



Public Health  
England

Protecting and improving the nation's health

# **Producing modelled estimates of the size of the lesbian, gay and bisexual (LGB) population of England**

## **Technical Report 1: Review of LGB measures**

## About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. We do this through world-class science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We are an executive agency of the Department of Health, and are a distinct delivery organisation with operational autonomy to advise and support government, local authorities and the NHS in a professionally independent manner.

Public Health England  
Wellington House  
133-155 Waterloo Road  
London SE1 8UG  
Tel: 020 7654 8000  
[www.gov.uk/phe](http://www.gov.uk/phe)  
Twitter: @PHE\_uk  
Facebook: [www.facebook.com/PublicHealthEngland](http://www.facebook.com/PublicHealthEngland)

Prepared by:

Sanne van Kampen, Mauro Fornasiero, William Lee, Kerryn Husk

This project was supported by the National Institute for Health Research (NIHR) Collaboration for Leadership in Applied Health Research and Care South West Peninsula at the Royal Devon and Exeter NHS Foundation Trust. The views expressed are those of the author(s) and not necessarily those of the NHS, the NIHR or the Department of Health.

© Crown copyright 2017

You may re-use this information (excluding logos) free of charge in any format or medium, under the terms of the Open Government Licence v3.0. To view this licence, visit [OGL](http://www.ogil.gov.uk) or email [psi@nationalarchives.gsi.gov.uk](mailto:psi@nationalarchives.gsi.gov.uk). Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned.

Published January 2017

PHE publications gateway number: 2016534



# Contents

About Public Health England	2
Introduction	4
Existing surveys that focus on measuring sexual minority populations	5
Identify key search terms for a literature review by studying the documents listed in Annex A	5
Identify relevant research databases for a literature search (UK and internationally)	6
Perform search using identified databases and search terms	6
Limitations of existing surveys examining sexual orientation	11
Extract standard methodological data items from each survey	11
Compare data items across surveys	12
Identify explicitly stated and unstated limitations of tools	16
Recommendations about how existing surveys should and should not be used	19
Conclusions	21
Annexes	22
Annex A: Relevant surveys and research reports	22
Annex B: List of possible search terms	23
References	24

## Introduction

The aim of this technical report is to review key surveys and measurement tools providing an estimate of the size of the lesbian, gay, and bisexual (LGB) population in England. The report details a comprehensive review of existing surveys using systematic review methods as an annex to the Final Report 'Producing modelled estimates of the size of the lesbian, gay and bisexual (LGB) population of England'.

Specifically, this technical report consists of a review of published and grey literature examining:

- existing surveys/measurement tools that focus on measuring sexual minority populations from the UK and internationally
- limitations of existing measurement tools and surveys examining sexual orientation
- recommendations about how existing surveys/measurement tools should and should not be used

## Existing surveys that focus on measuring sexual minority populations

In order to identify existing surveys/measurement tools that measure sexual minority populations, we were informed by more formal systematic review methodology and the following steps were taken:

- a) identify key search terms for a literature review by studying the documents listed in Annex A, consulting the Expert advisory group and trawling relevant grey sources
- b) identify relevant research databases for a literature search (UK and internationally)
- c) perform search using identified databases and search terms

### Identify key search terms for a literature review by studying the documents listed in Annex A

Based on a simple literature review of key documents and further brainstorming, along with Expert advisory group consultation, we compiled possible search terms including three categories to cover: the LGB population, appropriate geography, and relevant measures to estimate the size of the LGB population (see Annex B). Terms were selected based on their occurrence in relevant literature (ONS Sexual Identity Project, EHRC reports, and key scholarly articles).

Final search terms:

- LGB: 'sexual orientation', 'sexual identity', 'same-sex relationships' or 'lesbian gay bisexual'
- geography: 'England', 'United Kingdom', 'Great Britain', 'England and Wales'
- measures: 'survey', 'questionnaire', 'proportion', 'percentage', 'prevalence', 'size', 'measure', 'estimate'

Search terms were combined and run in in our selected databases (see page 6 below). We also used this search approach and terms to identify grey sources, including through websites of key organisations (NHS, ONS, Stonewall, LGBT Foundation), hand-searching of known recent publications, author contacts and through our convened Expert advisory group; to identify measures/surveys potentially not appearing in the formal published literature.

All identified abstracts were screened for relevance and studies selected only when they met our inclusion criteria:

- study population: the general population or a sub-set of the general population without a reasonable bias towards sexual identity
- LGB: inclusion of a direct question on sexual identity using categories heterosexual/straight, lesbian/gay, bisexual or similar
- geography: covering at least the whole of England or sub-geographies that together form a representative sample of the whole of England
- measure: results include a measure of the size of the LGB population or such a measure can be generated from the raw data

We used no restriction on time period.

