations Fundamental Principles of Official Statistics of 1994 is another key source of guidance.

Statistics New Zealand “leads New Zealand’s Official Statistics System. It has primary responsibility for the collection, processing, maintenance, quality assurance, analysis, and dissemination of social, economic and environmental statistics”. While about seventy agencies, including the Ministry of Social Development and the Ministry of Health, provide official statistics, the majority are produced by Statistics New Zealand. The Ministry of Social Development “has primary responsibility for the collection and dissemination of statistics on the payment of New Zealand superannuation and a range of income support and employment services. It also administers databases on student allowances and loans, veterans and war pensions, and a range of subsidies”. The Ministry of Youth Development and the Office for Disability Issues (both contained within the Ministry of Social Development) also contribute official statistics. The Ministry of Health “is the government’s principal agent and adviser on health and disability” and is one of the larger providers of official statistics.

Following the review of New Zealand’s Official Statistics System (OSS) in 2005, a portfolio of key official statistics (known as Tier 1 statistics) that are, “important in their own right and, consequently, need to be produced, analysed and released to high statistical standards” was identified. Principles and protocols were developed to ensure these Tier 1 statistics were of a high standard and met legal requirements. These protocols have been promulgated to government departments and require that Tier 1 statistics:

- are essential to government decision making
- are of high public interest
- need to meet public expectations of impartiality and high statistical quality
- require long-term continuity of data
- provide international comparability in a global environment or meet international statistical obligations
- align with Tier 1 statistics principles and protocols

48 Unless otherwise noted, all information contained in sections 2.1 and 2.2 has been taken directly from the following Statistics New Zealand website: www.statisphere.govt.nz
Official statistics provide information for government departments (and others) to use in policy making decisions, as well as measures of New Zealand’s, “economic, social and environmental situation”. In practical terms, official statistics are used to, “inform debate, research and decision making” processes.

2.2 Statistics and surveys

Official statistics are defined in Section 2 of the Statistics Act 1975 as statistics derived by government departments from:

- statistical surveys
- administrative and registration records, and other documents from which statistics are, or could be, derived and published regularly

Official statistics are all statistics produced by government departments and can be collected through surveys or compiled from administrative records collected by government agencies in their daily work. Official statistics are valued for their relevance, integrity, quality, coherence, and accessibility. Considerations such as efficiency (of the official statistics agency), protection of respondent information (ie, privacy, confidentiality, data storage), and minimisation of respondent load (eg, data are collected only when the expected benefits of a survey exceed the cost to providers) are also important. Maximising use of existing sources of information and international participation in statistical developments are encouraged.

A statistical survey is defined in the Statistics Act as, “a survey of [...] the public of New Zealand, whereby information is collected from all persons in a field of inquiry or from a sample, by a Government Department [...] for the purpose of processing and summarising by appropriate statistical procedures and publishing the results of the survey in some statistical form”.

The following report refers to ‘official’ surveys, as well as to ‘probability’ and ‘non-probability’ surveys. By ‘official surveys’ we mean any survey undertaken by or on behalf of the OSS. By ‘probability survey’ we mean any survey in which every member of a sample population (eg, same-sex oriented women or gay identified men) has the same opportunity to participate and is randomly selected from the sample population. By ‘non-probability’ survey we mean any survey in which a sampling strategy is applied such that a selection of individuals within the population of interest does not have an equal opportunity to participate.

2.3 Sexual orientation as a potential official social statistic

The potential for inclusion of sexual orientation as an official social statistic is being considered by Statistics New Zealand under the Programme of Official Social Statistics (POSS)\(^49\). POSS aims to develop the capability to provide quality statistics on social well-being outcomes across the following domains: population, housing, safety and security, economic standard of living, knowledge and skills, health, paid work, culture and identity, social connectedness, human rights, and physical

environment. Sexual orientation is considered under the Review of Culture and Identity Statistics.  

A 2008 Statistics New Zealand discussion paper was published as “a first step to evaluate the need for statistics about the gay, lesbian and bisexual (GLB) population in the context of the Official Statistics System on sexual orientation” and “prior to the consultation process for the Review of Cultural Identity Statistics” (p. 4). In this discussion paper, Statistics New Zealand scoped available information on populations defined by sexual orientation, reviewed information needs related to sexual orientation (falling into the three broad areas of enumeration, social wellbeing, and discrimination), and discussed key measurement issues, particularly those relating to concepts and the technical feasibility (ie, population size, mode, and public acceptability). Key recommendations included:

- monitoring statistical developments in the collection of GLB [gay, lesbian, and bisexual] data internationally
- collaborative investigation of some of the identified methodological issues
- production of a GLB analytical report that brings together existing data to establish better information and to evaluate current data quality.

(text in brackets added; SNZ, 2008, p. 4).

Statistics New Zealand actively supports research into methodological issues pertaining to conceptual, measurement, and data collection issues (such as the SODCS) and views this work as a necessary step in the consideration of sexual orientation as a potential official social statistic (SNZ, 2008). It was envisaged that the SODCS would begin to address some of the areas for further work indicated by the Statistics New Zealand (2008, p. 13) analysis of sexual orientation as a statistical topic:

1. Document and prioritise GLB information needs (relative to other information needs) across government as part of the Review of Cultural Identity Statistics.

2. Investigate the production of a GLB analytical report using existing data in order to make current information more available and to evaluate current data quality.

3. Support or directly undertake research into the identified methodological issues.

4. Monitor work on the topic by the Ministry of Social Development and the Ministry of Health, most notably the results from the Mental Health Survey and the Sexual Health Survey.

5. Continue to monitor international work and look at the potential to collaborate with other national statistical offices.

2.4 OSS social statistics requirements

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In order for sexual orientation to become an official statistic it must meet the requirements and standards of the OSS. Statistics New Zealand has formulated specific criteria for determining the suitability of a potential statistic for inclusion in the OSS. In the words of Statistics New Zealand, “Official social statistics must be relevant by providing information that meets user needs in coverage, content and detail. More specifically, official statistics must inform decision making relating to New Zealand’s social well-being. To achieve this, the official statistics must:

- address enduring issues of widespread interest to Government departments,
- local authorities, businesses, and to the general public
- be useful for improving knowledge about New Zealand's population
- inform decision making relating to New Zealand's social well-being
- provide an accurate reflection of the population of interest
- provide information that will help inform and evaluate policy
- be a trusted source
- be publicly acceptable
- be accurate and of high quality”

(SNZ, 2008, pp. 5-6).

There are a range of OSS constraints relevant to sexual orientation data collection. The OSS is required to consider the temporal and psychological burden that the inclusion of sexual orientation questions in official probability surveys will place on survey respondents. The OSS faces financial constraints requiring it to balance the need for the collection of sexual orientation data against the need for collection of data on other topics. The OSS is also required to collect concepts which span cultural understanding.

2.5 Sexual orientation concepts and information needs

In terms of the application of sexual orientation data, several government agencies have identified data needs relating to sexual orientation in three broad categories: enumeration, social well-being, and discrimination, Statistics New Zealand, in particular, has discussed the different information needs in some detail. Consumers of official statistics, such as researchers and non-governmental organisations, have identified similar data needs, particularly around enumeration and social well-being.

Although there has been little scientific discussion to date concerning which concepts of sexual orientation are most applicable to specific information needs, general predictions can be made about which sexual orientation measurement concepts will fulfil key information needs identified for New Zealand.

2.5.1 Enumeration

Information on enumeration of populations defined by sexual orientation requires that data on all three key concepts of sexual orientation (i.e., sexual attraction, sexual behaviour, and sexual identity) are obtained, as these describe discrete dimensions of sexual orientation and the data obtained will differ across the population groups. Based on previous findings, measures of sexual attraction are likely to result in the largest count of sexual minority respondents in any given survey. Sexual behaviour questions, in turn, are likely to identify a larger number of sexual minority
respondents than are sexual identity questions. Because the nature of the inter-relationships between the concepts that make up sexual orientation is not yet fully understood, it is not possible to make reliable inferences about a particular sexual orientation population group (e.g., same-sex sexual attraction) from a population group defined by another concept of sexual orientation (e.g., same-sex sexual behaviour, or same-sex sexual identity). That is, it would be erroneous to expect that individuals will respond to all three measures of sexual orientation in a consistent manner, when in actuality a significant proportion of individuals do not. The expectation that responses will be similar for an individual belies an inaccurate assumption and in fact attraction, behaviour, and identity frequently differ. Thus, data obtained from a measure assessing one particular concept of sexual orientation cannot be used to infer data obtained from other key concepts of sexual orientation.

2.5.2 Discrimination
Information needs related to discrimination on the basis of sexual orientation are likely to be most appropriately met through data collected on sexual identity; particularly, considering that populations who have adopted a stigmatised sexual identity are the sexual minority groups most likely to be discriminated against in areas such as employment and housing. However, people who engage in same-sex sexual activities, and to a lesser degree those with same-sex sexual attractions, may also be the target of discrimination and harassment, if their sexual behaviour or sexual attraction becomes known to others, indicating a potential need for data on sexual attraction and sexual behaviour.

2.5.3 Social well-being and health
Information relating to social well-being of populations defined by sexual orientation is likely to require measurement of sexual attraction, sexual behaviour, and sexual identity. Key information needs in relation to social well-being may include information on mental and sexual health variables, as well as on socio-economic inequalities. Measurement of all three sexual orientation concepts will be required in order to obtain accurate information pertaining to mental health issues such as suicidality, substance use, and depression. One study comparing the utility of sexual identity measures versus sexual behaviour measures in research on alcohol use and alcohol-related problems concluded that measures of both concepts were required. Information needs in the area of sexual health, such as the need for sexual orientation information related to the HIV and AIDS epidemics and sexually transmitted diseases, requires measurement primarily of sexual behaviour and sexual identity. Information on inequalities in socio-economic domains, such as education, occupation, and income, by sexual orientation is likely to require sexual identity data.

2.5.4 Summary
This brief overview of how the three broad categories of information needs identified by producers and consumers of official statistics could be expected to relate to the three key measurement concepts of sexual orientation shows that collection of data on all three concepts is necessary in order to fully address the identified information needs. In other words, no single measurement concept can provide information that will sufficiently address all information needs concerning sexual orientation. However, it has also been shown that collection of data on any of the three concepts relating to sexual orientation will provide valuable data that can be used to address specific information needs identified by producers and consumers of official statistics.

2.6 Official sexual orientation data collection
The collection of direct sexual orientation data through official statistics systems is still in its formative stages. Currently Statistics New Zealand and official statistics agencies in other countries do not include sexual orientation questions in their population censuses. However, Statistics New Zealand is one of several official statistics agencies which have commenced investigating the feasibility of including a sexual orientation question in their census.

Statistics New Zealand and official statistics agencies in several other countries (eg, Australia, Canada, Ireland, Spain, United Kingdom, United States, Uruguay) have collected indirect sexual orientation data (ie, data on same-sex relationships or same-sex cohabitation) through their population censuses. These census data on same-sex couples have been widely used, although their capacity to yield robust information on sexual orientation is limited.

2.6.1 Sexual orientation data collection in New Zealand
The OSS has started collecting direct sexual orientation data through probability surveys. For example, the Ministry of Health collected sexual orientation data in the Health Behaviours Surveys on drug use in 2003, and alcohol use in 2004, as well as in Te Rau Hinengaro – The New Zealand Mental Health Survey (2006).

2.6.2 Sexual orientation data collection in other countries
Official statistics systems in several countries have collected direct sexual orientation data in official probability surveys, predominantly official health surveys, for some time. The United States Department of Health and Human Services and Department of Justice were the first producers of official statistics to include sexual orientation questions in their surveys. The official statistics system in the United States has now collected sexual orientation data in more than 35 surveys, starting with sporadic collections in the early 1990s and leading up to regular collections since 2000.

Statistics Canada has collected sexual orientation data in official health surveys in 2003 and 2005, after initial pre-testing was carried out in 2002. The United Kingdom Office for National Statistics is collecting sexual identity data in the Integrated Household Surveys (IHS; six large-scale household surveys) following completion of the Sexual Identity Project which ran from 2006 to 2008, and involved the systematic development, testing, and trialling of a sexual identity question for inclusion in official surveys. Statistics Norway is currently developing a sexual orientation question suitable for use in official surveys.

2.7 Principal recommendations
1. Collect official sexual orientation data in order to inform the development of appropriate policies and strategies for sexual minority populations.
2. Collect data on sexual attraction, sexual behaviour, and sexual identity wherever possible, given real-world constraints.
3. Collect data on all three sexual orientation concepts (sexual attraction, sexual behaviour, and sexual identity) to address information needs relating to enumeration.
4. Collect sexual identity data in order to address information needs relating to discrimination.
5. Collect data on all three sexual orientation concepts (sexual attraction, sexual behaviour, and sexual identity) to address information needs relating to social well-being.

6. Undertake further research into cultural perspectives on sexual orientation (particularly for Māori, Pacific, Asian, and potentially youth population groups) to ensure that sexual orientation spans cultural understanding.

(For a full review of the evidence base and a list of more detailed recommendations see Issues in Sexual Orientation Measurement and Data Collection, Chapter 2: Sexual orientation data collection in official statistics; Pega, 2009b, pp. 17-24).
3 Defining sexual orientation – conceptual framework overview

This chapter summarises the Sexual Orientation Conceptual Framework (Pega, 2009a) developed by the SODCS. The Sexual Orientation Conceptual Framework describes how cultural and gender-related perspectives frame the conceptualisation of sexual orientation, discusses the conceptual dimensions of sexual orientation, and proposes working definitions of the key sexual orientation concepts.

3.1 Culture and gender-related frames of sexual orientation

At the broadest conceptual level, both culture and gender frame the way in which sexual orientation is conceptualised. In terms of culture, Māori, New Zealand European, Pacific, Asian, and other cultural paradigms differ with respect to their conceptualisation of sexual orientation, and these cultural dimensions have implications for the collection of sexual orientation data. Sexual orientation concepts have been in use by Māori both in contemporary times and historically, with takatāpui (wahine, tāne) being a sexual identity specific to Māori. New Zealand Europeans are familiar with sexual orientation as a concept and frequently adopt common Western sexual identity labels. In general terms, amongst Pacific Peoples, while sexual orientation might not be a familiar concept, same-sex behaviour is relatively common amongst some young, unmarried men and there are social identities related to male same-sex sexual relationships (eg, the fa'afafine of Samoa). People from Asian backgrounds might also not traditionally have an equivalent sexual orientation concept although segments of this population engage in same-sex behaviour. As in other life domains, new migrants tend to adopt the sexual orientation concepts of the host culture; however, this depends on several factors including country of origin, and level of acculturation to the host culture. As these examples illustrate, cultural conceptualisations of sexual orientation vary widely and need to be taken into careful consideration.

Dimensions such as gender, gender role, sex role, and gender identity also impact on the conceptualisation of sexual orientation by various groups. For example, there are gender differences in how men and women conceptualise sexual orientation, and adherence or non-adherence to gender-typical roles can influence on conceptualisations of sexual orientation, for example amongst Pacific males. Similarly, amongst some groups (such as Pacific males) a deciding factor for the conceptualisation of sexual orientation is whether an individual takes an active or passive role during (same-sex) sexual behaviour. Finally, gender identity is an important factor with respect to the conceptualisation of sexual orientation, with transgender people conceptualising their sexual orientation to others in relation to either their biological sex or their gender identity.

3.2 Conceptual dimensions of sexual orientation

3.2.1 Key measurement concepts of sexual orientation

There are several key conceptual dimensions of sexual orientation. First, there is widespread consensus that the umbrella concept of sexual orientation encompasses three key concepts: sexual attraction, sexual behaviour, and sexual identity. Other concepts such as sexual fantasy or sexual desire are sometimes used to describe aspects of sexual orientation, but are not central to the conceptualisation of sexual orientation for official purposes.

While at first glance it may appear that one concept (eg, sexual identity) could be inferred from another (eg, sexual behaviour), this is in fact not the case, and
individuals often do not respond consistently across these three domains. For example, while many women who have sex with women identify as lesbian or bisexual, some identify as heterosexual. The multi-component nature of sexual orientation has implications for measurement in that it means that no single measure can accurately differentiate populations defined by three key different measurement concepts.

3.2.2 Sexual orientation as a continuum
A second conceptual issue which has implications for the measurement of sexual orientation is the notion of sexual orientation as a continuum rather than as a set of mutually exclusive categories. First, discussions about definitional and classification criteria for both-sex oriented populations have advanced the field to understand sexual orientation as continuous, rendering dichotomous (heterosexual/homosexual) or other simple categorisation schemes inaccurate or even meaningless. Conceptualisation of sexual orientation as a continuum, allows for greater flexibility and inclusiveness. For example, asexuality (ie, absence of sexual attraction) can be included as an extension of the sexual orientation continuum.

3.2.3 The fluidity of sexual orientation
Finally, the notion that sexual orientation can be fluid over time and social context is discussed. There is growing evidence of changes of sexual orientation over time and social context and these can result in significant sexual orientation fluidity (in much the same way that ethnicity can be fluid). Several phenomena and processes explain and underlie fluidity of sexual orientation. First, differing levels of certainty about one's sexual orientation and differences in the extent of sexual orientation exploration are two factors that can result in changes in sexual orientation over time. Second, there are individuals who choose not to label their sexual orientation, challenging traditional sexual orientation categories. Third, some individuals adopt an alternative socio-political sexual identity (eg, 'queer') rendering classification norms and rigid classifications of sexual orientation inaccurate. Fourth, the emergence of new sexual orientation categories, particularly amongst dynamic youth populations, indicate increasing fluidity of sexual orientation (and increasing social acceptability of this), along with a blending of sexual orientation, gender, gender identity, and gender role dimensions.

