CORE SURVEY QUESTION MODE AND CONTEXT EFFECT TESTING

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1 EXECUTIVE SUMMARY

1.1 The development of a set of core survey questions to increase comparability and allow data to be pooled across surveys is a key element of the Scottish Government's long term strategy for population surveys. As part of this development process, TNS-BMRB was commissioned by the Scottish Government to undertake research on three questions covering:

- Sexual identity
- Perception of the local crime rate
- Mental well-being.

1.2 The research consisted of three elements:

- Desk research, reviewing existing development work carried out on the sexual identity question and WEMWBS inventory, and relevant literature on mode and context effects in questionnaire design
- A split sample experimental design involving 2,033 quantitative interviews using two waves of an omnibus survey and a series of regression analyses carried out on the results to detect mode and sequencing effects
- In-depth cognitive interviews to develop a show-card for use with the S-WEMWBS inventory administered by CAPI.

Desk research

1.3 While mode effects are generally considered to be small, on occasion, such as when asking about sensitive items these effects can be large. Additionally, even small effects can be enough to disrupt an existing time series that has previously been collected using a single mode.

1.4 Mode effects were identified in the existing literature that is pertinent to this study. Importantly, self-completion modes are more likely to lead to disclosure of sensitive information, a key consideration for two of the three questions being tested in this study.

1.5 Relating to the perceptions of local crime, previous research identified that respondents are more likely to downplay social problems in their communities in a face-to-face survey.

1.6 The evidence around sequencing effects is more mixed and tends to be quite specific to individual questions, so it is difficult to directly relate the existing research to the three questions being tested in this study. However, the fact that context effects in paper surveys are not order dependent could become important should any of these questions be administered in this way.

1.7 During the development of the sexual identity questions, the Office of National Statistics undertook a series of experiments, which suggest that if the sexual identity question is completed using self-completion modes the data will suffer from increased non-response. These experiments also suggested that

administering the question by CAPI will lead to increased proportions who report themselves as heterosexual.

1.8 ONS identified a sequence effect in that asking about religion and then sexual identity will lead to a decrease in those reporting a minority sexual identity.

Mode and context effects

1.9 Non-response to the sexual identity question was higher amongst those answering via CASI or paper self-completion, with the paper self-completion approach having the highest refusal rate.

1.10 Despite the higher refusal rate, a higher proportion of respondents in the CASI and paper sample reported a minority sexual identity and respondents in the CAPI sample were significantly more likely to say they were heterosexual.

1.11 Mode effects were also evident for the perceptions of local crime. Non-response was higher amongst those who answered this question using either self-completion modes (CASI or paper). In addition, those answering the paper version were less likely than CAPI respondents to say that the crime rate had stayed the same or decreased in the last two years.

1.12 Administering the S-WEMWBS question using CASI led to a lower mental well-being score than using other modes, however, if the sexual identity question was asked before this question, CASI respondents were more likely to have a higher mental well-being score.

Cognitive testing of S-WEMWBS showcards

1.13 Three different approaches to showcards were tested using cognitive interviewing. This revealed a variety of strengths and weaknesses for the various S-WEMWBS CAPI showcards, and no clear 'winner' was identified.

1.14 Using a typical CAPI approach, where the showcard displays the numbered answers, the interviewer reads out the statement and the respondent replies giving a number was viewed as simple. Nevertheless, there were concerns over the confidentiality of this approach.

1.15 Using a two card approach, where one showcard displays the lettered statement and another shows the numbered answers was viewed as more complicated and there was confusion over which showcard respondents should look at. For some, additional clarification of the instruction was required.

1.16 Using a grid approach that most closely replicates the paper version of this question was the third approach that was tested. While some did not like this method, on the whole respondents understood what was required.

Recommendations

1.17 Having reviewed both existing literature on mode and sequencing effects and the results of the mode and context effect tests as set out in this document, we go on to put forward recommendations on how these questions should be asked in the three population studies. Our recommendations take into account the way in which the results of the questions will be used, however, before deciding on the final approach, the Scottish Government should also consider the practicality and costs involved in adding the questions to the existing Scottish population surveys.