### Identify relevant research databases for a literature search (UK and internationally)

Based on previous review expertise within the team and Expert advisory group input, we compiled possible search databases where we would likely find data or papers on social surveys. All these databases were searched using the search terms identified above in database-appropriate combinations, the generic strategy being: ('sexual orientation' OR 'sexual identity' OR 'same-sex relationships' or 'lesbian gay bisexual') AND (UK OR England) AND (survey OR questionnaire OR proportion OR prevalence OR size OR percentage OR measure OR estimate)

### Perform search using identified databases and search terms

Search results are shown below in Table 1. A total of 24 unique surveys were obtained: 22 from the UK Data Archive and two additional ones from the other databases. The GP Patient Survey was found through EMBASE, Pubmed/MEDLINE, Web of Science and Zetoc, while the What About YOUth? Survey was found through the HSCIC database.

**Table 1: Research databases searched**

Database	Search terms	Total articles retrieved	Relevant articles selected	Surveys referenced in articles
<b>EMBASE</b>	('sexual orientation' OR 'sexual identity' OR 'same-sex relationships' or 'lesbian gay bisexual') AND (UK OR England) AND (survey OR questionnaire OR proportion OR prevalence OR size OR percentage)	91	11	2009/2010 English GP Patient Survey; UK National Cancer Patient Experience Survey; Longitudinal Study of Young People in England; Adult Psychiatric Morbidity Survey 2007; National Survey of Sexual Attitudes and Lifestyles 1

<b>HSCIC</b>	('sexual orientation survey') OR ('sexual identity survey')	68	3	What About YOUth? Survey 2014; Crime Survey for England and Wales; GP Patient Survey
<b>SAGE</b>	'sexual orientation' AND England AND survey	41	0	N/A
<b>Pubmed/ MEDLINE</b>	('sexual orientation' OR 'sexual identity' OR 'same-sex relationships' or 'lesbian gay bisexual') AND ('United Kingdom' OR England OR Britain) AND (survey OR questionnaire OR proportion OR prevalence OR size OR percentage OR measure OR estimate)	106	9	2009/2010 English GP Patient Survey; UK National Cancer Patient Experience Survey; Longitudinal Study of Young People in England; Adult Psychiatric Morbidity Survey 2007; National Survey of Sexual Attitudes and Lifestyles 1
<b>Social Science Research Network</b>	'sexual orientation' AND survey	38	0	N/A
<b>Social Care Online</b>	'sexual orientation' AND survey AND 'United Kingdom'	5	0	N/A
<b>SocINDEX</b>	('sexual orientation' OR 'sexual identity' OR 'same-sex relationships' or 'lesbian gay bisexual') AND ('United Kingdom' OR England OR Britain) AND (survey OR questionnaire OR proportion OR prevalence OR size OR percentage OR measure OR estimate)	69	2	British Social Attitudes Survey 1985/1987/1989/1990; National Survey of Sexual Attitudes and Lifestyles; British Crime Survey
<b>UK Data Archive</b>	('sexual orientation' OR 'sexual identity' OR 'same-sex relationships' OR 'lesbian gay bisexual') AND (England OR 'United Kingdom' OR 'Great Britain' OR 'England and Wales')	89	52	See: Notes
<b>Web of Science</b>	('sexual orientation' OR 'sexual identity' OR 'same-sex	97	9	2009/2010 English GP Patient Survey; Adult Psychiatric

	relationships' or 'lesbian gay bisexual') AND ('United Kingdom' OR England OR Britain) AND (survey OR questionnaire OR proportion OR prevalence OR size OR percentage)			Morbidity Survey 2007; Longitudinal Study of Young People in England 2009; British Social Attitudes Survey; National Survey of Sexual Attitudes and Lifestyles; British Crime Survey
<b>Zetoc</b>	('sexual orientation' OR 'sexual identity' OR 'same-sex relationships' OR 'lesbian gay bisexual') AND ('United Kingdom' OR England OR Britain) AND survey	13	4	2009/2010 English GP Patient Survey; Adult Psychiatric Morbidity Survey 2007; Health Survey for England 1998; Health Survey for England 2000–2002

The UK Data Archive was searched using both 'Discovery' and 'Variable and Question Bank'. Of the 52 relevant surveys that were found, only the most recent versions that contained a question on sexual orientation or identity were included in the final list of surveys (see below). This resulted in a total of 22 surveys that were retrieved from the UK Data Archive. It is worth noting that as sexual orientation is (rightly) classed as a sensitive variable, data depositors sometimes withhold that variable at the point of deposit (different to holding with special access), therefore as the data are not held by UKDA they are not indexed even though they appeared in the original survey. Thus searches are less robust and some hand-searching was required.

In addition to searching the research databases, we chased citations in key documents on the LGB population in England which generated two additional surveys; The Life Opportunities Survey was found through the EHRC reports on sexual orientation (number 34/35/37), and the Employees' Awareness, Knowledge and Exercise of Employment Rights Survey through the ONS Sexual Identity project documents. Finally, the Expert advisory group provided names of two additional surveys (Count Me In, Active People Survey). Exploration of the ONS statistics database and the NHS publication database on their respective websites generated no additional surveys.