3.3. Working definitions: sexual orientation topic and key measurement concepts
Given that the umbrella concept of sexual orientation is defined by three key measurement concepts, we propose that sexual orientation should be treated as a statistical topic, with three measurement concepts: sexual attraction, sexual behaviour and sexual identity. The following working definitions for the statistical topic of sexual orientation and the associated measurement concepts are proposed:
Table 1: Proposed working definitions for the sexual orientation statistical topic and the associated measurement concepts (sexual attraction, sexual behaviour, and sexual identity)

<table>
<thead>
<tr>
<th>Statistical Topic</th>
<th>Proposed Working Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual Orientation</td>
<td>Sexual orientation is defined by three key concepts: sexual attraction, sexual behaviour, and sexual identity. The relationship between these components is that sexual orientation is based upon sexual attraction and that sexual attraction can result in various sexual behaviours and the adoption of sexual identities. The three key concepts are related, but not necessarily congruent continuous variables, each of which can independently change over time and by social context.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measurement Concept</th>
<th>Proposed Working Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual Attraction</td>
<td>“Attraction towards one sex or the desire to have sexual relationships or to be in a primary loving, sexual relationship with one or both sexes” (Savin-Williams, 2006, p. 41)</td>
</tr>
<tr>
<td>Sexual Behaviour</td>
<td>“Any mutually voluntary activity with another person that involves genital contact and sexual excitement or arousal, that is feeling really turned on, even if intercourse or orgasm did not occur” (Laumann et al., 1994, p. 67)</td>
</tr>
<tr>
<td>Sexual Identity</td>
<td>“Personally selected, socially and historically bound labels attached to the perceptions and meanings individuals have about their sexuality” (Savin-Williams, 2006, p. 41)</td>
</tr>
</tbody>
</table>

3.4 Principal recommendations

1. Adopt sexual orientation as a statistical topic.

2. Adopt sexual attraction, sexual behaviour, and sexual identity as the three key measurement concepts of the sexual orientation topic.

3. Take cultural perspectives on sexual orientation into account whenever sexual orientation data are being collected. This particularly refers to Māori perspectives as well as those of Pacific and Asian Peoples. Youth perspectives also need to be taken into consideration.

4. Take gender perspectives on sexual orientation as described in the Sexual Orientation Conceptual Framework into account whenever sexual orientation data are collected.

5. Clearly state reporting frames for sexual orientation questions in questions (eg, in the last year, ever).
6. Recognise the three sexual orientation measurement concepts (sexual attraction, sexual behaviour, and sexual identity) as being conceptually distinct.

7. Always measure the sexual attraction, sexual behaviour, and sexual identity measurement concepts in separate questions and never combined in one question.

8. Measure sexual attraction using a five-point semantic-differential scale, using following response categories: ‘only attracted to females’, ‘mostly attracted to females’, ‘equally attracted to females and males’, ‘mostly attracted to males’, ‘only attracted to males’.

9. Add response categories to enable individuals who are asexual or uncertain about their sexual attraction to respond accurately (ie, ‘never felt attracted to anybody at all’ and ‘unsure’).

10. Measure sexual behaviour using at least the generally accepted four response categories of sexual behaviour (ie, ‘exclusively same-sex sexual behaviour’, ‘sexual behaviour with men and women’, ‘exclusively opposite-sex sexual behaviour’, and ‘no sexual behaviour’). Consider further differentiated categories, if sexual behaviour is understood as continuous.


12. Further investigate whether the ‘fa’afafine’ concept also needs to be included, as this concept may or may not constitute a robust sexual orientation concept.

13. Consider adding an ‘uncertain’ category for survey respondents who are uncertain of their sexual identity.

14. Conduct research on
   - Māori preferences for sexual identity categories
   - Pacific people’s conceptualisations of sexual orientation, including the Samoan fa’afafine concept
   - Asian conceptualisations of sexual orientation
   - transgender individuals’ conceptualisations of sexual identity, basis for responding to questions around sexual attraction, sexual behaviour, and sexual identity; and how sexual attraction to and behaviour with transgender people would be conceptualised by potential survey respondents
   - the conceptualisation of asexuality.

15. Adopt the working definitions for sexual orientation, sexual attraction, sexual identity, and sexual behaviour (p. 25) as being conceptually sound and appropriate.

(For a full review of the evidence base and a list of more detailed recommendations see Sexual Orientation Conceptual Framework; Pega, 2009a)
4 Question design

4.1 Question format

4.1.1 Preambles and enhanced items
There is currently limited evidence on the use of preambles and enhanced items for sexual attraction, sexual behaviour, and sexual identity questions. Preambles to sexual attraction, sexual behaviour and sexual identity questions can be used for a range of purposes:

- to introduce and explain the rationale for the question (eg, ‘Information from this question will be used for the purpose of…’)
- to remind survey respondents of the confidentiality of their response (eg, ‘As I said at the beginning of the interview, everything you say is confidential.’)
- to list response categories to familiarise the respondent with the available options (eg, ‘The options I am going to read out are…’)
- to help make the transition from other topics

Enhanced items. Enhanced items can serve to motivate sexual minority respondents to disclose their minority sexual orientation and remind them of past sexual attractions, sexual behaviours, or sexual identities (eg, ‘In past surveys many men/women have reported that in some point in their life they have had some type of sexual attraction to another male/female; sexual contact with another male/female; identified as gay, lesbian, bisexual or another sexual identity other than heterosexual. This could have happened before adolescence, during adolescence, or as an adult.’).

Advantages and disadvantages. The potential advantage of using preambles, or enhanced items, is that these can include statements designed to reduce the sensitivity and perceived threat level of the question. Positive effects of preambles can include increasing question acceptability and, in turn, eliciting higher rates of disclosure of same-sex sexual attractions, sexual behaviours, and sexual identities, and higher response rates to sexual orientation items. Potential disadvantages include the possibility of increasing respondent burden and survey costs through increasing item (and therefore survey) length.

There is emerging evidence on the combined effects of the potential advantages and potential disadvantages of preambles and/or enhanced items for sexual orientation questions on acceptability, misreporting, and non-response rates. Testing of preambles to sexual identity questions in official United Kingdom surveys concluded that preambles were not necessary as they did not increase response rates and made sexual identity questions stand out unnecessarily. The OSS collected sexual orientation data, using sexual orientation questions with and without preambles, but has never used enhanced items.

Given the limitations of the available evidence it is difficult to determine, whether preambles and enhanced items should be used in official sexual attraction and sexual behaviour questions. However, based on the evidence from the United Kingdom Office for National Statistics it is our view that preambles are not required in
official sexual identity questions; the possible usefulness of enhanced sexual identity items requires further investigation.

4.1.2 Proposed preliminary questions
Proposed preliminary sexual attraction, sexual behaviour, and sexual identity questions have been developed by the SODCS on the basis of:

- provisions made in the Sexual Orientation Conceptual Framework (Pega, 2009a)
- the findings of research on question development and the conclusions drawn from this evidence, as reported in the Issues in Sexual Orientation Measurement and Data Collection report (Pega, 2009b)
- pre-testing of the question with a small number of takatāpui, fa’afafine, lesbian, gay, and bisexual people as well as producers and consumers of official statistics (see Summary of Findings of Focus Groups and Interviews; Pega, 2009c).

The proposed preliminary sexual attraction, sexual behaviour, and sexual identity questions are shown in two formats, one for use in face-to-face interviews using concealed showcards, and one for use in telephone interviews - these being the recommended survey modes for the collection of sexual orientation data (see Issues in Sexual Orientation Measurement and Data Collection; Chapter 10: Survey mode; Pega, 2009b, pp. 101). All proposed preliminary questions adopt the well-tested formats developed and implemented by the Office for National Statistics. Definitions for terms used in the response categories should be available to the survey administrator for the purpose of answering ad hoc questions, but should not be provided otherwise.

There is currently limited evidence from research that has specifically explored the design of official sexual attraction and sexual behaviour questions for implementation in surveys. However, there is a considerable body of conceptual, methodological, and empirical research that can be drawn on to design sexual attraction and sexual behaviour questions for inclusion in official surveys.
The proposed preliminary sexual attraction question for use in OSS surveys is:

In personal interviews:

**ASK ALL AGED 16 OR OVER**  
INTERVIEWER: Allocate all cards, then ask the question to all  
[NAME] SHOWCARD 1, [NAME] SHOWCARD 2, [NAME] SHOWCARD 3 etc  

**Which of the options on this card best describes how you presently consider yourself to be? Please just read out the letter next to the description.**  
(ONLY IF CONCURRENT INTERVIEW)  
The letters on each card are different for each person  
(letter) only attracted to females  
(letter) mostly attracted to females  
(letter) equally attracted to females and males  
(letter) mostly attracted to males  
(letter) only attracted to males  
(letter) never felt attracted to anybody at all  
(letter) unsure  
(Spontaneous DK/Refusal)

In telephone interviews:

**ASK ALL AGED 16 OR OVER**  
I will now read out a list of terms people sometimes use to describe how they presently consider themselves to be.  
(INTERVIEWER: read list to end without pausing.  
only attracted to females  
mostly attracted to females  
equally attracted to females and males  
mostly attracted to males  
only attracted to males  
ever felt attracted to anybody at all  
unsure  
(Spontaneous DK/Refusal)  
As I read the list again please say ‘yes’ when you hear the option that best describes how you presently consider yourself to be.  
(INTERVIEWER: Pause briefly after each option during second reading.)

The proposed preliminary sexual behaviour question for use in OSS surveys is:

In personal interviews:

**ASK ALL AGED 16 OR OVER**  
INTERVIEWER: Allocate all cards, then ask the question to all  
[NAME] SHOWCARD 1, [NAME] SHOWCARD 2, [NAME] SHOWCARD 3 etc  

**Which of the options on this card best describes who you have had sex with during the last 12 months? Please just read out the letter next to the description.**  
(ONLY IF CONCURRENT INTERVIEW)  
The letters on each card are different for each person  
(letter) only with males  
(letter) only with females  
(letter) with both males and females  
(letter) not had sex during last 12 months  
(Spontaneous DK/Refusal)

In telephone interviews:

**ASK ALL AGED 16 OR OVER**  
I will now read you a list of terms people sometimes use to describe who they have had sex with during the last 12 months?  
(INTERVIEWER: read list to end without pausing.  
only with males  
only with females  
with both males and females  
not had sex during last 12 months  
(Spontaneous DK/Refusal)  
As I read the list again please say ‘yes’ when you hear the option that best describes who you have had sex with during the last 12 months.  
(INTERVIEWER: Pause briefly after each option during second reading.)
**Preliminary sexual identity question.** There is a considerable body of evidence from the United Kingdom on the design of sexual identity questions for inclusion in official surveys. The Office for National Statistics developed a sexual identity item for use in computer-assisted personal interviewing (CAPI) with concealed showcards, and another for use in computer-assisted telephone interviewing (CATI). The question stem for the Office for National Statistics sexual identity question is well-tested and appears to fulfil OSS requirements. Few challenges would be expected in transferring the Office for National Statistics question format to the New Zealand context.

**Cultural considerations.** While the Office for National Statistics sexual identity question response categories are applicable in the New Zealand context, additional consideration will need to be given to culture-specific sexual identity concepts used by sizeable populations in New Zealand (eg, the Māori concept of takatāpui, and the Samoan concept of fa’afafine). On the basis of the existing evidence, we propose that both the takatāpui and fa’afafine concepts are added to the response categories used in the Office for National Statistics sexual identity questions; however, the addition of these culture-specific sexual identity concepts needs to undergo testing. Alternatively, the OSS might want to consider the use of an additional question to be administered to people reporting Māori ethnic identity, asking about the takatāpui concept, and to people reporting Samoan ethnic identity, asking about the fa’afafine concept.

Conceptual research suggests that takatāpui is a sexual identity concept. Conceptual research on fa’afafine identity is only emerging and suggests that fa’afafine might not relate to sexual identity exclusively. This is why more conceptual research on fa’afafine identity is required (see Chapter 3: Defining sexual orientation – conceptual framework overview, p. 24). An additional issue for consideration is that robust classification systems comprise mutually exclusive categories, a condition these response options do not meet (eg, an individual could conceivably identify as both ‘gay’ and ‘fa’afafine’). Statistics New Zealand’s Standards and Classifications Team should be involved in the development of relevant classifications by official agencies.

Further investigation of the inclusion of minority Pacific sexual identities (in addition to fa’afafine) and of the potential impact of a Samoan-specific category, with no other Pacific categories, might have on the attitudes of other Pacific people towards the survey (including an adverse impact on completion rates) is also required.
The proposed sexual identity question for use in OSS surveys is:

In personal interviews:

<table>
<thead>
<tr>
<th>ASK ALL AGED 16 OR OVER</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERVIEWER: Allocate all cards, then ask the question to all</td>
</tr>
<tr>
<td>[NAME] SHOWCARD 1, [NAME] SHOWCARD 2, [NAME] SHOWCARD 3 etc</td>
</tr>
</tbody>
</table>

**Which of the options on this card best describes how you think of yourself?**

*Please just read out the letter next to the description.*

*(ONLY IF CONCURRENT INTERVIEW)*

**The letters on each card are different for each person.**

(letter) Heterosexual or Straight
(letter) Gay or Lesbian
(letter) Bisexual
(letter) Takatāpui
(letter) Fa’aafafine
(letter) Other

(Spontaneous DK/Refusal)

In telephone interviews:

<table>
<thead>
<tr>
<th>ASK ALL AGED 16 OR OVER</th>
</tr>
</thead>
<tbody>
<tr>
<td>I will now read out a list of terms people sometimes use to describe how they think of themselves.</td>
</tr>
</tbody>
</table>

*(INTERVIEWER: read list to end without pausing.)*

Note that ‘Heterosexual or Straight’ is one option; ‘Gay or Lesbian’ is one option.

Heterosexual or Straight
Gay or Lesbian
Bisexual
Takatāpui
Fa’aafafine
Other

(Spontaneous DK/Refusal)

**As I read the list again please say ‘yes’ when you hear the option that best describes how you think of yourself.**

*(INTERVIEWER: Pause briefly after each option during second reading.)*

It is our recommendation that the OSS use these preliminary sexual attraction, sexual behaviour, and sexual identity questions as a starting point for further development and refinement. Such development would include providing OSS stakeholders with the opportunity to review and agree to the questions, as well as the related statistical classifications for sexual attraction, sexual behaviour, and sexual identity. Final sexual attraction, sexual behaviour, and sexual identity question formats would best be designed through the standard Statistics New Zealand process of developing a topic specification to inform the question, in conjunction with a full programme of cognitive testing.

### 4.2 Question testing

In line with standard practice, when new items are introduced in official surveys, these sexual orientation questions should be tested using cognitive testing and pilot testing with interviewer feedback. Testing should target high-interest populations; for example, individuals of different minority sexual orientations and groups identified as likely to be less accepting of collection of official sexual orientation data. These include members of the following groups:

- takatāpui, fa’aafafine, lesbian, gay, bisexual, and other sexual minority people (high interest population)
- Pacific people
- people from strongly religious backgrounds
- older people
• rural people, and
• those seeing minority sexual orientations as the signs of a decline in New Zealand’s social and family values.

These questions should also be tested with sizeable ethnic groups, such as Māori, Samoan, Asian, and New Zealand Europeans and the results used to inform development of data collection. Results from the testing should be shared amongst producers of official statistics, as well as with consumers of official statistics.

4.2.1 Mandatory responding
Another area for consideration is the notion of mandatory participation, given that survey participants will be required by law to answer sexual orientation questions if these are included in official surveys. The recommended preliminary sexual attraction, sexual behaviour, and sexual identity questions do not include a ‘prefer not to answer’ option that enables survey respondents to opt out of the question, mainly because the United Kingdom Office for National Statistics found that such an option led to higher rates of non-response than if this response category was omitted. The recommended preliminary questions contain an instruction for survey administrators to record spontaneous ‘don’t know’ responses and refusals according to Statistics New Zealand standard procedures. However, given the Statistics New Zealand environment of mandatory participation, the OSS needs to consider having a category such as ‘prefer not to say’. This issue needs further research in the New Zealand context in order to better understand the impact of mandatory survey participation and the inclusion or non-inclusion of a ‘prefer not to answer’ response category on the accuracy of population estimates.

4.2.2 Minimum age of respondents
Another important area that requires testing is the minimum age of a respondent at which sexual orientation questions can be administered. As shown above, the Office for National Statistics administers sexual identity questions to all survey respondents 16 years or over. As Sexual Orientation Data in New Zealand Surveys – Technical Report (Gray, 2009) has shown, in OSS surveys sexual orientation questions have generally been administered to respondents aged 18 or older. However, it is recommended that the preliminary sexual orientation questions are tested with respondents aged 16 or over.