1.18 We recommend that the sexual identity question is asked in CASI in all three population surveys, under the belief that it is more important to measure minority sexual identity correctly than to reduce non-reporting. However, paper completion would provide a valid alternative, offering a consistent measure of sexual minority, albeit at the cost of a higher non-response.

1.19 Given the fact that the Office of National Statistics previous research on the sexual identity question has shown a sequence effect when it is asked following religious identity, consideration needs to be given to this in the placement of this question.

1.20 We recommend that perception of local crime rate should be asked using CAPI in all three surveys as we believe that it is more important to maintain the current time series. For the SHeS, either one adult could be selected at random to answer this question, or alternatively it would be possible to use multiple showcards to allow more than one household member to answer this question without influencing the answers of others.

1.21 Given S-WEMBWBS has not been validated for use in CAPI surveys, and that paper self-completion increases non-response we would recommend that this should be asked using CASI, or that consideration should be given to carrying out validation before it is added to a CAPI survey.

1.22 We would also recommend that additional tests should be conducted on all three questions to detect any sequencing effects when they are added to the three population studies, as it is unlikely that these three test questions will always be asked together, and asking other questions first may introduce an unknown sequence effect.

1.23 Finally, we recommend that the wider context effects be tested, as asking these questions in a survey that focuses on an unrelated topic may impact on responses.

2 INTRODUCTION

Background and objectives

2.1 The development of a set of core survey questions is an important part of the Scottish Government's long term strategy for population surveys. The main aim of developing the core question set is to increase comparability and allow data to be pooled across surveys. This will enable robust estimates to be produced, including for smaller geographies and rarely occurring characteristics. The core questions will be included in all Scottish population surveys from 2012 including the Scottish Household Survey (SHS), the Scottish Crime and Justice Survey (SCJS) and the Scottish Health Survey (SHeS).

2.2 A small number of core questions are still to be finalised before they can be included in the survey. TNS-BMRB was commissioned by the Scottish Government to undertake research on three questions covering:

- Sexual identity
- Perception of the local crime rate
- Mental well-being.

2.3 Sexual orientation will be asked using the recommended question to measure sexual identity, a component of sexual orientation, developed by the Office for National Statistics (ONS). [1] The question is currently included in the three population surveys, with each using a different mode.

2.4 Perception of the local crime rate is an established question asked in the SCJS and will be added to the SHeS and SHS. This question is used as one of the Scottish Government's national indicators: [2]

- Increase positive public perception of the general crime rate in the local area

2.5 Mental well-being is assessed using the Warwick-Edinburgh Mental Well-being Scale (WEMWBS). [3] It is also used as one of the Scottish Government's national indicators:

- Increase the average score of adults on the Warwick-Edinburgh Mental Well-being Scale by 2011

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[1] Further information on the ONS recommended question and its development is at http://www.ons.gov.uk/ons/guide-method/measuring-equality/equality/sexual-identity-project/index.html Accessed 28/08/2011

[2] http://www.scotland.gov.uk/About/scotPerforms/indicators Accessed 28/08/2011

[3] The Warwick-Edinburgh Mental Well-being Scale was funded by the Scottish Executive National Programme for improving mental health and well-being, commissioned by NHS Health Scotland, developed by the University of Warwick and the University of Edinburgh, and is jointly owned by NHS Health Scotland, the University of Warwick and the University of Edinburgh. Further details of the WEMWBS development is available at: http://www.healthscotland.com/scotlands-health/population/Measuring-positive-mental-health.aspx Accessed 28/08/2011.

2.6 It is intended the full WEMWBS inventory will continue to be used in the SHeS. It will be introduced to the other to population surveys, which will use the shortened WEMWBS (S-WEMWBS) inventory.