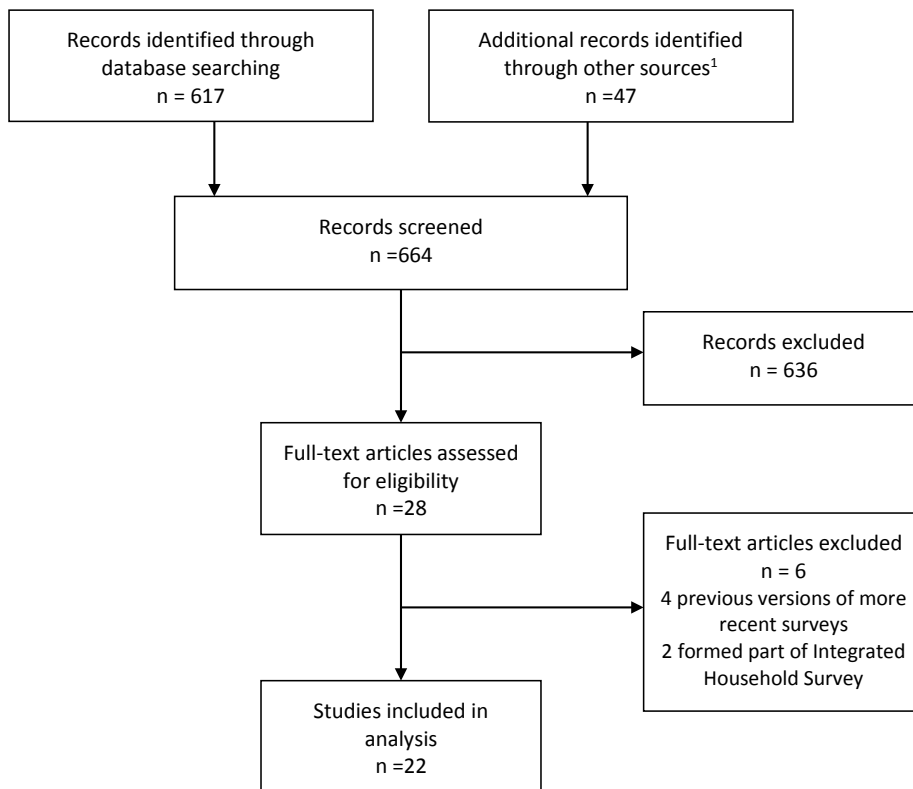
The complete list of 28 surveys were then screened in more detail regarding time period and coverage. It was found that four were previous versions of more recent surveys that were already included: British Crime Survey; ONS Omnibus Survey; Life Opportunities Survey, and the English Housing Survey. The Integrated Household Survey was found to incorporate two surveys that were already included and so these were dropped; the Annual Population Survey, and the Quarterly Labour Force Survey. Excluding these six, a total of 22 key surveys remained (Table 2 and Figure 1).



**Table 2: Final list of key surveys**

1970 British Cohort Study: Forty-Two-Year Follow-Up	2012
Active People Survey	2013-2014
Adult Psychiatric Morbidity Survey	2007
British Social Attitudes Survey	2013
Citizenship Survey	2010-2011
Count Me In	2010
Crime Survey for England and Wales	2014-2015
Employees' Awareness, Knowledge and Exercise of Employment Rights Survey	2005
EU Agency for Fundamental Rights: Violence Against Women Survey	2012
Family Resources Survey	2014-2015
Fair Treatment at Work Survey	2008
First Longitudinal Study of Young People in England: Waves 1-7	2004-2010
GP Patient Survey	2015
Health and Wellbeing of 15 year olds in England – What About YOUth? Survey	2014
Health Survey for England	2013
Integrated Household Survey	2014
National Survey of Sexual Attitudes and Lifestyles	2010-2012
National Cancer Patient Experience Survey	2013-2014
Place Survey	2008
Taking Part: the National Survey of Culture, Leisure and Sport	2014-2015
Understanding Society: Waves 1-5 ('UK Household Longitudinal Study')	2009-2014
Workplace Employee Relations Survey	2011

**Figure 1: Flow diagram for selection of surveys that measure the lesbian, gay and bisexual population in England**



<sup>1</sup> Sources: ONS statistical database on <https://www.ons.gov.uk/> (n=1); NHS survey database on <http://www.nhssurveys.org/surveys> (n=14); key document citation chasing (EHRC n=16, ONS Sex Id Project n=14); Expert advisory group consultations (n=2).

## Limitations of existing surveys examining sexual orientation

Neither we, nor our Expert Advisory Group, were aware of any existing formal tools to assess variables across multiple surveys, and so in order to assess limitations of existing surveys/measurement tools that measure sexual minority populations we:

- extracted standard methodological data items from each survey;
- compared these data items across surveys;
- identified explicitly stated and unstated (ie identified by the review team) limitations of tools.