4.3 Question order

If a suite of sexual attraction, sexual behaviour, and sexual identity questions is implemented, all questions should be asked of all respondents, with no skip patterns established within the set of sexual orientation questions. There is currently no New Zealand and international research on the order in which sexual attraction, sexual behaviour, and sexual identity questions should be administered, if a set of such questions is used. The current lack of research to identify the relative sensitivity of sexual orientation questions makes it difficult to recommend the order in which these questions should be administered. It seems plausible that questions should be administered in increasing order of sensitivity, but there is a need for more research to be conducted in this area.

4.4 Question location

Placement near end of survey. There is emerging international evidence on the effects of question placement on responses to sexual orientation items, but no New
Zealand evidence is currently available. In general, the literature suggests that sensitive question items are best placed at the end of questionnaires, when respondents have already invested time and effort in responding, and are therefore less likely to opt out. However, research has also shown that survey respondents’ motivation to answer questions decreases over the course of an interview, which might lead to higher item non-response for questions placed at the end of questionnaires. If placed at the end of questionnaires, the response rate for potentially sensitive questions such as those on sexual attraction, sexual behaviour, and sexual identity might therefore be especially challenged, considering that answering such questions might require significant motivation, at least for some respondents.

**Placement with related items.** Findings from international research suggest that sexual attraction, sexual behaviour, and sexual identity questions should not be placed immediately after items which may filter responses in an unintended way. For this reason, sexual attraction, sexual behaviour, and sexual identity questions should not be located close to questions on sexual abuse or religion.

**Office for National Statistics practice.** Office for National Statistics research suggests that official sexual identity questions should be placed amongst questions assessing other core demographic variables (i.e., the core personal questionnaire in social surveys), preferably with questions on similar topics such as gender, marital status, or other social identities. The Office for National Statistics assesses sexual identity as part of the core demographic questions asked on a standard basis in official surveys and this is also likely to be an appropriate procedure for sexual identity (and potentially also sexual attraction and sexual behaviour) questions in OSS surveys.

### 4.5 Principal recommendations

1. **Trial the use of preambles and enhanced items in future testing of the proposed sexual attraction, sexual behaviour, and sexual identity questions and implement any changes as indicated.**

2. **Trial the proposed sexual attraction, sexual behaviour, and sexual identity questions (in CAPI and/or CATI format) and implement any changes as indicated.**

3. **Undertake research to explore cultural conceptualisations of sexual orientation (e.g., takatāpui, fa’afafine) for inclusion in the data classification system.**

4. **Undertake research to identify the order in which sexual attraction, sexual behaviour, and sexual identity questions should be asked if a suite of these questions is administered in order to maximise response rates.**

(For a full discussion of the evidence base and for a list of more detailed recommendations see *Issue in Sexual Orientation Measurement and Data Collection, Chapter 5: Question design*; Pega, 2009b, pp. 34-56)
5 Population size

Population size estimates enable the OSS to assess whether sexual minority populations constitute a sizeable population. Secondly, such figures are required to predict the overall sample size required to obtain a specific sample of sexual minority respondents with a survey of the sample size \( N = x \).

5.1 New Zealand data

The SODCS assessed the potential of current official survey data on sexual orientation to improve estimates of the population size of sexual minority populations, concluding that the available data are unable to provide robust estimates due to measurement and data collection issues (see Sexual Orientation Data in New Zealand Probability Surveys: Technical Report; Gray, 2009). This means that in the absence of robust data from general population surveys, the most robust available prevalence estimates are from the only New Zealand probability samples of sexual minority populations. However, these estimates are limited in that they are from samples of young people only, and not representative of the general population. These figures are also limited in that they generally do not adhere to the conceptual and operational definitions for sexual minority populations developed by the SODCS (see Sexual Orientation Conceptual Framework, Pega, 2009a; and Issues in Sexual Orientation Measurement and Data Collection, Pega 2009b). These estimates are also not adjusted for misreporting and non-responding, meaning that they must be read as the absolute minimum figures for these sexual orientation estimates.

Table 2 (pp. 36-37) lists the prevalence estimates obtained from these New Zealand survey data for sexual attraction, sexual behaviour, and sexual identity, disaggregated by female/male gender, where available. Despite their various limitations (as listed in Table 2), these estimates provide some guidance to the OSS regarding the population size of sexual minority populations. In any case, the current estimates suggest that populations defined by minority sexual attraction, sexual behaviour and sexual identity constitute sizeable groups.

5.2 Developing robust population size estimates from official survey data

The Office for National Statistics is currently engaged in a course of collecting sexual identity data in six large-scale surveys, implementing standard sexual identity questions developed by the Office for National Statistics Sexual Identity Project. Once the Office for National Statistics has collected these sexual orientation data it will be able to develop robust population size estimates from the pooled data sets.

The SODCS presents preliminary sexual attraction, sexual behaviour, and sexual identity questions that could be implemented in official OSS surveys, after further development. This would enable the OSS to follow a similar course of action as the Office for National Statistics for the purpose of collecting high-quality data that can be used to produce robust population prevalence estimates.

5.3 Adjusting prevalence figures for misreporting and non-responding

The OSS is encouraged to take misreporting and non-response phenomena into account when producing population size estimates for sexual minority populations.
Table 2: Prevalence estimates for minority sexual populations from the most robust existing New Zealand data sets

<table>
<thead>
<tr>
<th>Measurement Concept</th>
<th>Year</th>
<th>Authors</th>
<th>Measure</th>
<th>Methodology</th>
<th>Limitations</th>
<th>Prevalence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual attraction</td>
<td>2003</td>
<td>Dickson, et al.</td>
<td>Any lifetime same-sex sexual attraction (operational definition recommended by the Sexual Orientation Conceptual Framework; Pega, 2009a)</td>
<td>Cohort of 1,037 babies born in Dunedin 1972/3 N = 946 (at age 26) CASI (other items surveyed using personal interviews) Ongoing longitudinal study</td>
<td>Limited representativeness Perceived lack of anonymity may affect disclosure Small sample size of sexual minority sub-sample</td>
<td>10.7 24.5</td>
</tr>
<tr>
<td>Sexual behaviour</td>
<td></td>
<td></td>
<td>Any lifetime same-sex sexual attraction (current same-sex or both-sex attraction)</td>
<td></td>
<td></td>
<td>1.6 2.1</td>
</tr>
<tr>
<td>Sexual identity</td>
<td>1999</td>
<td>Fergusson, Horwood, &amp; Beautrais</td>
<td>lesbian, gay or bisexual sexual identity</td>
<td>Cohort 1,265 babies born in Christchurch in 1977 N = 1,007 (at age 21) and N = 967 (at age 25) personal interviews Ongoing longitudinal study</td>
<td>Limited representativeness Personal interview and perceived lack of anonymity may affect disclosure Small sample size of sexual minority sub-sample</td>
<td>2.8a 2.8a</td>
</tr>
<tr>
<td>Sexual identity</td>
<td>Year</td>
<td>Authors</td>
<td>Definition</td>
<td>Sample Size</td>
<td>Sampling Method</td>
<td>Sample Bias</td>
</tr>
<tr>
<td>-----------------</td>
<td>------</td>
<td>---------</td>
<td>------------</td>
<td>-------------</td>
<td>----------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Minority sexual identity</td>
<td>2004</td>
<td>Le Brun, Robinson, Warren, &amp; Watson</td>
<td>Minority sexual identity</td>
<td>N = 9,699 in 133 schools</td>
<td>Target population: youth attending high-school years 9-12</td>
<td>Random sampling M-CASI</td>
</tr>
<tr>
<td>Combination of sexual attraction, sexual behaviour, and sexual identity</td>
<td>2005</td>
<td>Fergusson, Horwood, Ridder, &amp; Beautrais</td>
<td>Any same-sex attraction and/or any same-sex behaviour and/or lesbian, gay or bisexual sexual identity</td>
<td>Cohort of 1,265 babies born in Christchurch in 1977, N = 1,007 (at age 21) and N = 967 (at age 25)</td>
<td>Personal interviews</td>
<td>Ongoing longitudinal study</td>
</tr>
</tbody>
</table>
The SODCS has developed a model for adjusting sexual orientation survey data for misreporting and non-response for use in New Zealand, drawing on existing models, and this is presented in the Sexual Orientation Data in New Zealand Probability Surveys: Technical Report (Gray, 2009, p. 16). This model should be applied to official sexual attraction, sexual behaviour, and sexual identity data to adjust for misreporting and non-responding.

5.4 Principal recommendations

1. Consider sexual minority populations as being sizeable (and therefore significant) populations on the basis of the most robust existing survey data.

2. Engage in a programme of sexual orientation data collection similar to the one conducted by the Office for National Statistics so as to be able to pool data sets from several large-scale official surveys to facilitate the production of robust population size estimates for populations defined by sexual attraction, sexual behaviour, and sexual identity.

3. Adjust figures for misreporting and non-responding, using the model produced by the SODCS.

(For a full discussion of the evidence base and for a list of more detailed recommendations see Issue in Sexual Orientation Measurement and Data Collection, Chapter 6: Population size; Pega, 2009b, pp. 57-73)
6 Demographic distribution

The OSS requires robust information about the demographic distribution of populations defined by sexual attraction, sexual behaviour, and sexual identity for a range of purposes:

- to develop effective disproportionately stratified sampling designs that increase the sample size of sexual minority survey respondents
- to assess the representativeness of a drawn sample of sexual minority respondents
- to explore trends in specific sub-groups over time
- to inform both data analysis and interpretation.

6.1 Demographic profiles

The SODCS has produced a demographic profile of sexual minority populations, compiling the most robust New Zealand and international evidence on sexual minority populations' distributions in terms of age, education, ethnicity, gender, geographic residency, religiosity, and (see Issues in Sexual Orientation Measurement and Data Collection; Pega, 2009b, pp. 74-83). An assessment of the potential of existing official sexual orientation data to produce robust findings on the demographic distribution of sexual minority populations found that these data are not currently fit for use for this purpose (see Sexual Orientation Data in New Zealand Probability Surveys: Technical Report; Gray, 2009).

In summary, the SODCS demographic profile demonstrates that there is conclusive empirical evidence that sexual minority men and women are overrepresented in urban centres, and possibly also micro-clustered within urban boundaries. This empirical evidence is supported by conceptual research supporting the notion that these empirical findings are due to actual differences in population prevalence rather than being due to reporting bias. This information about the geographic distribution of sexual minority men and women is particularly pertinent and could be used by the OSS to design geographically stratified probability sampling approaches that aim to increase the size of sexual minority sub-samples in official surveys.

Demographic information about the age, ethnic, educational, gender, religious, and economic distributions of populations defined by sexual attraction, sexual behaviour, and sexual identity is emerging.

6.2 Principal recommendations

1. Update the demographic profile produced by the SODCS with high-quality sexual orientation data collected in official surveys.

2. Investigate the feasibility of using information about the geographic distribution of sexual minority populations for the purpose of designing disproportionate stratified sampling strategies to enhance the sub-sample of sexual minority respondents.
(For a full discussion of the evidence base and for a list of more detailed recommendations see *Issue in Sexual Orientation Measurement and Data Collection, Chapter 7: Demographic distribution*; Pega, 2009b, pp. 74-83)
7 Sampling

The OSS could collect sexual orientation data either in its general population surveys or, although possibly less feasible, conduct probability surveys of sexual minority populations only.

7.1 General population surveys

Official sexual orientation data are most likely to be collected as part of demographic data collection in OSS surveys where the primary focus of the survey is an area other than sexual orientation. Such surveys would be undertaken using the usual resident population and area units. Official social surveys draw households at random from standard sampling frames of the general population (e.g., census lists, electoral rolls, telephone lists) and then interview either the entire household or selected individuals from within the household. Sexual orientations cannot be identified from these standard sampling frames. This means that sexual minority people would be collected at random from the general population, with the attendant advantages and disadvantages in terms of achieving representative sexual minority sub-samples.

If sexual orientation data are collected in surveys which are not primarily concerned with this area, the available information about the demographic distribution of sexual minority populations could be applied to construct sample frames to ensure oversampling of sexual minority populations (disproportionately stratified sampling), similar to oversampling individuals of Māori in official surveys. Preliminary assessment of the usefulness of disproportionately stratified sampling based on existing New Zealand survey data has not been promising. Nevertheless, in our view improved knowledge about the demographic profile of sexual minority populations will provide further insights to inform the feasibility of using disproportionately stratified sampling approaches in the future.

Screening is a promising sampling strategy for improving the size of sexual minority samples. Telephone screening for sexual minority respondents is feasible, and well-tested screeners are available. While the potential of face-to-face screening has not been systematically investigated to-date, such screening would also be valuable for OSS household surveys, if shown to be feasible. The use of screening methods would lead to mixed-methods surveys, with their concomitant disadvantages; however, these challenges have already been successfully addressed in OSS surveys that have screened for ethnic minorities. Even if targeting or screening is not pursued, pooling of sexual minority samples drawn as part of general population surveys can be carried out to achieve a large enough sample size to ensure sufficient power for statistical analyses.

7.2 Surveys of sexual minority populations

The following steps need to be taken (in the order presented) for probability-sampling of populations defined by sexual orientation:

Step 1: Define the target population conceptually and operationally
Step 2: Identify or construct appropriate sample frames
Step 3: Determine the required sample size
Step 4: Develop a suitable sampling strategy
Step 5: Draw a probability sample
Step 6: Calculate sampling and non-sampling error
The next sections provide an overview of population sampling for groups defined by sexual orientation, primarily sexual minority populations.

### 7.2.1 Survey population
Conceptual and operational definitions have been provided elsewhere (see *Sexual Orientation Conceptual Framework*, Pega, 2009z; and *Issues in Sexual Orientation Measurement and Data Collection*, Pega, 2009b). However, these need to be checked periodically to ensure their continued suitability and to confirm there is an acceptable match between contemporary practice documents and preferred terminology.

### 7.2.2 Sample frames
There are a few sampling frames that contain information on sexual orientation. These include:

- civil union registers (inferred), and
- staff or customer lists that can be retrieved from private agencies that assess the sexual orientation of their staff or their customers.

However, these sampling frames carry significant biases, which likely make them unsuitable for use in the OSS. Also, in common sampling frames of the general population (e.g., census lists, electoral rolls, telephone lists) sexual orientation is not usually identifiable.

However, once robust demographic information about the demographic distribution of sexual minority populations is available (see *Chapter 5: Demographic distribution*, p. 39), this information can be used to construct sample frames that are representative of these populations in terms of demographic distributions.

### 7.2.3 Sample size
The SODCS (Alistair Gray, personal communication) has come to the conclusion that the current lack of reliable prevalence data on populations defined by sexual orientations in New Zealand makes it difficult to confidently estimate the sample size required to obtain a sufficient minimum target sub-sample of sexual minority respondents. However, while robust estimates cannot currently be made, the prevalence rate for populations defined by say minority sexual identity (as the presumably smallest sexual minority population group) is likely to be in the range of 2-7%. In addition, it needs to be noted that the size of a minimum target sub-sample of sexual minority respondents depends very much on what purpose the sub-sample is to be used for. Different analyses that were aimed at producing more than simple prevalence estimates would have different implications for the minimum target sub-sample.

To explain further, suppose the prevalence rate for the population defined by minority sexual identity is indeed in the range of 2-7%, and that we want to detect differences between various subgroups of this population (e.g., urban versus rural, people under 25 versus people 25-34, Māori versus Pacific people). We want the chance of finding there is a significant difference when actually there is not (i.e., Type 1 error) to be small ($p < .05$) and the chance of finding that there is not a significant difference when in fact there is (Type 2 error) to be moderate ($p < .30$). Suppose also that we want to be able to detect a difference which is around 40% of the assumed prevalence rate for the smaller of the groups: that is, if the actual prevalence was 2.5% then we want to be able to detect a difference of 1% using our sample. If we could carry out simple random sampling then the sample size for each group would be around 4500, 3000, 2200, 1700,
1400, 1200, if the lower prevalence rates were 2%, 3%, 4%, 5%, 6%, 7% respectively and the detectable difference 0.8%, 1.2%, 1.6%, 2%, 2.4%, 2.8% respectively.

However, it is more likely that a stratified multi-stage cluster sampling scheme with some targeting and screening will be employed rather than simple random sampling. Based on such schemes targeting ethnic groups, we would expect an efficient targeting and screening design to have a design effect of 1.2 - 2.0. In other words we might expect to have a sample size anywhere from 20% more than the simple random sample size to double the simple random sample size.

So in general, the sample sizes required to detect differences in sub-populations are likely to be comparable to the minimum total sample size of $N = 30,000$ respondents. Within the Programme of Official Social Surveys (POSS), two surveys currently collect data from more than 30,000 individuals. These are (1) the Household Labour Force Survey (HLFS), which provides official measures of unemployment, employment and those not in the labour force (produced quarterly, and questions 15,000 households/30,000 individuals); and (2) the Disability Survey, which provides statistics on the prevalence of disability in the New Zealand population, participation in paid work, and support that disabled people require to engage in everyday activities, including work (conducted 5-yearly, with 40,000 individuals, post-census sample, and 1,000 individuals in residential facilities).

Provided that the prevalence rates remain fairly stable over a two to three year timeframe (as would be expected), one solution to achieve a total sample size exceeding $N = 30,000$ might be pooling the results from smaller household surveys.