2.7 The research was designed to meet two objectives:

- To test the effects of mode of survey administration on the results obtained from asking the three questions
  - Supplementary to this was an objective to develop and test show cards for S-WEMWBS to support its administration in CAPI[4]
- To test sequencing effects on the results obtained from asking the three questions in different orders.

2.8 As development work has previously been carried out on the sexual identity questions and S-WEMWBS inventory, and the perception of local crime rate question has been used for some time in the current format, the research did not set out to test the questions themselves.

2.9 The research did not examine the wider context effects potentially arising when asking the same question on surveys covering different topics or, in the case of the question on perceptions of the local crime rate, when asking a question on a topic unrelated to the main topic of the interview.

Method and sample

2.10 The research included three elements:

- Desk research, reviewing existing development work carried out on the sexual identity question and WEMWBS inventory, and relevant literature on mode and context effects in questionnaire design
- A split sample experimental design involving 2,033 quantitative interviews using two waves of an omnibus survey and multivariate analysis carried out on the results to detect mode and sequencing effects
- In-depth cognitive interviews to develop a show-card for use with the S-WEMWBS inventory.

Desk research

2.11 We undertook a thorough review of the published literature on the development of two of the specific questions (S-WEMWBS and sexual identity) to inform all aspects of the study from our original proposals, the detailed design of the omnibus research, cognitive testing, and analysis, to the interpretation and reporting of the results.

2.12 We also identified other relevant published research principally to inform our analysis and reporting, using three main sources:

[4] S-WEMWBS was designed for pen and paper self-completion use and no testing has been carried out by the developers on its suitability for CAPI.

- Papers identified in a recent literature review by ONS on Mode: http://www.ons.gov.uk/about/who-we-are/our-services/data-collection-methodology/reports-and-publications/alternative-modes-of-data-collection/index.html
- NatCen ESRC Survey Resources Network e.g. http://surveynet.ac.uk/sqb/topics/commentaries.asp
- Our own internal research in the UK and other TNS companies worldwide using our internal online community of interest facility.

2.13 More details of the previous research and the question development work that helped to shape this study is provided in section 3.

Split sample experimental design - data collection

2.14 The data used in this test was collected through two waves of TNS-BMRB's omnibus, the Scottish Opinion Survey (SOS), with fieldwork carried out between 29th June to 5th July and 27th July to 3rd August 2011. In total 2,033 interviews were carried out in the two waves.[5]

2.15 Four questions were placed on the SOS, positioned immediately before the demographic questions over both waves of interviewing:

- Number of years respondent has lived in local area
- Sexual identity
- Perception of local crime rate
- S-WEMWBS inventory.

2.16 The first of these questions was included as the filter question for the perceptions of local crime rate question and was not included in the analysis. It was always asked first in the sequence of four questions.

2.17 Respondents were allocated randomly during the interview into 3 modes (CAPI, CASI, paper). Within mode, respondents were allocated randomly during the interview into 6 sequences of question order, giving 18 combinations of mode and sequence in total.

2.18 Table 2.1 shows the allocation to each mode and the levels of acceptance and refusal by mode.

[5] More details of the SOS are provided in annex 3

Table 2.1: Mode allocation and refusal
Base: Adults aged 16+ interviewed in the SOS

	CAPI	CASI	Paper
Base:	668	685	654
Percentage of total sample (2007):	*33%*	*34%*	*33%*
Percentage by mode (column percents):			
Accepted	100%	72%	88%
Refused – administered by interviewer	n/a	23%	n/a
Refused – questions not asked	-	5%	10%
Paper self completion not received	n/a	n/a	2%
Total	100%	100%	100%

2.19 Parental permission was sought to interview 16 and 17 year olds given the potentially sensitive nature of the sexual identity question and S-WEMWBS inventory. 26 parents refused permission for their child to take part in the interview and these were excluded from the analysis. They are not shown in table 2.1.

2.20 For the CASI method of administration, interviewers recorded whether the respondent completed the questions themselves, or with help from the interviewer, which happened in 23% of interviews (Table 2.1) These respondents were not included in the CASI sample for the subsequent analysis.