### Extract standard methodological data items from each survey

Data were extracted from each survey into a Microsoft Excel sheet. Data included general information on the survey as well as information on study methodology:

- latest data collection period of series
- latest collection period with SI question
- principle investigator
- geography
- study population
- study design
- sampling method
- sample size
- mode of administration
- weighting
- question on LGB
- response categories
- response rate to survey
- estimates (substantive)
  - heterosexual / straight
  - lesbian / gay
  - bisexual
  - other
- estimates (non-substantive)
  - prefer not to say
  - refused
  - no answer
  - don't know
  - item not applicable

Estimates, proportions and base figures (denominator) were extracted from the raw data, which was obtained as a STATA file where possible. Proportions were calculated in both unweighted and weighted forms.<sup>[1]</sup> Some raw data could be obtained directly from the UK Data Archive whilst others required a request for special licence access or contacting primary investigators through email or telephone.

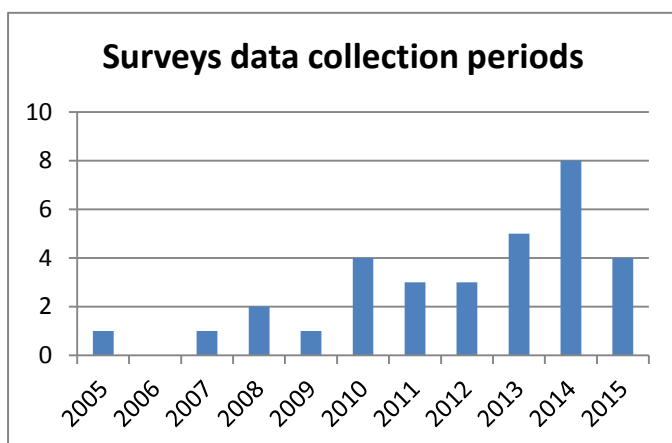
## Compare data items across surveys

Primarily, we are interested in the methods adopted by each survey in order to draw conclusions about the limitations of estimating the size of the LGB population in England. Therefore, below we briefly assess the methodological similarities and differences, broken down by each of the data items listed above.

### Data collection period

The data collection period spanned a decade ranging from 2005 to 2015, though only one survey collected data in 2005 (Employees' Awareness, Knowledge and Exercise of Employment Rights Survey). The years most covered by our included surveys are 2013 and 2014 (Figure 2). Surveys that collected data on sexual orientation for the last time in 2005 to 2012 were either discontinued or more recent versions of the same survey did not include a question on sexual identity. In comparing estimates, differences in data collection period should be taken into account (ie change over time in both prevalence and reporting).

**Figure 2: Distribution of data collection periods of key surveys**



---

<sup>1</sup> Unweighted data are unadjusted, while weighted data are adjusted to make the survey results from the sampled participants representative of the general population of England. Each sampled case is given a weight which can be thought of as the number of people that case represents in the population. Often, a design weight is applied to correct for an unequal probability of selection, and a non-response weight to correct for differential non-response for different groups of participants.

## Geography

Surveys were selected for their coverage of the general population of England and excluded when either England was not included or the coverage area was too patchy to represent the whole of England. Of the 22 selected surveys, four covered the United Kingdom, six Great Britain, three England and Wales, and nine England only. Surveys covering the UK or Great Britain often excluded areas north of the Caledonian Canal. For the purpose of the synthesis we will extract estimates for England only.

## Study population

Eleven out of 22 surveys focused on the adult population living in private households, where adult population was defined as persons above the age of 16. Two surveys added an upper age limit of 59 and 74 years (Crime Survey for England and Wales; National Survey of Sexual Attitudes and Lifestyles), while two looked at over 18 years olds only (Place Survey; British Social Attitudes Survey). Further, one survey included all adults registered with a GP (GP Patient Survey) and three were limited to adults in current or recent employment (Fair Treatment at Work Survey; Workplace Employee Relations Survey; Employees' Awareness, Knowledge and Exercise of Employment Rights Survey).

More limited study populations were also used: one looked at adolescents of 16-21 years old in private households (Understanding Society); one at 18-19 year olds in schools (First Longitudinal Study of Young People in England); one at 15 year olds in school (What About YOUth Survey); and one at all 42 year olds that were born in a single week in 1970 (1970 British Cohort Study: Forty-Two-Year Follow-Up). Finally, one survey included women only (EU Agency for Fundamental Rights: Violence Against Women Survey) and two looked at cancer and mental health patients (National Cancer Patient Experience Survey; Count Me In survey).

Estimates derived from more limited study populations will not be directly comparable with estimates of the general adult populations. It should be noted that the study populations mentioned here only include the groups of individuals that were eligible to answer the sexual identity question.