### 7.2.4 Sampling strategies

Elsewhere, three different probability sampling approaches have been employed to collect samples of sexual minority populations. These differ with respect to the availability of heterosexual comparison groups, predicted sample sizes (of sexual minority respondents), cost-effectiveness, and generalisability.

1. **Probability sampling of the general population** including both sexual minority and heterosexual respondents.

   **Advantages and disadvantages:**
   - heterosexual sub-samples from the same sample are available
   - predicted sample size is often small
   - least cost-effective in achieving large sub-samples of sexual minority respondents
   - generalisable to the survey population

2. **Disproportionate stratified probability-sampling** is used with the specific aim of drawing a larger probability sample of sexual minority respondents than would be achieved through a general population sample. Pre-selected area units, census tracts, or diverse social settings or characteristics for which the population of interest is assumed or known to be overrepresented, are used to design strata with assumed higher prevalence of populations defined by minority sexual orientation.

   As suggested above, it is advisable to apply disproportionate stratified sampling strategies on the basis of geographic residency and urbanisation, although targeting in this way appears to potentially only increase sexual minority sub-samples to a small degree, as with other (eg, ethnic) minority groups (see
Sexual Orientation Data in New Zealand Probability Surveys: Technical Report; Gray, 2009). However, for stratified sampling at the level of geographic residency to be effective, some geographic areas need to have both a higher prevalence of the target group and to include a large proportion of the total target population.

Advantages and disadvantages:
- heterosexual sub-samples from the same sample are available
- predicted sample size is larger than in general population sampling
- more cost-effective than general population sampling in achieving large sample sizes (sexual minority respondents)
- generalisable to the sexual minority sub-population in the sampling setting only

(3) Screening a randomly selected sample for sexual minority respondents.51

Telephone screening tools for sexual minority women and men have been developed and implemented in probability-sampling and are available for use in OSS surveys (Meyer & Colten, 1999; Meyer, Rossano, Ellis, & Bradford, 2002). Face-to-face screening tools are not yet available, but the development of such screeners would be useful, considering that the majority of OSS surveys are face-to-face surveys. Screening rates have not been established for New Zealand; however, the most robust available population prevalence figures of sexual orientations (see Chapter 4: Population size, p. 35) and sexual orientation item non-response rates (see Chapter 10: Misreporting and non-responding, p. 52) have been estimated. These figures can potentially be used to estimate how many potential respondents will need to be screened to attain the required sample size.

Advantages and disadvantages:
- heterosexual sub-samples from the same sample are not available
- for a given sum of money, the predicted size of the sample of sexual minority respondents obtained will be larger than what would be expected using the previous two techniques
- generalisable only to the sample frame

The way in which the collection of sexual orientation data is influenced by the survey mode is described in Chapter 9: Survey mode (p. 50). Likewise, misreporting and non-responding and the ways in which these can be addressed are described in detail elsewhere (see Chapter 10: Misreporting and non-responding, p. 52). Potential effects of social acceptability and disclosure on data collection and responses are described in Chapter 11: Acceptability/disclosure (p. 57).

7.2.5 Measurement error

Sampling error. Conceptually, sampling error is defined as a statistic’s average variation between all samples that could be drawn from the same survey population using the same data collection method. A common summary measure of the sampling error is the ‘margin of error’.

51 Use Meyer, Rossano, Ellis, Bradford’s 2002 telephone screener for women with a sexual minority identity; use Meyer & Colten’s 1999 telephone screener for men with a sexual minority identity.
In probability surveys, sampling error is dependent on the sample size, on the sample design, and on the variation of the observed variable in the survey population. The size of the survey population has little influence on sampling error. Although sampling error can theoretically be estimated for probability-samples, the sampling error is often unknown in praxis. The relationships are as follows:

- the larger the sample size, the smaller the sampling error
- the influence of sample designs is complex. Different formulae can be used to calculate sampling error in different sample designs. For instance, cluster sampling is likely to produce greater sampling error than stratified sampling.
- variation in the variable of interest in the survey population is also accounted for in the sampling error. (Technically, the population variation does not constitute an ‘error’, but is an inherent feature of the population; however, it is included in the calculation of the sampling error.)

Non-sampling error. Non-sampling error is the combination of those errors that are not determined by the sampling process, but which are associated with other measurement factors such as misreporting and non-participation (see Chapter 10: Misreporting and non-responding, p. 52). Variables that help assess non-sampling errors include the percentage of respondents who refuse to answer a survey (non-participants). Unlike sampling error, the extent of non-sampling errors can generally not be determined from the probability sample itself.

7.4 Principal recommendations

1. When including standard sexual attraction, sexual behaviour, and sexual identity questions in surveys sampling the general population, evaluate to what degree the achieved sexual minority sub-sample is representative, given that the population distribution of sexual minority populations appears likely to differ from the general population.


3. Use sample frames that contain information of sexual orientation, if feasible. However, it appears that there are currently no sample frames in New Zealand that enumerate all, or a representative segment, of sexual minority populations, requiring the use of standard sampling frames, with implications for cost-effectiveness.

4. Calculate the required sample size, using the most robust available population prevalence measures (see Chapter 5: Population size, p. 35).

5. Oversample sexual minority populations where possible by using screening or disproportionately stratified sampling or a combination thereof.

6. Use available sound telephone screeners to oversample sexual minority populations in telephone surveys; investigate the potential of developing and using face-to-face screeners to oversample sexual minority populations in face-to-face surveys.

7. Investigate the potential of using stratified probability sampling to enhance the size of sexual minority sub-samples, once there is sufficient knowledge
about the demographic distribution of sexual minority populations in New Zealand.

8. Follow the steps identified in the chapter when probability sampling sexual minority populations only.


(For a full discussion of the evidence base and a detailed list of recommendations see Issues in Sexual Orientation Measurement and Data Collection, Chapter 8: Sampling; Pega, 2009b, pp. 84-94)
8 Aggregation/disaggregation of data

Sexual orientation data should always be disaggregated to the smallest possible sexual minority group that ensures sufficient statistical power. Data for broadly aggregated groups such as 'non-heterosexual' may be appropriate in rare contexts only.

The following classification systems provide a basis for further development and could potentially be used to meaningfully disaggregate sexual orientation data.

8.1 Preliminary classification: Sexual attraction

Classification criteria
A classification system for sexual attraction should have three levels. At Level 1 the classification should differentiate on the basis of whether individuals report experiencing sexual attraction or not, and whether they experience uncertainty about their sexual attraction. At Level 2 the classification should differentiate between those who are exclusively opposite-sex attracted and those with any same-sex attraction. Finally, at Level 3 the classification differentiates between different gradations of same-sex attraction.

<table>
<thead>
<tr>
<th>Classification: Sexual attraction</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Any sexual attraction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1 Only attracted to opposite sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2 Any same-sex attraction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2.1 Mostly opposite-sex attracted</td>
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<tr>
<td>1.2.2 Equally attracted to females and males</td>
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<tr>
<td>1.2.3 Mostly attracted to same sex</td>
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<tr>
<td>1.2.4 Only attracted to same sex</td>
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<tr>
<td>2. Not attracted to members of either sex (asexual)</td>
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<tr>
<td>3. Unsure</td>
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<tr>
<td>4. Residual categories</td>
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<tr>
<td>4.1 Don’t Know</td>
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<tr>
<td>4.2 Refusal</td>
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</table>

8.2 Preliminary classification: Sexual behaviour

Classification criteria
At Level 1 the classification should differentiate between those who have engaged in any sexual behaviour and those who did not engage in sexual behaviour during the reporting period. At Level 2 the classification should differentiate survey respondents
according to whether they have engaged in sexual behaviour with the same-sex only, with the opposite-sex only or with both sexes.

### 8.3. Preliminary classification: Sexual identity

**Classification criteria**  
At Level 1 the classification differentiates between heterosexual (or straight) participants and sexual minority participants. At Level 2 it differentiates between different sexual minority identities.

<table>
<thead>
<tr>
<th>Classification: Sexual identity</th>
<th>Level 1</th>
<th>Level 2</th>
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</thead>
<tbody>
<tr>
<td>1. Heterosexual or straight</td>
<td></td>
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<tr>
<td>2. Sexual minority</td>
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<tr>
<td>2.1 Gay man</td>
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<tr>
<td>2.2 Lesbian</td>
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<td>2.3 Bisexual (male)</td>
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<td>2.4 Bisexual (female)</td>
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<td>2.4 Takatāpui (male)</td>
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<td>2.5 Takatāpui (female)</td>
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<td>2.6 Fa’afafine</td>
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<tr>
<td>2.7 Other</td>
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<tr>
<td>3. Residual categories</td>
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<tr>
<td>3.1 Don’t Know</td>
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<tr>
<td>3.2 Refusal</td>
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</tbody>
</table>
8.4 Principal recommendations

1. Always disaggregate official sexual orientation data to the smallest possible sexual minority group that ensures sufficient statistical power; avoid reporting on broadly aggregated groups such as ‘non-heterosexual’ groups, if possible.

2. Adopt the classifications for sexual attraction, sexual behaviour, and sexual identity, pending further development and modification.

(For a full discussion of the evidence base and a detailed list of recommendations see Issues in Sexual Orientation Measurement and Data Collection, Chapter 9: Aggregation/disaggregation; Pega, 2009b, pp. 95-101)
9 Survey modes

The SODCS found that very low non-response rates were achieved in sexual orientation data collected in a face-to-face official New Zealand survey (attraction/identity: 0.05%; and behaviour: 0.18%), and low non-response rates in two official telephone surveys using computer-assisted telephone interviewing (CATI; identity: 0.50%). The SODCS concluded from these findings that both face-to-face and telephone surveys can be used to collect sexual orientation (sexual attraction, sexual behaviour, and sexual identity) data, with face-to-face surveys potentially being advantageous compared to telephone surveys.

There is strong Office for National Statistics (United Kingdom) evidence that both computer-assisted self interviewing (CASI) and computer-assisted personal interviewing (CAPI) using concealed showcards are suitable modes for the collection of high-quality sexual identity data in official individual and household surveys. The Office for National Statistics found that CASI administration of sexual identity questions led to significantly higher rates of reported sexual minority identity (an indication of higher levels of disclosure), although CASI was more impractical than CAPI in individual and household surveys. There is also significant evidence that CATI is suitable for collection of sexual identity data in official telephone interviews (Office for National Statistics). Emerging comparisons of CASI and CAPI modes suggest that, self-interviewing might be the preferred mode for people 60 years of age and under, whereas personal interviewing might be preferable for people over the age of 60. Based on this evidence, it is our view that CASI, CAPI, and CATI survey modes could be used to collect sexual identity data in official surveys and that other survey modes might also be effective. However, there is currently no evidence available on the comparable suitability of other survey modes. When comparing CATI and CAPI in terms of privacy and confidentiality, it appears that CAPI would be advantageous as long as concealed showcards were used. Using CASI in the administration of sexual orientation items might be impractical in OSS surveys, as was found in the ONS surveys.

Within these survey modes (CASI, CAPI, and CATI), key operational procedures can differ; for instance, a range of different interviewing protocols can be implemented. Interviewer guidelines have been developed for these modes by the Office for National Statistics, and these could be considered for use as the basis for New Zealand interviewer guidelines. *Chapter 10: Misreporting and non-responding* (p. 52) makes specific recommendations about the survey administration of sexual orientation questions in surveys.

There is currently no New Zealand evidence on preferred survey modes amongst Māori and ethnic minority groups with respect to sexual orientation questions. It may therefore be necessary to consider whether respondents who are Māori or from sizeable ethnic minority groups (such as Pacific people) hold culture-specific beliefs or preferences about how best to provide information on sexual attraction, sexual behaviour, and sexual identity for official surveys.

9.1 Principal recommendations

1. Use CAPI and CATI, and possibly CASI, survey modes for the collection of sexual attraction, sexual behaviour, and sexual identity data in official surveys.
2. Investigate survey mode preferences for Māori and sizeable ethnic minority groups.

(For a full discussion of the evidence base and for a detailed list of recommendations see Issues in Sexual Orientation Measurement and Data Collection, Chapter 10: Survey mode; Pega, 2009b, pp. 102-110)
10 Misreporting and non-responding

For sexual orientation, misreporting and non-responding are key sources of non-sampling error. Misreporting and non-responding to sexual attraction, sexual behaviour, and sexual identity questions are linked to the perceived acceptability of these questions and to sexual minority survey respondents’ willingness to disclose their minority sexual attraction, sexual behaviour, and sexual identity (see Chapter 11: Acceptability/disclosure, p. 57).

10.1 Misreporting

An exploratory New Zealand focus group study investigated misreporting of sexual orientation. Indications from this study are that that lesbian-identified and gay-identified survey respondent in New Zealand are likely to be willing to disclose their sexual orientation in official surveys (eg, the New Zealand Census). The degree (ie, level and causes) of misreporting of sexual orientation in official surveys is difficult to determine.

Deliberate misreporting of sexual attraction, sexual behaviour and/or sexual identity can be motivated by a range of factors. Survey respondents with minority sexual attraction, sexual behaviour, or sexual identity might be unwilling to disclose their minority sexual attraction, sexual behaviour or sexual identity due to social desirability effects, and fear of possible consequences of their disclosure (eg, confidentiality issues, family and friends finding out). Some survey respondents (particularly young men) might report that they engage in (socially acceptable) sexual behaviour motivated by the wish to appear sexually mature. Others might be motivated to misreport their sexual attraction, sexual behaviour, and/or sexual identity due to personal or political resistance to being categorised or defined by their sexual orientation.

Methods have been developed to measure the effects of misreporting on data. These include test-retest correlations and asking participants as part of the debriefing about whether they lied about their sexual orientation during the interview.

Research exploring the reasons survey respondents in New Zealand misreport their sexual attraction, sexual behaviour, and sexual identity in official surveys would be informative and findings from such research could be used to ensure that final sexual orientation questions were designed with a view to mitigating misreporting, and being able to adjust data for misreporting. A statistical model to adjust for misreporting has been developed by the SODCS and is fit for OSS use (see Sexual Orientation Data in New Zealand Probability Surveys -Technical Report; Gray, 2009, p. 19).

10.2 Non-responding

10.2.1 Survey non-response rates

There is no New Zealand research on the impact of the inclusion of sexual attraction, sexual behaviour, and sexual identity questions on survey non-response and no international research on the impact of the inclusion of sexual attraction and sexual behaviour items in official surveys on survey non-response rates. However, there is strong evidence from Office for National Statistics testing of sexual identity questions showing that sexual identity questions included in official surveys did not have a discernible effect on overall survey non-response rates. This evidence is potentially applicable to sexual attraction and sexual behaviour questions.
Effects on non-response rates will need to be closely monitored when including sexual attraction, sexual behaviour, and sexual identity questions in OSS surveys. However, based on Office for National Statistics findings, it appears likely that sexual identity questions can be included without increasing survey non-response rates.

10.2.2 Impact on non-response rates for items immediately following sexual orientation items
There is no New Zealand and international research on the impact of sexual attraction, sexual behaviour, and sexual identity questions on the non-response rates of items immediately following such questions. Non-response patterns of items immediately following sexual orientation questions should be closely monitored when including sexual attraction, sexual behaviour, and sexual identity questions in surveys. However, based on the Office for National Statistics findings, which did not report any increased non-response to items immediately following sexual identity questions, it appears to be feasible to include sexual identity questions without any expectation of increases in the non-response rates for items immediately following such questions.

10.2.3 Sexual orientation item non-response
The SODCS found that very low to low item non-response rates for sexual orientation questions (measuring sexual attraction/sexual identity, sexual behaviour, and sexual identity respectively) were achieved in official New Zealand surveys. The Office for National Statistics also concluded that non-response rates for sexual identity items were sufficiently low to collect sexual identity data on a standard basis in official surveys. As part of data analysis, item non-response rates need to be calculated for each sexual orientation measure.

It is also important to consider non-response rates for sexual orientation questions compared to non-response rates for other sensitive questions. In Office for National Statistics trials of sexual identity questions, these had (acceptably) higher non-response rates than did questions on other potentially sensitive questions such as ethnicity, national identity, and chronic illness.

Non-response rates for sexual attraction, sexual behaviour, and sexual identity items should be monitored to see if these rates differ from what would be expected for similarly sensitive items in OSS surveys. It appears that slightly higher item-non-response rates could be expected for sexual identity questions than for other sensitive questions. Nevertheless, sexual identity items appear to achieve acceptable levels of item non-response in official surveys and this should not constitute a significant threat to the quality of sexual identity data obtained.

10.3 Question characteristics
To reduce misreporting and non-responding to sexual attraction, sexual behaviour, and sexual identity questions, respondent demands need to be minimised; that is, items need to be as brief as possible while still yielding valid information. The use of enhanced items as preambles to the core sexual orientation question has been recommended as a means of assuring higher levels of disclosure of sexual minority behaviours. Testing the use of enhanced items will be necessary to determine the extent to which these increase reporting of minority sexual attraction, sexual behaviour, and sexual identity in the New Zealand context (see Chapter 4: Question design, p. 28).

Certain item characteristics are important for sexual attraction, sexual behaviour, and sexual identity questions. These items need to:
be comprehensible, both conceptually and in terms of their wording, to ensure that survey respondents are able to report honestly and accurately

use only acceptable, non-offensive terms to reduce non-responses due to survey respondents feeling threatened or affronted

be brief, to reduce temporal respondent burden by adding as little to the time needed to complete the survey as possible

include an appropriate range of sexual attraction, sexual behaviour, and sexual identity response categories so that survey respondents are able to report their sexual attraction, sexual behaviour, and sexual identity honestly and accurately.