2.21 The combined result of the two omnibus waves, including answers to the test questions and demographic data, additional derived variables constructed for use in the analysis and flag variables indicating mode, sequence and wave of interviewing were provided in an SPSS data file.

Split sample experimental design - analysis

2.22 For the purpose of analysis the following pair of hypotheses, supported by the literature, were assumed:

- Sequencing effects are independent of mode
- Sequencing effects are short-term effects, disappearing after one or two changes of subject.

2.23 This allowed cells to be combined to increase statistical power, with the result that a smaller overall sample size was required than the number of test combinations might otherwise suggest.

2.24 Regression methods were used to analyse the questions for mode and sequencing effects while simultaneously controlling for other influential factors. Two types of regression were used in the analysis. Binary logistic regression methods were used for the analyses of sexual identity and perception of crime in the local area. A multiple linear regression model was constructed for the analysis of S-WEMWBS.

2.25 The interaction between mode and sequence was analysed to test whether the initial hypothesis that sequencing effects were independent of mode was true. When 'sequence' was included in the models, alternative sequence variables were also tested that looked only at the question immediately preceding the question of interest to test the second hypothesis that sequence effects were 'short term'.

2.26 Further details of the analysis and model building methods, together with detailed results, are provided in section 4.

Cognitive testing

2.27 The cognitive interviewing took place in Edinburgh on 30th June 2011. Adults (aged 16+) took part. Broad quotas were placed on age, gender and social grade, ensuring respondents with a range of characteristics were interviewed with younger and older age groups oversampled.

2.28 In total 30 interviews were conducted and interviews lasted 15 minutes on average.

2.29 Three showcards were tested in this study:

- Showcard B with numbered answer options
- Showcard A with lettered statements and a separate showcard (B) with numbered answers
- Showcard C with lettered statements and numbered answers in a grid format.[6]

2.30 Respondents were first asked the S-WEMWBS inventory using one of the three showcard options. Researchers rotated which of the three versions were first shown.

2.31 After answering the S-WEMWBS inventory the researcher explored any barriers to using, ease of use, understanding and clarity. The researcher then introduced the remaining two showcard options and explored the respondents' views on each of these. Respondents were then asked their preferred option and reasons for this.

2.32 The key results of the cognitive testing are discussed in section 4. Questionnaires and showcards used in the cognitive testing are provided in annex 1.

[6] This format most closely represented the self-completion grid format.

3 SETTING THE SCENE

3.1 This section presents findings from existing research about mode and context effects, focusing on areas of most relevance to this study. It also provides an overview of previous work to develop the sexual identity and S-WEMWBS inventory that is, once again, relevant to this research.

Mode and context effects - summary

3.2 There is a lot of diverse evidence available on mode effects (Betts and Lound, 2010). 'Mode effects' are said to exist when the process of data collection influences the answers given. Generally the main arguments mentioned are:

- The prevalence and disclosure rate for sensitive questions are higher with self-completion methods
- Questionnaire completion is quicker (suggesting the phenomenon of 'satisficing' – paragraph 3.11) and the drop-out rate is greater if no interviewer is present
- Interviewed respondents tend to agree with plausible sounding viewpoints at a higher rate than do self-completion respondents.

3.3 On the one hand, there is not widespread and consistent evidence demonstrating the impact of mode effects. This is positive, suggesting that most mode effects are small. On the other hand, it is hard to provide solid guidance as to which mode is optimum for which survey, especially as many surveys cover multiple subjects and employ multiple question types.

3.4 Mode effects, while usually small, can be quite large for some sensitive items (e.g. potentially sexual identity) and even when relatively small, can produce enough noise to interrupt time series that have been hitherto carried out using a single mode. Even if there is specific experimental evidence to allow a degree of 'mode effect calibration', such calibration has rarely been applied, if ever. In general, switching from one mode to another or from a single mode to a mixed-mode design carries a great deal of risk for time series data.