## Study design

The majority of surveys (19/22) had an annually repeated cross-sectional study design. However, there were also three surveys that used a longitudinal study design (First Longitudinal Study of Young People in England; Understanding Society; 1970 British Cohort Study: Forty-Two-Year Follow-Up). In this review, only the most recent wave from longitudinal sets were included.

## Sampling method

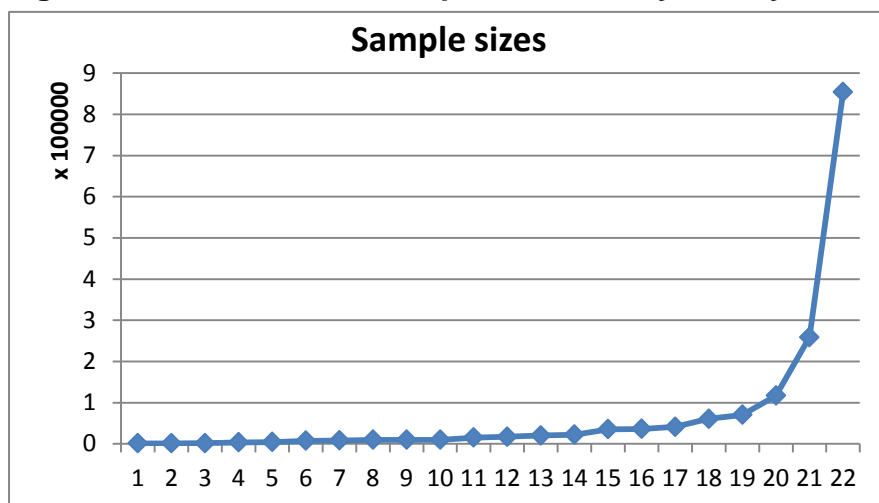
Most surveys used a multi-stage random sampling method to select their participants. The sampling frame that was most frequently used was the Small user postcode address file (13/22 surveys). All of these surveys used complex methods to stratify their sampling frame in such a way that their selected sample would be representative of the entire national population of England/UK/Great Britain.

As a reference standard population most used 2011 Census data. The exemption was the Integrated Household Survey that took a simple random sample of all addresses. Five used other sampling frames, for example the Inter Departmental Business Register, National Pupil Database, or HSCIC patient registration records, and these were combined with less complex stratification methods. One study used Random digit dialling to sample participants without stratification beyond local authorities (Active People Survey). Finally, three surveys were censuses and therefore sampled all individuals in the target population (ie all patients in hospital, all children in school).

## Sample size

Sample sizes ranged from 996 to 854,032 individuals (British Social Attitudes Survey, and GP Patient Survey, respectively). The distribution was strongly skewed towards smaller sample sizes with only three surveys including more than 100,000 participants; What About YOUth? Survey, Integrated Household Survey and GP Patient Survey (Figure 3). It should be noted that these sample sizes only include the proportion of the study population that was eligible to answer the question of sexual identity. The numbers include respondents from the entire catchment area, so not limited to England only (this will be done later in the analysis).

**Figure 3. Distribution of sample sizes of key surveys**

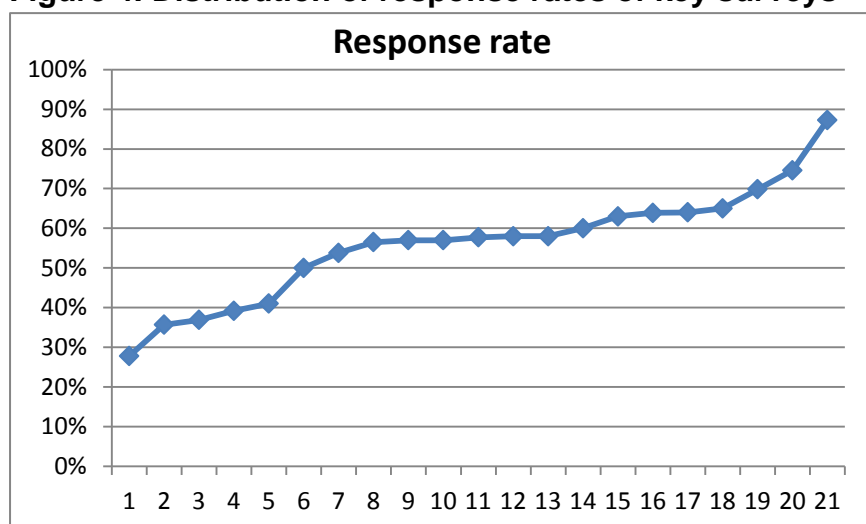


The actual sample sizes can be found in the main report Annex Table 1 (survey numbers do not correspond between figure and table)

## Response rate to survey

The response rate across surveys ranged from 27.8% to 87.3% (Figure 4). The survey with the lowest response rate was the only one that conducted a telephone interview and sampled participants through Random digit dialling (Active People Survey). The survey with the highest response rate was the sixth year of a longitudinal cohort study recruiting the same cohort of school children each year (First Longitudinal Study of Young People in England). We were not able to obtain the response rate for one survey, which sampled the entire patient population of all registered mental health care services in England and Wales (Count Me In Survey). It should be noted that the response rate refers to either the proportion of households that responded or the proportion of adults that responded, depending on the sampling method.