The recommended sexual attraction, sexual behaviour and sexual identity questions (see Chapter 4: Question design, p. 28) have been designed to help minimise misreporting and non-responding. They use terms and concepts in common usage, and are hence likely to be easily comprehensible in New Zealand; they do not contain offensive terms or concepts; they are short, but have an appropriate range of response categories, and few words per response category; and finally, they include a range of culturally appropriate sexual attraction, sexual behaviour, and sexual identity response categories.

The recommended preliminary sexual attraction, sexual behaviour, and sexual identity questions should be trialled with respect to these question characteristics for the purpose of developing sexual orientation questions that support low rates of misreporting and non-responding. The proposed survey modes will also help to minimise misreporting and non-responding (see Chapter 9: Survey mode, p. 50).

10.4 Survey administrator training and interviewing protocols

Effective interview protocols help reduce non-responding and minimise misreporting by enabling survey respondents to report their sexual attraction, sexual behaviour, and/or sexual identity privately and confidentially, and serve to increase the perceived credibility of the official survey.

Appropriate interviewing protocols need to be developed and implemented for administration of sexual orientation questions, and specific training in these areas provided for survey administrators of official surveys. Administrator training should include opportunities for practice with feedback and follow-up assessments and training. The Office for National Statistics concluded that interview rules and specific interviewer training were required for effective administration of sexual identity questions in official surveys. If such training is not available it is likely that some interviewers will fail to administer sexual orientation items correctly, either because they perceive such questions will be unacceptable to survey respondents, or they feel uncomfortable administering such questions.

Interviewing rules should include instructions to survey administrators to:

- administer sexual orientation questions to all eligible respondents
- never attribute sexual orientation based on observations
• ensure the privacy of respondents’ responses (eg, a statement could be developed to be read out to respondents to ensure that the showcards must not be visible to any other person except the survey respondent when sexual orientation questions are administered to a household using CAPI)

• ensure that sexual orientation questions are asked in a manner consistent with other questions, and without hesitation

• ensure that interviewers feel comfortable, or if necessary undergo training until they feel comfortable, with asking sexual attraction, sexual behaviour, or sexual identity questions

• give survey respondents the opportunity to clarify the sexual orientation question without other respondents being able to hear what is being discussed

• code ‘don’t know’ responses and refusals to answer sexual orientation questions according to Statistics New Zealand’s standard procedures

• detect when additional definitions of terms need to be provided (eg, hesitation to answer the questions or silence might be an appropriate cue to interviewers that it may be necessary to offer a definition)

• include cognitive testing and field-testing: to record observations on the administration and acceptability of sexual orientation items as well as respondent reactions to these questions

Adherence to the prescribed interviewing protocols should be monitored. If necessary, survey administrators who do not follow these rules should be replaced. During data collection, each survey administrator should be monitored with respect to the number of non-responses and refusals to answer the sexual orientation question the survey administrator has received. For these assessments to have most value, they need to be part of the pilot testing or field testing phase.

There might be benefits for disclosure of minority sexual attractions, sexual behaviours, and sexual identities from survey respondents having the opportunity to choose a survey administrator, or refuse an assigned survey administrator respectively. However, the OSS would need to balance the benefits of such a procedure against the heavy administrative burden it would impose. If possible, survey administrators and survey respondents should be matched on vital socio-demographic characteristics (eg, ethnicity), although again this might not always be feasible. Similarly, there might be a benefit from female survey administrators interviewing female survey respondents in terms of achieving higher response and disclosure rates.

10.5 Principal recommendations

1. Conduct research into the misreporting phenomena for the purpose of identifying misreporting rates that can be used to adjust survey findings.

2. Monitor the impact of sexual attraction, sexual behaviour, and sexual identity item inclusion on survey non-response rates in New Zealand official surveys; noting however, that the inclusion of sexual identity items in official survey appears not to have a discernible impact on survey non-response according to Office for National Statistics evidence.
3. Monitor the impact of the inclusion of sexual orientation questions on the non-response rates for items immediately following the sexual orientation item.

4. Monitor item non-response rates of sexual attraction, sexual behaviour, and sexual identity items included in official New Zealand surveys, but consider that previous collections of official data on sexual attraction/identity, sexual behaviour, and sexual identity in New Zealand have yielded very low to low item non-response rates.

5. Use the preliminary sexual attraction, sexual behaviour, and sexual identity questions developed by the SODCS, considering that their characteristics appear to be appropriate in terms of minimising misreporting and non-response rates.

6. Adopt interviewing rules developed by the Office for National Statistics; specifically, train OSS survey administrators in these rules and monitor their performance with regards to eliciting responses to sexual orientation items.

(For a full discussion of the evidence base and for a detailed list of recommendations see Issues in Sexual Orientation Measurement and Data Collection, Chapter 11: Misreporting and non-responding; Pega, 2009b, pp. 111-122)
11 Acceptability/disclosure

The acceptability of the proposed sexual orientation questions needs to be tested. The use of enhanced items is likely to increase disclosure rates, but at the same time will increase the length of these questions, with potentially negative effects on respondent motivation to respond.

11.1 Survey mode

The proposed survey modes (see Chapter 9: Survey mode, p. 50) are the most likely to ensure acceptable levels of credibility, confidentiality, and privacy. Of these, CASI appears to be the survey mode that provides the highest level of privacy and confidentiality. However, this mode (CASI) is not currently used by Statistics New Zealand in individual and household surveys and has been shown to be difficult to administer in Office for National Statistics surveys, implying that it may not be suitable for use in OSS surveys. On the other hand, CAPI (with concealed showcards) and CATI, have been shown to yield acceptable levels of credibility, confidentiality, and privacy in official surveys conducted in the United Kingdom, and are commonly employed by Statistics New Zealand in both individual and household surveys. While it appears that Statistics New Zealand has not previously used concealed showcards, the use of these in the proposed survey modes is advisable and would likely increase the acceptability of including a sexual orientation question in official surveys.

11.2 Acceptability of official collection of sexual orientation data

Statistics New Zealand commissioned exploratory focus group research which explored attitudes towards the acceptability of including sexual orientation questions in the New Zealand Census. The majority of the small, unrepresentative sample of focus group participants indicated either acceptance or ‘grudgin’ acceptance of the idea of sexual orientation data being collected by a government department, as long as respondents were not compelled to answer any sexual orientation questions.

The study suggested that some population groups might be relatively less accepting of a government department collecting information on sexual orientation. These included older people, people residing in the South Island, and Pacific, Māori, and Asian people. However, the study suggested that even these less accepting groups acknowledged that times are changing and that the social acceptability of minority sexual orientations has increased. The study also found that sexual minority people are perceived as less threatening and are more visible than they have been in the past. Thus, even amongst the less accepting groups, there was the perception that it was inevitable that sexual orientation data would be collected by government departments at some point.

Strategies that the OSS could implement to increase acceptability and disclosure include:

- public education campaigns about the use (and confidentiality) of individuals’ sexual orientation data and which public agencies will have access to the data
- government departments publicly promoting the questions and their benefit for people of all sexual orientations
- public relations-type work about the questions used by government departments
Survey administrators should also be able to brief respondents about the use to which sexual orientation data will be put, if this information is requested.

11.3 Critical population groups

According to the exploratory Statistics New Zealand focus group research discussed above, the majority of the small, unrepresentative sample of focus group participants accepted or grudgingly accepted sexual orientation questions to be included in official surveys. The study suggested that despite this general acceptance amongst some population groups, other populations groups might not perceive the value of collecting such information.

11.3.1 Sexual minority populations

Findings from this Statistics New Zealand study suggest that gay-identified and lesbian-identified survey respondents are generally likely to be willing to disclose their sexual orientation in official surveys, indicating there may be greater threat to data quality (ie, item non-responding or misreporting) from sexual majority respondents than from sexual minority respondents.

Strategies to maximise the acceptability of sexual orientation questions amongst sexual minority populations, also need to be considered; although a cost-benefit analysis will be needed before such strategies are implemented. One possible strategy to increase disclosure in official surveys is the design and implementation of public education campaigns targeting sexual minority populations through local and national gay, lesbian, and bisexual and mainstream media. Such campaigns could be used to brief sexual minority communities of the benefits arising from being counted, and the provision of official statistics on sexual orientation, as well as to provide these communities with the assurance that the confidentiality of their sexual orientation data will be protected. Governmental departments should collaborate with organisations and representatives of sexual minority groups on the design and delivery of these education campaigns. Targeted groups could include sexual minority communities for whom disclosure of their minority sexual orientation might be particularly sensitive such as:

- older sexual minority populations
- younger sexual minority populations
- those who have not disclosed their minority sexual attraction, sexual behaviour or sexual identity to others
- members of certain professions such as teachers, those working for religious organisations, and social workers
- bisexual populations

11.3.2 Other groups of interest

Findings from the 2003 Statistics New Zealand study suggest that groups for which the inclusion of sexual orientation questions in official surveys in New Zealand might be least acceptable include Pacific people, people from strongly religious backgrounds, older people, rural people, and those viewing minority sexual orientations as signs of a decline in New Zealand’s social and family values.

11.4 Relative acceptability of sexual orientation questions

There is no New Zealand research about the acceptability of official sexual attraction or sexual behaviour questions, and no research on the inclusion of sexual attraction and
sexual behaviour questions. However, emerging evidence from the Office for National Statistics suggests that respondents are generally likely to find the inclusion of sexual identity questions in official surveys acceptable. On this basis, one option may be to collect sexual identity data initially, particularly if there are concerns about the acceptability of the other questions which need to be resolved before these can be implemented.

There is currently a lack of research that identifies the relative acceptability of sexual attraction questions compared to sexual behaviour and sexual identity questions.

11.5 Principal recommendations:

1. Collect sexual attraction, sexual behaviour, and sexual identity items in CAPI (using concealed show cards) or CATI.

2. Consider acceptability to be sufficient and increasing.

3. Follow other official statistics system in the inclusion of sexual orientation questions, considering that sexual minority orientations appear to be more acceptable in New Zealand than in these countries (i.e., United Kingdom and United States).

4. Conduct pre-testing of sexual attraction, sexual behaviour, and sexual identity items with the groups identified by the Statistics New Zealand focus group research as potentially being the least accepting.

5. Conduct public education campaigns to increase acceptability of the inclusion of sexual orientation items in official statistics targeting sexual minority populations and populations identified as least accepting of sexual orientation data collection in official surveys.

6. Conduct research into the relative acceptability of sexual attraction items, compared to sexual behaviour items, compared to sexual identity items.

(For a full discussion of the evidence base and a detailed list of recommendations see Issues in Sexual Orientation Measurement and Data Collection, Chapter 12: Acceptability/disclosure; Pega, 2009b, pp. 123-131)
Glossary

**CAPI** – computer-assisted personal interview

**CATI** – computer-assisted telephone interview

**CASI** – computer-assisted self-administered interview

**Fa’afafine** – Fa’afafine is a Samoan term that literally means ‘like a woman’. Fa’afafine is often used to refer to people born male who express feminine gender identities in a range of ways, but is sometimes used more broadly to refer to all Pacific people who do not identify with or live according to common understandings of their birth gender. Sometimes the term ‘third sex’ is used. Other similar Pasifika terms include Fakaleiti (Tongan), Akava’ine (Cook Islands Māori), Fiafifine (Niuean), Vaka sa lewa lewa (Fijian).

**Gay** – Gay can refer to homosexual/same-sex attracted women and men, but is more often used in relation to males. Note: In this report, the term ‘gay’ refers to same-sex oriented men, or to the ‘gay’ sexual identity.

**Gender Identity** – Gender identity is an aspect of identity that can be understood as the psychological sex. It is an individual’s internal sense of being male or female or something other or in between. It may or may not correspond to a person’s physical sex. One’s sexual orientation cannot be assumed on the basis of their gender identity.

**Intersex** – Intersex people are born with any of a number of physical variations that means they do not fit expectations of either male or female physical sex (eg, they have genitals that are atypical, XXY chromosomes, etc). Intersex anatomy is not always visible at birth, and may become apparent at puberty, later or not at all. Surgery is performed on some intersex infants and children to physically align them with the sex they are assigned. This practice is criticised, particularly by intersex people. A child’s sex assignment may not match the gender identity the person develops as they grow up. This can mean that some intersex people can face gender identity issues similar to a transgender person.

**Lesbian** – Lesbian is used exclusively in relation to homosexual/same-sex attracted women. Note: in this report, the term ‘lesbian’ refers to same-sex oriented women, or to the ‘lesbian’ sexual identity.

**MSD** – Ministry of Social Development (New Zealand)

**MSM** – The abbreviation of ‘men who have sex with men’, MSM is used to include both gay and bisexual men and men who identify as heterosexual or otherwise but who at least occasionally engage in sexual activities with other men. Commonly used in the context of sexual health.

**OSS** – Official Statistics System (New Zealand)

**POSS** – Programme of Official Social Statistics (New Zealand)

**Queer** – Queer has been used as a derogatory term for gay and lesbian people in particular. Although some people continue to reject the term, it has recently been reclaimed and used in a positive sense by some to describe sexual orientation and/or gender identity or gender expression that does not conform to heteronormative expectations. It is sometimes used as an umbrella term for same-sex attraction and gender/sex diversity, including but not exclusive to people who are gay, lesbian, bisexual, transgender, takatāpui, fa’afafine, intersex or somewhere in between. This is more common among youth. It is sometimes used to express rejection of traditional

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52 The definitions for fa’aafafine, gender identity, intersex, queer, takatāpui, and transgender are adopted verbatim from the Ministry of Social Development’s *Selected GLBTI Definitions* document (2008).
gender categories and distinct sexual identities such as lesbian, gay, bi, and straight (heterosexual).

**Sexual minority population** – Population groups defined by minority sexual attraction, minority sexual behaviour, and/or minority sexual identity

**SNZ** – Statistics New Zealand

**SODCS** – Sexual Orientation Data Collection Study

**Takatāpui** – The traditional meaning of takatāpui is ‘intimate companion of the same sex’. Many Māori people have adopted this term to describe themselves, instead of or in addition to terms such as lesbian, gay, bisexual, queer or trans. It refers to cultural and sexual/gender identity. Also spelt takataapui.

**Transgender** – The term transgender is used by different groups in different ways. It is often used as a catch-all umbrella term for a variety of people who feel that the sex they were assigned at birth is a false or incomplete description of themselves. Transgendered people may or may not use some form of medical intervention to better align their physical sex with their gender identity, and may or may not have any interest in such a procedure. Gender reassignment services are some times called gender realignment by trans people. They include but are not limited to hormone treatment and surgeries, such as mastectomy and genital reconstruction. The term transgender can include a number of sub-categories, including, among others, transsexuals, cross-dressers, transvestites, gender queer and consciously androgynous people.

The adjective ‘trans’ is increasingly preferred as a general term, for example ‘trans person’. If a gender term is also used, this refers to the person’s gender identity, eg, a ‘trans man’ was born in a body defined as female but identifies as male.
References


Sexual orientation data in probability surveys: 
Improving data quality and estimating core population measures from existing NZ survey data. 
Technical Report 

Alistair Gray 

19 May 2009 

Abstract 
There is little baseline data from probability based national surveys on the Gay, Lesbian, and Bisexual population. In New Zealand these are Te Rau Hinengaro the Mental Health Survey 2003/4, the Health Behaviours Drug Use Survey 2003 and the Health Behaviours Alcohol Use Survey 2004. It is presumed that this population is of small size, fluid and hidden. This paper looks at whether existing data can be used to estimate the demographic profile of these groups with a view to informing sampling strategies in future probability based surveys. It also discusses potential bias in prevalence estimates derived from existing surveys. 

Keywords: Gay Lesbian Bisexual populations, prevalence bias, sampling strategies
1 Introduction

Sexual orientation is a topic of interest for public policy nationally and internationally. There is growing evidence of disparities in outcomes between heterosexual and gay, lesbian and bisexual (GLB) populations in New Zealand. Currently there is very limited data collected on these populations in the official statistics system (OSS), no reliable denominator data to validate samples in surveys and no overriding conceptual or methodological framework that guides the OSS in this area.

The Official Statistics Research Project, of which this paper is a part,

- will formulate a conceptual framework for sexual orientation that supports statistical measurement and data analysis;
- review New Zealand and international research to consider which methodological issues impact on the collection of robust data on GLB populations in probability surveys;
- consider these issues alongside the pragmatic requirements of a New Zealand OSS measurement framework;
- develop recommendations on how to address them (in a collaborative process with stakeholders), to enable high quality, consistent and comparable data collection across the OSS.

There is little baseline data from probability based national surveys on the GLB population. In New Zealand these are Te Rau Hinengaro the Mental Health Survey 2003/4, (MHS) the Health Behaviours Drug Use Survey 2003 (HBSD) and the Health Behaviours Alcohol Use Survey 2004 (HBSA). It is presumed that this population is of small size, fluid and hidden. This paper
looks at whether existing data can be used to estimate the demographic profile of these groups with a view to informing sampling strategies in future probability based surveys. It also discusses potential bias in prevalence estimates derived from existing surveys. This report considers data from the Health Behaviours surveys carried out in 2003 and 2004 as well the MHS carried out in 2003/2004 since they are recent large scale probability based surveys of the general population.