3.5 Sequencing effects in questionnaires relates to the order in which questions appear having an influence on the answers given to the questions. There are two main effects (Groves,1989):

- The first is 'consistency' or 'assimilation' effects, whereby respondents tend to give similar answers to those given to the preceding ones
- The second is 'contrast effects' where there is an influence to give answers dissimilar to those of the preceding questions.

3.6 As with the literature on mode effects, the evidence about sequencing effects is also quite mixed (Yung-Chien and Shih-Fen, 2002). Studies have been conducted which attempt to predict when consistency effects result and when contrast effects result, but overall the effects are highly varied.

Mode effects

3.7 In this section, each of the general findings about mode effects are discussed further in relation to the specific questions being tested, using examples from the wider literature.

3.8 Two of the questions being tested in this study might be considered as being of a sensitive nature, namely sexual identity and mental well-being. Torangeau et al. (2007) states that:

> *"Sensitive questions are thought to affect three important survey outcomes: (a) overall, or unit, response rates (that is, the percentage of sample members who take part in the survey), (b) item non-response rates (the percentage of respondents who agree to participate in the survey but who decline to respond to a particular item), (c) and response accuracy (the percentage of respondents who answer the questions truthfully). Sensitive questions are suspected of causing problems on all three fronts, lowering overall and item response rates and reducing accuracy as well."*

3.9 Of particular pertinence to this study are items (b) and (c), relating to item non-response and the accuracy of responses. The issue of administering sensitive questions properly is paramount to the success and validity of any study, not least in ensuring consistency across the three Scottish Government population surveys. The mode of administering the questions is one of the key factors which can help reduce the effects of question sensitivity.

3.10 Evidence from as far back as the 1960s showed that respondents were more willing to report sensitive information when the questions were self-completed compared with when they were administered by an interviewer (Hochstim, 1967). This evidence was reinforced more recently when a comparison was carried out between CASI, CAPI and CATI with respect to differences in response behaviour. This also found that respondents were more likely to disclose information for sensitive questions using self-completion methods (Bronner and Kuijlen, 2007).

3.11 This recent study also found scale effects in CASI whereby less extreme answer positions were used (Bronner and Kuijlen, 2007). It is generally believed that respondents tend to use extreme answer categories to answer questions more rapidly (satisficing), which is more common when respondents experience greater time pressure, such as during CAPI and CATI.

3.12 The use of the 'don't know' option also occurred more frequently with CASI (more explicitly presented as an option to the respondent) as it was felt respondents experienced less pressure to answer quickly or to give answers when they did not have an opinion.

3.13 Turning to the perception of local crime question, there has been a study conducted by the Office for National Statistics illustrating mode effects in social capital surveys (Nicolaas and Tipping, 2006). It found that respondents were far more likely to downplay any social problems in their local community

when answering in a face-to-face interview compared with a postal interview. This was found to be the case even for quite innocuous themes, which were not sensitive, such as 'rubbish/litter lying around'. The researchers inferred that this might be because respondents were more likely to feel self-conscious and the subject of scrutiny in face-to-face interviews, and so provide socially desirable answers.

3.14 Thus there is evidence to suggest that mode effects will exist when the experiment is carried out. However the sizes of the effects are yet to be determined and, as with many experiments in survey research, are context-specific so the effects may turn out to be large for certain questions and non-existent for others.

Sequencing effects

3.15 In this section, sequencing effects are discussed in relation to the questions being tested in this study, drawing on evidence from broader studies. One immediate note should be made that the questions being tested could be viewed as being quite unrelated to each other whereas most of the literature on sequencing effects concentrates on subjects that are more closely related being asked in succession.

3.16 Therefore, one view of the questions is that the middle question in the sequence acts as a natural 'buffer item' – that is, a question usually placed in between related questions with the intention of reducing question order effects (Cantril, 1944). However although the intention is to reduce sequencing effects, some studies have shown that buffer items can unintentionally bring on sequencing effects (Ottati et al, 1989). Therefore, testing for sequencing effects is a prudent course of action when adding a set of questions to be asked in sequence across a set of harmonised surveys.