**Figure 4. Distribution of response rates of key surveys**



The actual response rates can be found in the main report Annex Table 1 (survey numbers do not correspond between figure and table)

## Mode of administration

The mode in which surveys were administered varied widely: face-to-face interview using show cards (seven surveys) or using a self-completion module on a computer (six surveys); telephone interview (five surveys); paper-based self-completion questionnaires (seven surveys); or online self-completion questionnaire (five surveys). Some surveys used a single method, others a combination.

## Question on LGB

The format of the question on sexual identity was very similar across most included surveys, probably resulting from the influence of the ONS paper detailing best practice. The most frequently used question format was: 'Which of the options on this card best describes how you think of yourself?' Eighteen of 22 surveys used this format. Two surveys asked: 'Which statement best describes your sexual orientation?' (Adult

Psychiatric Morbidity Survey; National Cancer Patient Experience Survey). One survey asked: 'Do you consider yourself to be ....?' (Place Survey).

### Response categories

There was also limited variety in substantive answer categories. Overall, the following categories were used: 1. heterosexual / straight, 2. gay / lesbian, 3. bisexual, 4. other. One survey separated 'lesbian' and 'gay' and replaced 'other' by 'can't choose' (British Social Attitudes Survey). One survey further split the heterosexual / straight and gay / lesbian groups by making a distinction between 'entirely' and 'mostly' (Adult Psychiatric Morbidity Survey).

More variety was observed for the non-substantive answers. Ten out of 22 surveys provided respondents with the option 'prefer not to say' as an answer. If this option was not provided, the surveys (12) included the options 'refused' for the interviewer to record if answered spontaneously by the respondent. Additional answers to be recorded by the interviewer were 'don't know' (7) and/or 'no answer' (3). Further, three surveys grouped 'no answer' with 'refused' (Health Survey for England, Adult Psychiatric Morbidity Survey, Family Resources Survey); we presented these answers under 'no answer'.

One survey grouped 'don't know' with 'refused' into a combined category (Integrated Household Survey). We presented these answers under 'refused'. Some surveys also provided interviewers with the option to record an item as 'not applicable', where the question is asked to only a certain proportion of the study population. Where appropriate, we excluded individuals for whom the question was not applicable from the denominator during synthesis.

### Response rate to sexual identity question

Finally, the proportion of non-substantive answers to the sexual orientation question ('prefer not to say' / 'refused', 'don't know', 'no answer') varied widely across surveys, ranging from a total 0.1% in a survey evaluating people's recreational activities (Taking Part) to 9.53% in a survey among cancer patients (National Cancer Patients Experience Survey).

### Identify explicitly stated and unstated limitations of tools

Based on the comparison of survey methods we can draw some conclusions around the methods in use and make some judgement about limitations. First of all, there are similarities in the methods used by the surveys, including study population, design, sampling method, and question on LGB and substantive response categories. What differed widely across surveys was the mode of administration and the non-substantive response categories. These impact on the robustness of the resulting estimates and our ability to coherently synthesise the results, and we explore these below.



## Limitations of survey methods

**Population of adults >16 years of age:** Evidence suggests that young people can start to identify their sexual orientation from age 12 onwards – although it may be fluid - and that it is feasible to ask a sexual identity question.<sup>[1]</sup> However, undertaking a survey with young children requires parental consent which may create problems of confidentiality, so it is understandable why most surveys focused on adults. Surveys that use more limited populations in terms of age and sex are less comparable because their answers will vary; the proportion of LGB is higher among younger people and the proportion of bisexuals is higher among women.<sup>[2]</sup>

**People in private households:** This excludes people that live in shared establishments, such as college housing, nurses homes, military barracks. However, this is estimated to be <1% of the population, so potentially of limited impact. Being registered with a GP would not introduce a bias from the general population in terms of the proportion that would report as LGB, at least not as much as would age or sex. Being employed may possibly produce a bias as previous survey results have shown that LGB prevalence varies by occupation and this may extend to being employed versus unemployed.<sup>[3]</sup> Being a mental health or cancer patient could also introduce bias, since some studies suggest that mental health problems and possibly other health difficulties could be more prevalent among the LGB population.<sup>[4]</sup>

**Cross-sectional study design:** This is the most useful design because we are interested in the prevalence of LGB population at a single point in time. Longitudinal cohort studies that measure how the prevalence changes over time in the same study population are certainly of interest however not within the remit of this project, a single wave of these does not pose limitations to the calculation of prevalence.