In the early 1990’s Peter Davis research into health issues included a survey which asked about sexual identity but given the great changes in New Zealand Society since then (Asian migration, distance from Homosexual Law Reform, economic conditions etc) I do not see its relevance to the current society.

2 Youth 2000 survey

The Youth 2000 organization commissioned a survey of Year 9-13 school children (see Le Brun et al., 2004). Among the questions they were asked was one on sexual attraction Which of the following are you sexually attracted to? with possible responses The opposite sex—The same sex—Both sexes—Not sure—Neither. The proportion of responses was 92.2% 0.7% 3.1% 2.3% and 1.7% respectively. This would give an estimate of the non-heterosexual population at secondary school as 7.8%. Based on the tables in the report this seems to have a relative error of about 10% (i.e. the 95% half-with confidence interval is about 0.7%)

Since people in this age group are establishing their sexual orientation one might expect the Not sure category would be distributed amongst the other categories (including solely attracted to opposite sex) if the question was asked at a later age. Hence it cannot be used to generalise to the adult population. Furthermore the type of frame it uses is not applicable to general household surveys in this country. Hence I have not looked at this survey.

Of 389 schools which had at least 50 pupils 133 were randomly sampled. Excluded schools were more likely to be those in rural areas. Of the sampled schools 114 schools agreed to participate (85%). It is not clear whether more of less liberal schools were likely to participate. It is not clear from the report whether low decile schools were under-represented in the achieved sample although Table 5 in the report (Le Brun et al., 2004) would suggest that was the case since there are only 1083 respondents from decile 1-3 schools out of 9011.

At each of the responding schools, a random sample off the school roll was drawn. It is not clear whether a fixed sample size or fixed sampling fraction was applied. Of the approached students 75% participated giving an overall response rate of around 64%. There were 9699 respondents. More girls than boys responded. The ethnic breakdown appears consistent with the actual Ministry of Education prioritized ethnicity figures.

It is not clear how non-response was adjusted for, nor what weighting scheme was used. On the face of it is a single stage cluster sample with schools as primary sampling units. It appears that this has been taken into account when calculated confidence intervals and the half-width confidence intervals are 30%-40% wider than ones for simple random sampling. All estimates are sample proportions which would be fine if the sample design was self-weighting, which it would be if the sampling fraction was fixed across schools and there was no nonresponse. However, the documentation does not make this clear.
A large percentage (7.3%) of respondents refused to answer the sexual attraction question. So 60% of potential pupils answered this question. This is of the same magnitude as those who answered non-heterosexual (7.8%).

These factors all lead to my reluctance to use this survey without further investigation. The Youth 2007 survey which followed up the Youth 2000 survey was released while this work was being done. It reports higher but broadly similar estimates of the non-heterosexual population. This consistency across time may be evidence that that the respondents are not misreporting on this question, but further analysis is needed to confirm this.

3 Sexual attraction, behaviour and identity questions
The concept of sexual orientation has at least three dimensions: identity; attraction; behaviour. For more details see Frank Pega’s Conceptual Framework prepared for this project. These concepts have not always been correctly captured in questions asked in surveys.

The HBSA and HBSD both use a question to elicit sexual identity which conforms to the proposed working definition of sexual identity.

Q192 SEXUAL IDENTITY
Would you identify as...
Q192_01 Heterosexual (sexually attracted to people of the opposite sex)
Q192_02 Lesbian (sexually attracted to women)
Q192_03 Gay man (sexually attracted to men)
Q192_04 Bisexual (sexually attracted to both men and women)
Q192_05 Some other sexual identity

with potential responses:
Yes
No
Refused
Don't know
Skipped
Missing.

Originally people 16 and over were to be asked this question but the Ethics committee decided it was unacceptable to ask this of people under 18. Hence such people skipped this question. The MHS questions are conceptually ambiguous.

For the MHS, a question (CN11_2) was asked on a showcard (43). It was:

Which of the following best describes your sexual orientation?

with potential responses:
A Heterosexual Primarily attracted to members of the opposite sex - straight
B Homosexual Primarily attracted to members of your own sex - gay
C Bisexual Attracted to both men and women
D Something else
E Not sure
A refused category was also coded. I have called this a “sexual attraction” question because of the words and out of convenience. But it should not be thought of as measuring sexual attraction as this project would define it. See below.

Two questions were asked about sexual behaviour (NZCN13 NZCN14). The first was

Have you ever had any kind of sexual experience with a partner of the same sex?

with potential responses:

Yes
No
Refused
Don't know

The second was:

Have you ever had a sexual relationship with a partner of the same sex?

with potential responses:

Yes
No
Refused
Don't know

Again for convenience I have called this “sexual experience” and “sexual relationship”.

Frank’s argument in short is this. For the “sexual orientation/attraction” question it is unclear whether it measures sexual identity, sexual attraction, or even what we understand as sexual orientation, the unifying idea which incorporates the sexual attraction, sexual behaviour and sexual behaviour dimensions. In particular, the part of the answer category which refers to sexual attraction reads primarily sexually attracted to. This does not conform to the proposed working definition of sexual attraction (i.e. any sexual attraction to).

Frank argues in his report that people who understood the question as a sexual identity question would have reported in line with their sexual identity, not their sexual attraction, leading to a likely undercount of attraction, given that sexual attraction is generally found to be much more prevalent than sexual identity. In addition, amongst people who understood the question as an attraction question, those respondents with non-primary same-sex attractions might have reported a primary opposite-sex attraction but should have been included in the same-sex attraction category according to the working definition that we have developed, also resulting in a significant undercount in our data.

The sexual relationship questions do not elicit sexual behaviour. Relationship implies a more on-going type of engagement, which means that many people who have “casual” encounters with members of the same sex will not have reported such “casual” sexual behaviours as a sexual relationship.
See pp 14-17 of Frank Pega’s *Assessment of OS Data* prepared for this project for a detailed discussion of the conceptual limitations of the questions used.

4 Metadata for the HBSA and HBSD surveys
The information in this section about the surveys has come from Stefanogiannis et al., 2007a and Stefanogiannis et al., 2007b.

4.1 HBSD
The following is almost verbatim from Stefanogiannis et al., 2007b.

The survey design and data collection for the 2003 HBSD was carried out by the Centre for Social and Health Outcomes Research and Evaluation (SHORE) and Te Ropu Whariki, of Massey University. The target population for the 2003 HBSD survey was the New Zealand population aged 13–65 years living in private residential dwellings.

A stratified sample design was used for the survey, with increased sampling of Māori. The overall weighted response rate for the survey was 68%. The survey interviews were carried out between April and November 2003.

The stratified sample design was used to reflect the New Zealand population on the basis of geographic regions and level of urbanisation. The 34 strata, when combined, covered the whole of New Zealand. Two levels of urbanisation were used for the stratification: metropolitan areas and large cities, such as the Auckland urban area, Hamilton, Christchurch and Wellington; smaller main urban areas, large towns, small towns and rural areas. Three different sample frames were utilised to obtain both a full coverage of the population and an increased sample of Māori respondents. The oversampling of the Māori population means that the survey estimates have at least the same precision for Māori as for non-Māori.

The three sample frames in this survey included:

- a random digit dialling (RDD) sample from the general population;
- an RDD Māori screened sample;
- a sample from the full electoral roll of people who identified as having Māori ancestry.\(^{53}\)

Landline telephone numbers were randomly selected within each stratum so that all households with a landline phone had an equal chance of being called. Within each household, one eligible household member was randomly selected by the computer for an interview. Each selected telephone number was tried at least 10 times in an effort to reach those seldom at home.

Respondents were recruited and interviews conducted using the SHORE and Te Ropu Whariki in-house CATI system. Respondents were informed that the study was being conducted on behalf of the Ministry of Health and that interviews would be confidential.

The responding sample size for the survey was 8095 respondents of whom 4034 were non-Māori, and 4061 were Māori (prioritized ethnicity). The Māori sample was broken down by frame thus: RDD (random digit dialling) 617; RDD Māori sample 762; Electoral roll published Māori sample 2682.

\(^{53}\) It is not clear from the documentation how telephone numbers were obtained for these people. It is possible that their addresses were matched to telephone numbers by Telecom Directories. This process has a high mismatch rate.
Based on the published (Stefanogiannis et al., 2007b) confidence intervals which were constructed using a jackknife replicated method it would seem that the design effect for the estimates ranged from just over 1 to just over 3. The design effect is a measure of the accuracy of a complex sampling design relative to a simple random sampling design. A design effect of 3 means that to get the same accuracy as a simple random sample we would need 3 times the sample size.

4.2 HBSA
The following is almost verbatim from Stefanogiannis et al., 2007a.

The target population for the 2004 HBSA survey was the New Zealand population aged 12-65 years living in private residential dwellings. The survey was a computer-assisted telephone interview (CATI) survey, with a sample size of 9847 respondents. A stratified sample design was used, with increased sampling of Māori. The survey interviews were carried out between September 2003 and August 2004, and resulted in an overall weighted response rate for the survey of 59%.

The sample size for the survey comprised 5469 non-Māori, 4378 Māori (prioritized ethnicity). The Māori sample was broken down by frame thus: RDD (random digit dialling) 840; RDD Māori sample 676; Electoral roll published Māori sample 2862.

The sample design was identical to the HBSD survey with respect to the stratification, choice of frames and oversampling of Māori.

Based on the published (Stefanogiannis et al., 2007a) confidence intervals constructed using a jackknife replicated method it would seem that the design effect for the estimates ranged from just over 1 to just over 3.

In both surveys a few hundred respondents were contacted by cellphone, but these records were deemed to be of insufficient quality. The sample sizes quoted above do not include these cellphone respondents. In both surveys respondents under the age of 18 were not asked the sexual identity question. This left 6098 adult respondents in the drug survey and 8457 in the alcohol survey.

5 Quality of the data from the HBSA and HBSD surveys
Generally speaking, surveys where the sampling is off an explicit (telephone directories) or implicit (random digit dialling) telephone based frame are not recommended for Official Statistics Surveys because of frame biases: see Gray and Suntheralingam, 2007. This is because the percentage of people with access to a landline across different socio-economic groups can vary from the high 90’s to the low 70’s based on most recent available data. Increasingly people who can afford landline rentals are moving to pre-paid mobiles. So we might expect that these two surveys have a large frame bias.

In surveys like this which use multiple frames, we need to account for people being able to be selected multiple times, otherwise there will be frame bias. From the documentation it is not clear how this frame bias was overcome.

5.1 Socio-demographic variables in the HBSA and HBSD surveys.
Given the data available to me and since the surveys have been adjusted to reflect population age, sex, and ethnic proportions (calibration or post-stratification) I cannot judge whether any
differences in these variables indicate a bias which would impact on the reliability of prevalence estimates. In both surveys there were no records with missing sex or ethnicity. This was true for many of the other socio-demographic variables.

However, about 0.6% of records had missing age. This is not an uncommon situation in my experience and probably of little consequence.

The sexual identity question was missing for 0.5% of records: a similar order of magnitude to any of the components of the GLB population. In other words estimates of the GLB population could well be dominated by the item nonresponse bias.

To assess whether any frame bias exists after calibration we can look at the distributions of some socio-economic characteristics compared with the 2006 Census, taking into account the different timings and that the Census is not itself error free.

For illustration consider income (Table 1) and highest school qualifications (Table 2). The HBS values come from combining the two surveys. See the next Section for details.

Broadly speaking there are similar proportions of people who do not state their income, but the HBS surveys seem to generally have fewer low income people and more high income people. This is likely to be because the HBSs exclude those who are 65 and over, a population which has lower than average income.
Table 1: Income distributions from the 2006 Census and Health Behaviours Surveys in 2003 and 2004.

<table>
<thead>
<tr>
<th>Income Range</th>
<th>Census</th>
<th>HBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero Income</td>
<td>4.59%</td>
<td></td>
</tr>
<tr>
<td>$1 - $5,000</td>
<td>7.00%</td>
<td>4.24%</td>
</tr>
<tr>
<td>$5,001 - $10,000</td>
<td>7.18%</td>
<td>3.38%</td>
</tr>
<tr>
<td>$10,001 - $15,000</td>
<td>11.26%</td>
<td>4.47%</td>
</tr>
<tr>
<td>$15,001 - $20,000</td>
<td>8.23%</td>
<td>6.04%</td>
</tr>
<tr>
<td>$20,001 - $25,000</td>
<td>6.95%</td>
<td>6.48%</td>
</tr>
<tr>
<td>$25,001 - $30,000</td>
<td>6.81%</td>
<td>7.22%</td>
</tr>
<tr>
<td>$30,001 - $35,000</td>
<td>6.37%</td>
<td>8.39%</td>
</tr>
<tr>
<td>$35,001 - $40,000</td>
<td>6.42%</td>
<td>13.76%</td>
</tr>
<tr>
<td>$40,001 - $50,000</td>
<td>8.30%</td>
<td>11.62%</td>
</tr>
<tr>
<td>$50,001 - $70,000</td>
<td>8.90%</td>
<td>11.18%</td>
</tr>
<tr>
<td>$70,001 - $100,000</td>
<td>3.96%</td>
<td>5.35%</td>
</tr>
<tr>
<td>$100,001 or More</td>
<td>3.34%</td>
<td>4.60%</td>
</tr>
<tr>
<td>Not Stated</td>
<td>10.15%</td>
<td>13.29%</td>
</tr>
</tbody>
</table>

Table 2: Highest School Qualification distributions from the 2006 Census and Health Behaviours Surveys in 2003 and 2004.

<table>
<thead>
<tr>
<th>Qualification</th>
<th>Census</th>
<th>HBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Qualification</td>
<td>29.20%</td>
<td></td>
</tr>
<tr>
<td>Level 1 Certificate</td>
<td>17.91%</td>
<td></td>
</tr>
<tr>
<td>Level 2 Certificate</td>
<td>16.11%</td>
<td></td>
</tr>
<tr>
<td>Level 3 or 4 Certificate</td>
<td>15.42%</td>
<td></td>
</tr>
<tr>
<td>Overseas Secondary School Qualification</td>
<td>12.55%</td>
<td></td>
</tr>
<tr>
<td>Don’t Know</td>
<td>0.01%</td>
<td></td>
</tr>
<tr>
<td>Refused to Answer</td>
<td>0.00%</td>
<td></td>
</tr>
<tr>
<td>Response Unidentifiable</td>
<td>0.30%</td>
<td></td>
</tr>
<tr>
<td>Response Outside Scope</td>
<td>1.09%</td>
<td></td>
</tr>
<tr>
<td>Not Stated</td>
<td>7.42%</td>
<td></td>
</tr>
<tr>
<td><strong>HBS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>missing</td>
<td>0.00%</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>21.07%</td>
<td></td>
</tr>
<tr>
<td>NCEA Level 1</td>
<td>22.75%</td>
<td></td>
</tr>
<tr>
<td>NCEA Level 2</td>
<td>13.54%</td>
<td></td>
</tr>
<tr>
<td>UE before 1986 in 1+ subjects</td>
<td>7.88%</td>
<td></td>
</tr>
<tr>
<td>NZ HSC</td>
<td>2.88%</td>
<td></td>
</tr>
<tr>
<td>UE NZ Bursary</td>
<td>8.71%</td>
<td></td>
</tr>
<tr>
<td>NCEA Level 3</td>
<td>12.50%</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>0.16%</td>
<td></td>
</tr>
<tr>
<td>Overseas SSQ</td>
<td>10.51%</td>
<td></td>
</tr>
</tbody>
</table>
In Table 2 the categories are not directly comparable. The Census data is for people 15 and over and the HBS data is for people aged 13-64. Given that more people over 65 tend to have no school qualifications and that people with a not stated response are often people with no qualifications, the two sets of data seem consistent for this category. Hence making that adjustment we might expect the two distributions to be comparable. However, it seems the HBS surveys respondents are more educated than the general population, in particular with about 24% having a level 3 certificate compared with about 15% in the general population.

Such analysis suggests as expected the telephone based sample has a bias across the standard socio-demographic groups. This makes it difficult to be sure that the differences observed between the GLB and the heterosexual population are real rather than a result of the frame bias. For example, the GLB population in these surveys has typically higher high school qualifications than the heterosexual population. Similarly the GLB population tends to have more income. But if the GLB population are more likely to have a landline than the heterosexual population we would observe this since people with landlines have some of these characteristics.

6 Metadata for the Mental Health Survey

The information in this section about the surveys has come from Browne et al., 2006. The following is almost verbatim from Browne et al., 2006.