3.17 With regard to S-WEMWBS, one particularly pertinent study reported an order effect demonstrating consistency effects for a question asking about general happiness (Smith, 1982). Respondents were more likely to describe themselves as very happy if they had first answered about how happy they were within their marriage.

3.18 De Leeuw and Collins (1997) describe how a number of comparisons have been performed, focusing on differences between postal and telephone surveys, suggesting that context effects are order dependent in interview surveys, due to the strict sequential presentation of questions, whereas for self-completions surveys, context effects are not order dependent. Some studies of self-completion surveys have also found that subsequent questions have influenced the response to preceding questions (Schwarz et al, 1991).

3.19 As with mode effects there is evidence to suggest that sequencing effects may exist for some of the questions tested. However it will be difficult to predict in advance, as these specific questions have not been tested before, in these particular sequences and context.

Question development – sexual identity

3.20 This section focuses specifically on the literature surrounding the development of the sexual identity question, highlighting the potential mode and sequencing effects we might expect to see in the current study.

3.21 The sexual identity question was developed and tested by ONS in response to legislation aimed at protecting the right to equal treatment and is included in all ONS social surveys. [7] ONS consulted widely and undertook a number of tests to develop this question.[8] A review of the development literature published by ONS revealed a number of points on mode of interview administration.

3.22 While a version of the question for use in self-completion questionnaires has been provided, the user guide suggests that we might expect differences to emerge in both paper and CASI self-completion versions compared with the CAPI version, through the inclusion of a 'prefer not to say' option and a possible increase in missing data (item non-response) (Haseldon and Joloza, 2009).

3.23 ONS found no difference in the proportion answering they had a minority sexual identity when the question was interviewer administered using CAPI alone, compared with administration by CASI in earlier trials. They did identify an increase in the percentage saying they were heterosexual, which, they suggest, was due to the removal of the 'prefer not to say' option in the CAPI version, rather than to the difference in mode.[9]

3.24 In a previous test the increase in the heterosexual category was also seen, though not quite as strongly, when interviewers were allowed to administer the question in CAPI if privacy was assured and the respondent was unable to use the laptop for completion by CASI (Taylor and Ralph, 2008). In this case respondents were not randomly assigned to the different modes and it is possible that the increase was related to the characteristics of individuals selecting each mode. In particular, in common with findings from other surveys, this increased response among older respondents and those lacking in computer skills.

3.25 Sequencing effects were tested in the final ONS trial. Specifically the sexual identity question was asked before and after the question on religious identity. Sequencing effects were detected where responses varied according to whether the question was asked before or after religion. This, it was suggested, could be due to respondents being unwilling to report a sexual identity that would be in conflict with the expectations and morals of the

[7] The legislation refers to sexual orientation. The development work identified that sexual orientation has a number of dimensions which would require a series of questions to capture all of them. The specific dimension measured by the question ONS developed is sexual identity. As a result we use the term sexual identity when describing this question throughout the report.

[8] Further details of all of the development work can be found at: http://www.ons.gov.uk/about-stistics/measuring-equality/sexual-identity-project/index.html Accessed 28/08/2011.

[9] They base this suggestion on a follow-up telephone study to an earlier omnibus trial (Malagoda and Traynor, 2008).

religious identity they declared previously. Sequencing effects were not apparent for the religious identity question. As a result ONS recommends that sexual identity should be asked before religion.

3.26 The ONS reports provide further evidence that mode effects are likely to be detected for the sexual identity question when the experiment is carried out. In particular we might expect differences to emerge in the percentages mentioning the majority, and possibly the minority, sexual identities and in item non-response. It is less clear whether sequencing effects will be detected, given the limited, very specific sequence testing that was undertaken by ONS.

Summary

3.27 While mode effects are generally thought to be small, for sensitive items they can be large and even small effects can be enough to disrupt an existing time series that has previously been collected using a single mode.