**Sampling methods:** The limitations inherent in surveys using a standardized sampling frame (Small User Postcode Address File) and stratification methods that try to come to a representative population of England/UK/Great Britain are minor for the purposes of this project. Other sampling methods are far more limited in their representativeness of England, for the simple reason that these survey do not aim to represent the general population (eg only employees, patients, children). The survey that used random digit dialling to randomly selected households from a list of existing telephone numbers only stratified by local authority, thereby increasing the chance of over or under sampling certain population groups.

**Sampling size and response rate:** The smaller the sample size and the higher the non-response rate, the less certain you can be that you have sampled a group of participants that is representative of the general population. Both low sample size and low response rate could introduce selection bias.

**Modes of administration:** There was considerable heterogeneity in the way the question on sexual identity was administered. It is likely that modes of administration influence response rate and proportion of non-substantive answers, although it will be difficult to quantify this effect.[5] All surveys made sure that the sexual identity question was not asked when there was a proxy respondent or translator.

**Question format:** Most surveys used the sexual orientation question and answers that have been tested and validated by ONS (although only in interviewer-administered context). The two surveys that included 'sexual orientation' in their question stem may have higher question non-response rate as it has been shown that this wording can make respondents feel uncomfortable.[6]

**Answer categories:** As above, since almost all surveys used the same substantive response categories which were all tested and validated by ONS, there are no major limitations here. However there is more variation in non-substantive response categories that were offered as possible answer to respondents, including 'prefer not to say', 'refused', 'don't know' and 'no answer'. Besides, the proportion of non-substantive answers varied widely between surveys. This variation may pose a limitation in how the LGB estimates can be used, because it means there is room for interpretation when it comes to describing the group that did not respond to the sexual identity question. We will explore this in more depth in our synthesis.

In summary, surveys that we reviewed have the following limitations that could affect the comparability of estimates across surveys and the quality of individual survey estimates:

- limited survey populations
- limited sampling methods
- low survey sample size and/or response rate
- variability in question modes of administration
- variability in non-substantive answer categories and responses

Below we discuss how these limitations will be incorporated into a methodology to pool and synthesize estimates of the LGB population.

## Recommendations about how existing surveys should and should not be used

Based on both the literature reviewed and our findings we conclude that existing surveys examining sexual identity have a number of limitations. Such limitations inform: one, what survey estimates can reasonably be pooled in a synthesis, and two, how surveys differ in quality and, based on this, how weights should be applied to survey estimates in a synthesis to better estimate the population.

With regards to pooling of survey estimates (point 1), it is clear that surveys with substantially different study populations cannot simply be pooled with surveys examining the general adult population. Literature clearly shows that surveys using limited age and gender groups have skewed distributions of LGB and they should therefore not be pooled. Evidence is less clear on whether being employed or being a patient would influence sexual orientation. Rather than excluding these surveys from a pooled estimate, it is useful to look at the methodology for sampling and weighting and determine whether the survey aimed to produce a representative estimate of the general population of interest or focused on a particular (and possibly biased) sub-set of the population.

In our literature review, we found that the two surveys that focused on specific patient populations did not aim to extrapolate their findings to the general population of England. The following seven surveys and their estimates will therefore not be included in the pooled estimate but will be reported separately:

Specific age bands:

- 1970 British Cohort Study: Forty-Two-Year Follow-Up
- Health and Wellbeing of 15 year olds in England: What About YOUth? Survey
- First Longitudinal Study of Young People in England: Waves 1-7
- Understanding Society: Waves 1-5 (UK Household Longitudinal Study)

Specific gender:

- EU Agency for Fundamental Rights: Violence Against Women Survey

Specific patient group:

- National Cancer Experience Survey
- Count Me In Survey (patients of mental health services)

With regards to applying weight to survey estimates (point 2), the overall quality of surveys is not easily expressed in a weighting factor as judgement of quality involves a somewhat subjective assessment. A single measure for question quality in social surveys does not exist and it is outside of the scope of this project to derive one. It would also be arbitrary to assign weights on the basis of specific sampling methods or the way that a sexual identity question is posed. It is however informative to assign weights based on survey sample size, overall survey response rates and proportion of non-substantive answers, as these items are all conceptually linked to LGB item quality and quantifiable. Logically then, surveys with a higher sample size, higher response rate and lower proportion of non-substantive answers receive a higher weight in the subsequent pooling. We outline this approach in more detail in the Methodology document (Technical Report 2).

## Conclusions

In this report we assessed the methods of 22 key surveys, identified using systematic review search methods and which include assessments of the LGB population in England. The majority of the included surveys used similar study methods with regard to study population, study design, sampling method, question on sexual orientation and substantive response categories ('heterosexual', 'gay/lesbian', 'bisexual', 'other'). More variety was observed across surveys regarding the mode of administration of the question and the non-substantive response categories ('prefer not to say', 'refused', 'don't know', 'no answer').