The target population was people aged 16 and over living in permanent private dwellings throughout New Zealand. The survey design was for a nationally representative sample. A multi-stage area probability sample was selected. The first stage of selection involved sampling census meshblocks, small areas containing mostly around 40 to 70 dwellings. The second stage involved selecting dwellings within meshblocks. The final stage involved selecting one person per household. To improve the precision of estimates for Māori and Pacific people oversampling was used. The number of Māori was doubled and the number of Pacific people was quadrupled compared with that expected without oversampling. Two techniques were used for oversampling: targeting and screening. For targeting, meshblocks with a high density of Pacific people were selected with a higher probability. Screening was carried out in the other meshblocks: in some households everyone aged 16 years and over was eligible, in some households only Māori or Pacific people were eligible, and in the remaining households only Pacific people were eligible. Targeting is efficient for fieldwork but leads to less precision in estimates, whereas screening is statistically efficient but requires extensive door-knocking. Even with oversampling, unbiased estimates for the whole population could be made because of the appropriate weighting of participants. Introduction 6 Te Rau Hinengaro: The New Zealand Mental Health Survey

The fieldwork was carried out by the National Research Bureau in late 2003 and throughout 2004. A total of 75,340 dwellings were approached for this survey. Because of screening, many dwellings were approached but were found to be ineligible: 79% of households screened for Māori and Pacific people had no one eligible (over 13,000 households) and 88% of those screened for Pacific people only had no one eligible (over 37,000 households). These numbers show something of the additional fieldwork associated with doubling the number of Māori and quadrupling the number of Pacific people. The overall response rate was 73.3%. Ethnic-specific response rates could not be calculated directly because while the ethnicity of participants was known, the ethnicity of non-participants was not known, except for
screened households where a listing of the ethnicity of household members had been obtained.

The total number of interviews was 12,992. The number of participants who reported Māori ethnicity was 2,595 and the number reporting Pacific ethnicity was 2,374. There were 138 participants who reported both Māori and Pacific ethnicity.

7 Quality of the data from the Mental Health survey

The response rate for this survey was good considering the use of a screening sample. There was differential nonresponse with young people less likely to respond particularly among the Māori and Pasifika ethnic groups. This is consistent with the pattern of nonresponse across a range of household surveys.

7.1 Socio-demographic variables in the MHS.

The item nonresponse for the socio-demographic variables I looked at ranged from 0.0% for e.g Labour Force Status, or Highest School Qualification to 4% to more sensitive information such as income. These very good rates are likely to be due to the mode of the survey (face-to-face interviewing) and good interviewers and interviewer training.

The sexual attraction question had 0.05% of records in the Refused category which is the same magnitude to the not sure category. This is a much lower rate that the Health Behaviours Survey. This low rate may be because of the subject matter of the survey or the mode of the survey.

The same sex sexual experience question had 0.18% of records in the Refused category. This was also the refusal rate for the same sex sexual relationship question.

To assess whether any frame bias exists after calibration we can look at the distributions of some socio-economic characteristics compared with the 2006 Census, taking into account the different timings and that the Census is not itself error free.

For illustration consider income (Table 3) and highest school qualifications (Table 4).

Table 3: Income distributions from the 2006 Census and Mental Health Survey in 2003/2004.

<table>
<thead>
<tr>
<th>Loss</th>
<th>census</th>
<th>MHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero Income</td>
<td>4.59%</td>
<td>3.52%</td>
</tr>
<tr>
<td>$1 - $5,000</td>
<td>7.00%</td>
<td>7.61%</td>
</tr>
<tr>
<td>$5,001 - $10,000</td>
<td>7.18%</td>
<td>7.37%</td>
</tr>
<tr>
<td>$10,001 - $15,000</td>
<td>11.26%</td>
<td>14.51%</td>
</tr>
<tr>
<td>$15,001 - $20,000</td>
<td>8.23%</td>
<td>8.36%</td>
</tr>
<tr>
<td>$20,001 - $25,000</td>
<td>6.95%</td>
<td>6.41%</td>
</tr>
<tr>
<td>$25,001 - $30,000</td>
<td>6.81%</td>
<td>6.29%</td>
</tr>
<tr>
<td>$30,001 - $40,000</td>
<td>12.79%</td>
<td>12.89</td>
</tr>
<tr>
<td>$40,001 - $50,000</td>
<td>8.30%</td>
<td>9.59%</td>
</tr>
<tr>
<td>$50,001 - $70,000</td>
<td>8.90%</td>
<td>10.47%</td>
</tr>
<tr>
<td>$70,001 - $100,000</td>
<td>3.96%</td>
<td>3.70%</td>
</tr>
<tr>
<td>$100,001 or More</td>
<td>3.34%</td>
<td>3.82%</td>
</tr>
</tbody>
</table>
Taking into account the difference in years, that there are fewer not stated in the MHS, that
there is a slight difference in populations (15 and over for the Census, 16 and over for the MHS)
and that for the MHS the $50,000-$70,000 category is $50,000-$74,999 and the $70,001-
$100,000 category is $75,000-$99,999 the income distributions are the same.
Table 4: Highest School Qualification distributions from the 2006 Census and Mental Health Survey in 2003/2004.

<table>
<thead>
<tr>
<th></th>
<th>census</th>
<th>MHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Qualification</td>
<td>29.20%</td>
<td>26.73%</td>
</tr>
<tr>
<td>Level 1 Certificate</td>
<td>17.91%</td>
<td>20.17%</td>
</tr>
<tr>
<td>Level 2 Certificate</td>
<td>16.11%</td>
<td>11.62%</td>
</tr>
<tr>
<td>Level 3 or 4 Certificate</td>
<td>15.42%</td>
<td>6.09%</td>
</tr>
<tr>
<td>Overseas Secondary School Qualification</td>
<td>12.55%</td>
<td>4.39%</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>0.01%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Refused to Answer</td>
<td>0.00%</td>
<td>0.30%</td>
</tr>
<tr>
<td>Response Unidentifiable</td>
<td>0.00%</td>
<td>1.09%</td>
</tr>
<tr>
<td>Response Outside Scope</td>
<td>0.00%</td>
<td>7.42%</td>
</tr>
<tr>
<td>Not Stated</td>
<td>7.42%</td>
<td>0.02%</td>
</tr>
</tbody>
</table>

In Table 4 the qualification categories are not directly comparable. The Census data is for people 15 and over and the MHS data is for people aged 16 and over. Given that most people get a first qualification after 15, the two sets of data seem consistent for this category. Hence making that adjustment we might expect the two distributions to be comparable. It seems the MHS surveys respondents are more educated than the general population, in particular with about 20% having a level 3 certificate compared with about 15% in the general population. Similarly there seem to be slightly more people with an overseas qualification. However, because the Not Stated category is large in the census and that in the MHS no respondent reported a qualification in the other category suggesting interviewer prompting or coding decisions eliminated this group, these differences may not be real.

Based on my brief look at the sampling process (frame bias, response rates, item nonresponse rates) from the MHS it would seem to have better quality data for looking at estimating the prevalence of GLB than either of the Health Behaviours Surveys. However, from a measurement perspective the MHS questions are not satisfactory as discussed above.

8 Are nonrespondents to the sexual identity question a hidden component of the GLB population?

The approach taken in answering this question is to determine whether the people who did not respond missing, or responded with the not stated categories other, don’t know, refused are similar to the GLB population with respect to some standard socio-demographic characteristics. The measure of similarity follows the methodology developed in Jackson and Gray, 2007 and Jackson et al., 2008.
These papers consider the problem of constructing a summary of a table by examining the category structure within the variables and reducing the number of categories. If the behaviour of two categories is sufficiently similar we collapse them by aggregating the counts in the cells and forming a new combined category. This leaves the set of variables unchanged, but aims to simplify the manner in which their interactions are described. It can be thought of as examining the saturated model between all pairs of categories and modelling the pair associated with least information loss as having the same behaviour. The terms aggregating two categories and collapsing two categories are synonymous and will be referred to it as Paired Category Collapsing (PCC). In this process the number of variables is unchanged, but the size of the table necessary to model it is rapidly reduced. These papers show that in many cases PCC provides a range of insights into the structure of the associations in the table.

8.1 Data
We obtained a set of 4 way tables from the HBSA and HBSD surveys. All the tables included sex, age in the age groups missing, 13-19, 20-24, 25-29, 30-39 40-49, >=50, and the sexual identity variable mentioned above. The other variable was one of a range of obvious socio-economic variables: ethnicity, (total response), marital status, qualifications, employment status, income, and occupation. In order to understand the geographic distribution of the GLB population we used the stratification variable, which was essentially the Telephone directories split into urban and rural areas.

The data was analyzed for each survey separately, and for the surveys combined. To construct the weights for the combined surveys I used a convex combination of the individual survey weights, where the weight was proportional to the survey’s sample size. Since the surveys had the same sample design and seemed to have similar design effects, the survey’s sample size is likely to be roughly proportional to the estimates’ variances. This approach leads to minimizing the variance of the estimates from the combined sample. A similar set of data was obtained from the MHS. Where possible the categories were made the same as in the HBS data.

8.2 Example of the PCC analysis.
Table 5 gives the PCC collapsing sequence for the 4 way table sex X age group X employment status X sexual identity. Using a reference level of accepting any collapses which gives an Adjusted R-square of at least 90% we see that we collapse the other and missing categories at the third step, then the lesbian and bisexual at the fourth step, at the fifth step collapse don’t know with other, missing and finally at the sixth step collapse other, missing, don’t know, lesbian, bisexual.

At these steps the information loss is 1.3%, 1.9%, 3.0% 4.7% respectively. A conservative view would be that the other, missing, don’t know categories are likely to be in the GLB population. More liberally, they would be in the LB population.
Table 5: PCC collapsing sequence for HBSA employment status table.

<table>
<thead>
<tr>
<th>d key</th>
<th>dim</th>
<th>dev</th>
<th>dfmod</th>
<th>dfres</th>
<th>dev(term)</th>
<th>df(term)</th>
<th>AdRsq</th>
</tr>
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<td>4</td>
<td>5</td>
<td>5</td>
</tr>
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<td>3</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>1</td>
</tr>
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<td>1</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
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<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<tr>
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<td>3</td>
<td>1</td>
<td>1</td>
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<td>5</td>
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<td>1</td>
</tr>
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<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
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<td>1</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>23</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Figure 1 shows the information lost as the variables are collapsed. Figure 2 shows the change in adjusted R-squared. Generally speaking, an adjusted R-square of 90% equates to only a small percentage loss of information in the 4 way tables I examined.
Figure 1: Plot of information loss for employment status table from HBSA.
8.3 Summary of results

The summary of the potential similar groups is given in Appendix A.2. For the HBSs generally the categories other, don’t know, missing are collapsed with one of GLB categories suggesting people responding in this way are more likely to be part of the GLB population than the heterosexual population. Table 6 gives the estimates of the subpopulation sizes from the HBSA and HSBD surveys. These categories add to 0.94%. The GLB categories add to 1.14%. The results for the refused category are less clear cut. This may be because there is an interaction with age. The highest proportion (2.6%) of refused is in the youngest age group (13-19), with the two oldest age groups (40-49, 50-64) being the next highest (2.0%, 1.8% respectively, compared with the age group 20-39 averaging 0.8% refused. The relative errors on these estimates are at least 25% so caution is needed in making comparisons.

Hence the GLB population could be larger than that reported in these surveys: over 2% if we included the other, don’t know, missing 3% if we also included some of the refused.
For the MHS, (Table 7) based on the sexual attraction question there are far fewer in the not-stated categories 0.5%. For this question although the other, refused and not sure categories seem to coalesce there is possibly less evidence for them to be associated with the GLB categories.

At most both the HBSs and MHS would suggest that the GLB is in the order of 2%. This is a lot smaller than non-probability based surveys would suggest and lower than the nearly 8% estimated in the Youth 2000 survey.

The MHS estimates 5.0% of the population 16 and over have had a same sex sexual experience; the refusal rate was very small at 0.1%. The MHS estimate 0.8% of males and 1.2% of females are in a same sex relationship. Again the refusal rate is 0.1%. For these sexual behaviour questions, the PCC analysis suggests that the refused are not part of the GLB population. But since the percentage of refused is small, little should be made of this.

Table 6: Prevalence estimates based on the HBSA and HBSD surveys.

<table>
<thead>
<tr>
<th>Category</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>heterosexual</td>
<td>96.4</td>
</tr>
<tr>
<td>lesbian</td>
<td>0.28</td>
</tr>
<tr>
<td>gay</td>
<td>0.5</td>
</tr>
<tr>
<td>bisexual</td>
<td>0.36</td>
</tr>
<tr>
<td>other</td>
<td>0.08</td>
</tr>
<tr>
<td>missing</td>
<td>0.59</td>
</tr>
<tr>
<td>don’t know</td>
<td>0.27</td>
</tr>
<tr>
<td>refused</td>
<td>1.5</td>
</tr>
<tr>
<td>GLB</td>
<td>1.14</td>
</tr>
<tr>
<td>? GLB</td>
<td>2.08</td>
</tr>
</tbody>
</table>

Table 7: Prevalence estimates based on the MHS sexual attraction question.

<table>
<thead>
<tr>
<th>Category</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>heterosexual</td>
<td>98.0</td>
</tr>
<tr>
<td>lesbian</td>
<td>0.39</td>
</tr>
<tr>
<td>gay</td>
<td>0.43</td>
</tr>
<tr>
<td>bisexual</td>
<td>0.64</td>
</tr>
<tr>
<td>other</td>
<td>0.35</td>
</tr>
<tr>
<td>don’t know</td>
<td>0.10</td>
</tr>
<tr>
<td>refused</td>
<td>0.05</td>
</tr>
<tr>
<td>GLB</td>
<td>1.46</td>
</tr>
<tr>
<td>? GLB</td>
<td>1.96</td>
</tr>
</tbody>
</table>

9 Misreporting GLB

So far we have assumed that people who report sexual identity, etc are reporting accurately. That is if you are GLB you say you are GLB. There is much evidence that there is considerable misreporting. So the question arises as to whether one can estimate the misreporting. Several

The approach taken by Berg and Lien (Berg and Lien, 2006) is to consider those people who respond to a survey (in their case the US General Social Survey (GSS) for the decade 1991-2000), and then split these respondents by how they respond to say a sexual behaviour question: heterosexual, non-heterosexual, don’t respond. They then make assumptions about the conditional probabilities of responding with one of these categories given that the respondent is heterosexual or non-heterosexual. So we start of with a two-way table describing the joint probabilities e.g. of reporting behaviour and actual behaviour as in Table 8.

Table 8: The joint probabilities of reporting say sexual behaviour and actual sexual behaviour.

<table>
<thead>
<tr>
<th></th>
<th>report Heterosexual</th>
<th>report Non-Heterosexual</th>
<th>report Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heterosexual</td>
<td>(P(r</td>
<td>H)P(H))</td>
<td>(P(r</td>
</tr>
<tr>
<td>Non-Heterosexual</td>
<td>(P(r</td>
<td>NH)P(NH))</td>
<td>(P(r</td>
</tr>
</tbody>
</table>

We then assume that the probability of being say non-heterosexual \(P(NH)\) is some function of a set of covariates \(x\): say \(g(x^T \gamma)\), where \(\gamma\) are parameters to be estimated from the data. Then by the laws of the probability the probability of being heterosexual has to be \(1 - g(x^T \gamma)\). We assume that the probability of reporting heterosexual behaviour given actual behaviour is non-heterosexual, \(P(r|NH)\), is in the simplest case another function of the same covariates, \(m(x^T \mu)\). In contrast, we assume that \(P(r|NH)\) is simply a constant independent of any covariates. Finally, \(P(r|NH)\) is assumed to be a different function of the same covariates say \(n(x^T \nu)\), as is \(P(r|H)\), say \(r(x^T \rho)\). The laws of probability allow us to fill in the remaining probabilities: \(P(r|NH|H) = 1 - m(x^T \mu) - n(x^T \nu)\) and \(P(r|H|H) = 1 - M - r(x^T \rho)\). In practice the functions chosen are the usual ones in generalized linear modelling: e.g. the logistic function.

As it stands there are too many parameters to evaluate so some restrictions are placed on them. These restriction arise naturally from the case where we thought no covariates had explanatory power, that is we replace e.g. with a fixed constant \(n\). In particular we would assume:

1. \(n=r\).
2. \(m=M\).
3. \(r(1-g)+ng\) is the observed proportion of item nonresponse to the behaviour question, say which is an estimate of \(P(r)\).
4. \(M(1-g)+(1-m-n)g\) is the observed proportion of non-heterosexual behaviour in those which report sexual behaviour, say .

Assumptions 1 and 2 are arguable, whereas assumptions 3 and 4 seem less so. Some easy algebra then shows that \(g = (N_{nh}/(N_h + N_{nh}) - M)/(1 - N_{nr}/N - M)\) a naive estimate of the misreporting.
Under these assumptions and the assumption that some covariates do explain the various probabilities defined above it is straightforward to write done the likelihood equation and solve in the manner of any generalized linear model.

The estimated rate of non-heterosexual behaviour in the US GSS is 3.9% for females and 4.4% for males. Berg and Lien fitted the above model with socio-demographic covariates: Income, whether a parent, whether white, whether married, number of degrees, age and city size. They found that accounting for misreporting and nonresponse the estimate increased by about 60% for males to 7.1% and increases slightly for females to 4.1%.

As we will see in the next section, when analyzing the data from the MHS, we found a range of socio-demographic variables were not able to predict GLB much more than random chance, suggesting that the above framework might not be that useful. However, more work should be done along these lines with other New Zealand survey data.

Since $g > 0$ some further algebra shows that either

$$0 < M < \min \left\{ \frac{N_{nh}}{N_h + N_{nh}}, 0.5(1 - N_{nr}/N) \right\}$$

or

$$\max \left\{ \frac{N_{nh}}{N_h + N_{nh}}, 0.5(1 - N_{nr}/N) \right\} < M < 1.$$  

In the MHS the report missing is very low. For example, for the “sexual orientation/attraction” question if we assume the not sure and refused are the report missing category, then the estimate of non-heterosexual “attraction”, $\frac{N_{nh}}{N_h + N_{nh}}$, would be 1.8% and the estimate of report not missing, $1 - N_{nr}/N$, would be 99.85%. With this data the maximum alternative produces invalid probabilities. Hence the misreporting rate must be less than the observed non-heterosexual rate which in itself is low. So the prevalence estimates would be similar to those suggested by the pcc analysis which suggested collapsing the not sure and refused into the GLB population.

10 Sampling Strategies

From the HBSA and HBSD surveys there is evidence of mild clustering in urban areas. The above analysis suggests that the not-stated categories are likely to be part of the GLB population. Table 9 gives the distribution of the not-stated compared with the GLB population. By and large the distributions are similar although there is some evidence that in the non-main urban areas there are some not-stateds reported where there are no GLB reported: e.g. Nelson. A similar pattern occurs in the MHS (Table 10). But one needs to be cautious in interpreting such data. For example, Rotorua appears to have a very high GLB population but the 95% confidence interval is likely to be something like 2.4% - 9.5%; Wellington’s 3.3% is likely to be in the range 1.8% to 5.4%.

However, based on these surveys we are talking about a rare population with essentially very few high density clusters. We know from experience of over sampling the Māori and Pasifika ethnic groups (e.g. Gray, 2005, Clark et al., 2009) that the few high density cluster contribute very little to the overall population, Hence a strategy which targets them both fails to get a large enough sample and often impacts severely on the design effects of the national estimates. The MHS is a good example of a survey which has tried to balance targetting and screening and it
seems from the published confidence intervals that combination of targeting and screening has not had a major impact on the design effect we would normally expect from household surveys about health.

Overseas, there have been attempts to screen for the GLB population. See Meyer and Colten, 1999 and Meyer et al., 2002, for example. In these studies the sampling used random digit dialling. A set of questions about sexual behaviour and sexual attraction were asked. The refusal rate to the screening questions in Meyer and Colten, 1999 was 33 out of 170 or about 19%. Having been screened, the refusal rate to other questions was about 10%. There is evidence to suggest that the more anonymous setting of a telephone interview leads to less nonresponse with sensitive questions. Indeed for the proposed MoH sexual health survey this was the recommended mode. Offset against controlling this source of bias is that arising from frames based on telephone lists as discussed above in the context of the HBS. Moreover, the screening tool was used in areas where there was already a higher than average GLB population. Possibly non-GLB people who live in areas with a high GLB presence are more comfortable in answering screening questions.

I think the question of whether screening would work in New Zealand is an open question. But these studies suggest some possible approaches: that the screening tool is applied in a telephone interview; that it is applied only in areas with higher than average GLB populations. It is likely that adopting a screening tool would mean having a multi-mode survey, leading to more complex weighting and analysis.

So currently, as there is not yet a proven option for screening GLBs, there seems no efficient way to oversample this group through standard household survey designs.
Table 9: Distribution (percentages) of the not-stated categories across areas (essentially Telephone directories split into urban and rural) as reported in the HBSA and HBSD surveys.

<table>
<thead>
<tr>
<th>Area</th>
<th>Percentage glb</th>
<th>Percentage ns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main - Auckland</td>
<td>40.71</td>
<td>37.19</td>
</tr>
<tr>
<td>Main - Chch</td>
<td>7.96</td>
<td>10.74</td>
</tr>
<tr>
<td>Main - Dunedin</td>
<td>2.65</td>
<td>2.89</td>
</tr>
<tr>
<td>Main - Gisborne</td>
<td>0.88</td>
<td>1.24</td>
</tr>
<tr>
<td>Main - Hamilton</td>
<td>6.19</td>
<td>4.96</td>
</tr>
<tr>
<td>Main - Hib Coast</td>
<td>0.00</td>
<td>1.24</td>
</tr>
<tr>
<td>Main - Invercargill</td>
<td>0.88</td>
<td>1.65</td>
</tr>
<tr>
<td>Main - Napier/Hastings</td>
<td>2.65</td>
<td>1.65</td>
</tr>
<tr>
<td>Main - Nelson</td>
<td>6.19</td>
<td>2.07</td>
</tr>
<tr>
<td>Main - New Plymouth</td>
<td>0.88</td>
<td>0.00</td>
</tr>
<tr>
<td>Main - Palmerston North</td>
<td>1.77</td>
<td>1.65</td>
</tr>
<tr>
<td>Main - Rotorua</td>
<td>0.88</td>
<td>1.24</td>
</tr>
<tr>
<td>Main - Tauranga</td>
<td>4.42</td>
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</tr>
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<td>0.41</td>
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<tr>
<td>Main - Wanganui</td>
<td>1.77</td>
<td>1.24</td>
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<td>0.83</td>
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<td>1.65</td>
</tr>
<tr>
<td>NMU - Chch</td>
<td>0.88</td>
<td>0.41</td>
</tr>
<tr>
<td>NMU - Dunedin</td>
<td>0.88</td>
<td>1.24</td>
</tr>
<tr>
<td>NMU - Gisborne</td>
<td>0.00</td>
<td>0.41</td>
</tr>
<tr>
<td>NMU - Hamilton</td>
<td>1.77</td>
<td>3.31</td>
</tr>
<tr>
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<td>0.00</td>
<td>1.24</td>
</tr>
<tr>
<td>NMU - Napier/Hastings</td>
<td>0.00</td>
<td>1.24</td>
</tr>
<tr>
<td>NMU - Nelson</td>
<td>0.00</td>
<td>2.07</td>
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<td>0.00</td>
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<td>0.00</td>
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<td>1.65</td>
</tr>
<tr>
<td>NMU - Taupo</td>
<td>0.00</td>
<td>1.24</td>
</tr>
<tr>
<td>Main - Kapiti Coast</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>NMU - Wellington/Wairarapa</td>
<td>0.00</td>
<td>1.24</td>
</tr>
</tbody>
</table>
Table 10: Distribution (percentages) of the not-stated categories across areas (NZ Urban Area Standard Classification) as reported in the Mental Health Survey.

<table>
<thead>
<tr>
<th>Area</th>
<th>glb</th>
<th>ns</th>
<th>sample size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whangarei</td>
<td>0.00</td>
<td>0.00</td>
<td>147</td>
</tr>
<tr>
<td>Northern Auckland Zone</td>
<td>1.00</td>
<td>0.80</td>
<td>688</td>
</tr>
<tr>
<td>Western Auckland Zone</td>
<td>2.40</td>
<td>0.70</td>
<td>617</td>
</tr>
<tr>
<td>Central Auckland Zone</td>
<td>1.90</td>
<td>0.50</td>
<td>1280</td>
</tr>
<tr>
<td>Southern Auckland Zone</td>
<td>0.90</td>
<td>0.80</td>
<td>1990</td>
</tr>
<tr>
<td>Hamilton Zone</td>
<td>0.50</td>
<td>1.50</td>
<td>433</td>
</tr>
<tr>
<td>Cambridge Zone</td>
<td>0.00</td>
<td>0.00</td>
<td>62</td>
</tr>
<tr>
<td>Te Awamutu Zone</td>
<td>0.00</td>
<td>0.00</td>
<td>51</td>
</tr>
<tr>
<td>Tauranga</td>
<td>1.20</td>
<td>0.90</td>
<td>289</td>
</tr>
<tr>
<td>Rotorua</td>
<td>5.10</td>
<td>1.50</td>
<td>197</td>
</tr>
<tr>
<td>Gisborne</td>
<td>0.00</td>
<td>2.70</td>
<td>115</td>
</tr>
<tr>
<td>Napier Zone</td>
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<td>156</td>
</tr>
<tr>
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</tr>
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<td>0.00</td>
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<tr>
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<td>0.20</td>
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</tr>
<tr>
<td>Minor Urban Areas</td>
<td>1.10</td>
<td>0.50</td>
<td>1061</td>
</tr>
<tr>
<td>Rural Areas</td>
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<td>0.40</td>
<td>1437</td>
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10.1 Targetting
Most household surveys use standard geographic areas such as Census meshblocks or Census area units as their primary sampling units (psus). These psus are generally stratified into larger geographic regions such as Territorial Authorities. Such contiguous stratification does not generally help in targeting rare(r) populations. Another approach is to form strata based on the incidence of the rare population. To that end we looked at seeing what categories of common socio-demographic variables could predict whether a person is likely to be GLB or not. If we found some such variables and categories then we could look at which meshblocks contained a much higher than average number of people with these variables and categories. We could form these into a high density stratum and oversample there.

To that end we used the MHS data. The analysis on the unit record data was done by Robert Templeton in discussion with me. For the purposes of this analysis we excluded the people who refused to answer the “sexual attraction” attraction question or whose response was unsure.
Of the remaining people those who responded opposite were assigned glb=0; those who responded same, both something else were assigned glb=1.

The socio-demographic variables were in the main the ones used in the pcc analysis:

- 6 age groups,
- gender,
- labour force status,
- total ethnicity: Maori, Pasifika, Asian, occupation, marital status, living together, number of marriages,
- education (none, school or post-school only, both school and post-school),
- equivalent income (quartiles),
- NZ deprivation index (quintiles)
- household size
- income support (on UB, SBIB or DPB; or not).
- urban area (main, secondary, minor, other (rural))

People with missing values on the covariates were excluded from the analysis.

We considered a logistic regression model:

\[
\log \left( \frac{p}{1-p} \right) = \beta_0 + \beta_1 x_{1i} + \ldots + \beta_1 x_{ni}
\]

where we define the odds of being GLB to be the probability of being GLB \(p\) divided by the probability of not being GLB \(1-p\), then we model the logarithm of the odds as a linear function of the covariates. Roughly speaking, the estimated parameters associated with a covariate indicate how much the odds are changed taking into account the covariate. If we had no information then the odds would be say the empirically observed: say .02/.98 = .0204.

Because the data came from a complex design this had to be accounted for in the analysis, Proc Surveylogistic in SAS was used for fitting the models. As usual an iterative process was used, firstly fitting all main effects, then looking at interaction terms for covariates with significant main effects, then fitting a reduced model.

The resulting model had main effects age + gender + marital status + income support and interactions age * gender + age * marital status + age * income support + gender * marital status.

This model is probably not as rich as we might expect from the pcc analysis. For example, area does not feature. This is probably because this covariate is now too broad to be distinguishing.

Also its predictive power is not great. A useful measure of the predictive power is a risk quantile plot. This orders the dataset by the predicted probabilities \((\hat{p}_i)\) and divides it into quantiles on the basis of this prediction. It then plots observed rates of the outcome variable against the average predicted probability within each quantile. This curve can be compared with an “ideal” fit, if we could perfectly predict GLB. In that case we would expect that the covariates cluster the GLB population at the right hand side of the graph. This “ideal” line could be thought of as the equivalent of the ideal line in an ordinary regression model which is a straight line with now cloud of data points.
Figure 3 is the risk quantile plot for the fitted model. We see that even in the last decile the model is not predicting a high probability of being GLB. In essence the socio-demographic variables in this survey do not seem discriminating enough. As a comparison, if we were targeting for ethnicity, then Census data even after two or three years will predict meshblocks with say a high proportion of Pasifika with a probability much greater than that which we have observed here. It may be that other approaches to identifying any high density areas will need to be used. See for example the work of Hughes and Saxton mentioned in Frank Pega's *Measurement and Data Collection Issues Report* prepared for this project.

![Model C]

Figure 3: Plot of risk quantile plot for the logistic regression model chosen for the MHS data. The dark red dotted lines are upper and lower confidence limits (using normal approximation). The light red is predicted model value for the quantile black dots are observed rates in each quantile. The blue line is 'ideal' model. The horizontal line is the empirically observed value.
11 Conclusions

11.1 Prevalence rates

The response rates and frame bias in the HBSA and HBSD surveys mean that we cannot be too definitive about the conclusions of the analysis. That said there is evidence that based on a range of socio-demographic characteristics, people who report one of the not-stated categories other, missing, don’t know, refused are more likely to be similar to the GLB population. This means that the size of the GLB population could be more than twice that reported in these surveys.

Although the questions in the MHS may lead to confusion in the mind of the respondent since e.g. both orientation and attraction are mentioned in the same question, the estimates of the GLB are comparable to the HBS.

However, these estimates are at the low end of prevalence rates compare with estimates from overseas studies (see for example the data in Frank Pega’s Measurement and Data Collection Issues Report.) In New Zealand, two birth-cohort based longitudinal studies have asked questions about sexual identity and behaviour. The Christchurch Health and Development Study (CHADS) found that at the age of 21 2.8% of the birth cohort self-identified as GLB, and that at the age of 25 12.8% of participants had engaged in same sex behaviour, were same-sex attracted or identified as GLB. These are larger estimates than say the MHS. The Dunedin Multidisciplinary Health and Development Study, reported some life-time same-sex attraction. Major GLB attraction defined as predominantly same-sex attraction or equal attraction to both sexes was claimed by 1.6% of men and 2.1% of women.

These questions were asked in later waves and it is likely that good rapport had been established with the respondent by then. Hence, it is more likely that nonresponse or misreporting was attenuated when compared with one-off surveys. However, both surveys are South Island based so do not display the ethnic diversity of New Zealand. Since they are birth cohorts they are also limited in their age distribution. These factors along with the use of different questions probably explain some of the differences in the prevalence estimates. For example in the HBS, in the 20-24 age group 1.2% report GLB. In that age group 2.4% are in the not-stated categories. So the prevalence rates in HBS and CHDS may not be as different as it first appears. For that age group the MHS reports 7.1% having a same sex experience. (0.1% refused to answer this question.) After accounting for sample errors, this is still probably somewhat lower than the CHDS.

So my view is that we still have not got robust estimates of the GLB prevalence for the country, either because of deficiencies in the sampling or in the question design. Moreover, it is hard to compare the differences in the estimate, because of the factors discussed above. Adopting a consistent classification framework and asking the associated question(s) on national official statistics surveys will address this problem. The challenge of getting large enough sample sizes to provide multivariate breakdowns of the GLB population can in part be overcome by pooling the same survey across years. It seems unlikely that underlying prevalence of the GLB population changes rapidly except perhaps when the social and legal environment makes quantum shifts as for example the legalizing of same sex behaviour in the 1980’s.

This approach is not radical and with respect to the sexual identity aspect of sexual orientation this approach has been adopted by the Office for National Statistics in the United Kingdom.
11.2 Sampling Strategies
The GLB population is slightly clustered in the main urban areas, and that is by and large not changed if we include the not-stated categories. However, based on these surveys we are talking about a rare population with essentially very few high density clusters. Because screening is not yet a proven option for this group, there seems no efficient way to oversample this group through standard household survey designs. Possibly the most efficient approach to gain large samples for estimating prevalence, assuming it is reasonably stable over 2-5 years is to collect the data with surveys which run across adjacent years.

Considerable work would need to be done to use existing survey data to construct a stratification of meshblocks which would identify high density GLB meshblocks. The obvious socio-demographic variables do not seem predictive enough to produce useful gains in sampling rates. Furthermore, it is not clear how stable such a stratification would be across time. The general population is highly mobile. Is this the case with the GLB population? Or is it the case as some overseas evidence suggests that they tend to move into already higher than average GLB areas? If so, then stratifying on a model using data 5 years old may produce no gains above some general areal stratification.

Acknowledgements
I would like to thank Robert Templeton for providing me with the data and metadata; for discussions about the quality of the data; for carrying out the analysis on the MHS unit record data. I have had many useful conversations with Frank Pega and Gabi Rosenstreich on trying to understand the context of this project. Frank’s three discussion papers have been invaluable to me. I would like to thank Jaimie Veale for sharing my work environment and assisting in the initial stages of this analysis. Finally, I would like to thank all the people who provided feedback on the earlier drafts: Frank Pega, Jaimie Veale and Denise Stephens from the project team, Peter Salter from MSD and Harry Smith and Deb Potter from SNZ.
References


12 Appendix

12.1 The collapsing sequences for all the 4 way tables
For the HBSs these are contained in the attached Excel spreadsheet: pcchbs.xls. The first sheet of this gives a dictionary mapping the codes to an English description. For the MHS see the attached Excel spreadsheet: pccmhss.xls.

12.2 Summary of the collapsing sequences

Table 11: Summary of the sequence of the paired category collapsing for the sexual identity variable for the Health Behaviours Surveys.

<table>
<thead>
<tr>
<th>variable</th>
<th>Alcohol</th>
<th>Drug</th>
<th>Combined</th>
</tr>
</thead>
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</tr>
<tr>
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<td>lesbian, don't know</td>
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Table 12: Summary of the sequence of the paired category collapsing for the ‘sexual attraction’, ‘sexual behaviour’ and sexual relationship variables for the Mental Health Survey.

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<tr>
<td><strong>legally married previously</strong></td>
<td>refused, not sure</td>
<td>no, refused</td>
<td>no, refused</td>
</tr>
<tr>
<td><strong>occupation</strong></td>
<td>refused, not sure</td>
<td>no, refused</td>
<td>no, refused</td>
</tr>
<tr>
<td></td>
<td>refused, not sure, other</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>refused, not sure, other, both sexes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>