The next steps of the project, the synthesis of survey estimates of the LGB population of England, are set out in the Technical Report. Based on findings presented here, we conclude that surveys with limited study populations are not usefully incorporated into a pooled estimate together with surveys that look at the general adult population. Thus, those estimates are reported separately. Further, our pooling is sensitive to quality of individual survey estimates through weights derived based on the sample size, response rate and question non-substantive answers.

# Annexes

## Annex A: Relevant surveys and research reports

### Inputs

#### **National surveys which include sexual orientation and/or sexual identity**

- Crime Survey for England and Wales, previously the British Crime Survey (Home Office), Sexual identity (SI) question included since at least 2009/10
- GP Patient Survey (NHS England), SI question included since 2011
- Understanding Society: the UK household longitudinal study (University of Essex)
- Integrated Household Survey (ONS), SI question included since at least 2011
- Cancer Patient Experience survey (NHS England)
- Changes in sexual attitudes and lifestyles in Britain through the life course and over time: findings from the National Surveys of Sexual Attitudes and Lifestyles (Natsal). Mercer C et al. The Lancet, Volume 382, Issue 9907, Pages 1781 - 1794, 30 November 2013. <http://www.natsal.ac.uk/natsal-3>
- Health Survey for England
- Adult Psychiatric Morbidity Survey

#### **Measuring sexual minority populations**

Papers from the US:

- Measurement of Sexual Identity in Surveys: Implications for Substance Abuse Research (2012) [http://link.springer.com/article/10.1007/s10508-011-9768-7\\_2012](http://link.springer.com/article/10.1007/s10508-011-9768-7_2012)
- Same-sex sexual behaviour: US frequency estimates from survey data with simultaneous misreporting and non-response (2006) – if you can access it! <http://www.tandfonline.com/doi/abs/10.1080/00036840500427114#.VHNn54usVqU>
- Prevalence and Stability of Sexual Orientation Components During Adolescence and Young Adulthood (2006) <http://link.springer.com/article/10.1007/s10508-006-9088-5>

These two papers look at responses from sexual minority group and non-LGB respondents, so might be of interest:

- Elliott et al, Sexual Minorities in England Have Poorer Health and Worse Health Care Experiences: A National Survey

- Uhrig, An Examination of Poverty and Sexual Orientation in the UK:  
<https://www.iser.essex.ac.uk/research/publications/working-papers/iser/2014-02.pdf>

Also the EHRC's 2009 papers on measuring sexual orientation:

[http://www.equalityhumanrights.com/sites/default/files/documents/research/research35\\_so\\_explored.pdf](http://www.equalityhumanrights.com/sites/default/files/documents/research/research35_so_explored.pdf) and

[http://www.equalityhumanrights.com/sites/default/files/documents/research/research\\_\\_37\\_\\_estimatinglgbpop.pdf](http://www.equalityhumanrights.com/sites/default/files/documents/research/research__37__estimatinglgbpop.pdf)

## Annex B: List of possible search terms

Concept 1: LGB	Concept 2: Geography	Concept 3: 'Measures'
Lesbian	England	Survey
Gay	UK	Measure
Bisexual	Great Britain	Questionnaire
Heterosexual	North East	Proportion
Straight	North West	Percentage
'Sexual identity'	Yorkshire & Humber	%
'Sexual orientation'	East Midlands	Frequency
'Sexual behaviour'	West Midlands	Scope
'Sexual relationship'	East of England	Population
'Sexual lifestyle'	London	Sampling
'Sexual attraction'	South East	Prevalence
'Sexual preference'	South West	Rate
Sexuality	Scotland (exclude)	Distribution
'Opposite sex'	Wales (exclude)	Estimate
'Same sex relationship'	Northern Ireland (exclude)	Fraction
'Both sexes'		Size
Homosexual		Composition
Non-heterosexual		
Queer		
'Gay man'		
'Gay women'		

## References

1. McDermott E. Researching and monitoring adolescence and sexual orientation: Asking the right questions, at the right time. Manchester: Equality and Human Rights Commission; 2010. ISBN 978 1 84206 335 4
2. Joloza T, Evans J, O'Brien R, Potter-Collins A. Measuring sexual identity: an evaluation report. Newport: Office for National Statistics, 2010
3. ONS. Integrated Household Survey, January to December 2014: Experimental statistics. London: Office for National Statistics, 2015.  
[http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/dcp171778\\_418136.pdf](http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/dcp171778_418136.pdf)
4. Meads C, Carmona C, Kelly MP. Lesbian, gay and bisexual people's health in the UK: a theoretical critique and systematic review. *Diversity and Equality in Health and Care*. 2012;9: 19-32.
5. Betts P. Developing survey questions on sexual identity: UK experiences of administering survey questions on sexual identity/orientation. Office for National Statistics, 2008
6. Betts P, Wilmot A, Taylor T. Developing survey questions on sexual identity: Exploratory focus groups. Office for National Statistics, 2008