3.28 Mode effects that have been identified that are pertinent to this study include:

- Self-completion modes are more likely to lead to disclosure of sensitive information
- Administering scale questions in CASI leads to less extreme answers and an increased use of the “don’t know” option
- Respondents are more likely to downplay social problems in their communities in a face-to-face survey.

3.29 The evidence of sequencing effects is more mixed and tend to be quite specific to individual questions. Context effects in paper surveys are not order dependent.

3.30 In developing the sexual identity questions, ONS undertook a variety of tests, which can inform us of the potential mode and sequencing effects we might expect to see in this study. These studies suggest that:

- Self-completion modes will suffer from increased non-response
- Administering the question by CAPI will lead to increased proportions who report themselves as heterosexual
- Asking about religion and then sexual identity will lead to a decrease in those reporting a minority sexual identity.

4 MODE AND CONTEXT EFFECTS

4.1 In the previous section we established that we might expect to detect mode and context effects in the split sample experiments. In this section we describe the methods used to detect mode and context effects. We then provide the results of the experiments conducted using the three questions: sexual identity; S-WEMWBS and the perception of the local crime rate. Each of them is presented in turn and for the S-WEMWBS inventory, the results of the cognitive testing undertaken to develop a showcard for use with CAPI is also discussed.

Non-response weighting

4.2 Not all respondents allocated to CASI and paper modes agreed to complete the questions. This had two consequences. Fewer people allocated to these modes were included in the analyses compared with CAPI, where all of those allocated could be included. For CASI, people who refused to complete the questions at all or who provided answers for the interviewer to complete were both excluded.

4.3 The profile of those completing the questionnaire by paper self-completion was similar to the profile of the group randomly allocated to that mode, so no adjustment by weighting was necessary. For CASI, the profiles differed, so a non-response weight was created to bring the profile of those completing in line with those allocated to the mode (annex 4).

Analysis methods – introduction

4.4 Regression methods were used to analyse the questions for mode and sequencing effects. Although simple ANOVA/t-test/chi-square methods could have been used to separately quantify mode effects and sequencing effects, regression was used to quantify these effects while simultaneously controlling for other influential factors. These other influential factors included (a) experimental condition variables that were hypothesised to be relevant but might have proved otherwise, and (b) demographic variables.

4.5 Two types of regression were used in the analysis. Binary logistic regression methods were used for the analyses of sexual identity and perception of crime in the local area. A multiple linear regression model was constructed for the analysis of S-WEMWBS. The objective of both methods was to produce a linear function that, when applied to a set of predictor variables e.g. mode or sequence, was most likely to produce the value of the dependent variable (subject to a small quantifiable degree of error).

4.6 The analysis focused on four subjects:

1. Whether an individual refused/did not give an answer to the sexual identity question

2. Of those who answered the sexual identity question, whether an individual said they were heterosexual or non-heterosexual
3. Whether an individual believed that crime in their local area had stayed the same or decreased since two years ago
4. S-WEMWBS derived score.

4.7 Binary logistic regression models were set up to look at the first three subjects. The dependent variables were coded in the following way:

- 1 = refused/did not answer SI question; 0 = answered SI question
- 1 = heterosexual; 0 = non-heterosexual
- 1 = believed crime had gone down or stayed the same; 0 = believed crime had gone up

4.8 As well as knowing the mode and sequence in which the questions were administered for each respondent, there was demographic information available about each respondent, as detailed below:

- Gender
- Age
- Socio-economic grade (SEG)
- Area of Scotland (West, East/South, North)
- Urban / rural status
- Working status
- Presence of children in household

4.9 All of the independent variables tested were categorical.

Model building methods

4.10 The work was carried out using the logistic regression and linear regression packages in SPSS 17.0. The general method of working was to enter each group of variables in blocks, with data collection mode being entered first, the next being the sequence of questions, then lastly demographic variables.

4.11 Six different sequences were tested:

1. S-WEMWBS ➔ SI ➔ PC
2. S-WEMWBS ➔ PC ➔ SI
3. SI ➔ S-WEMWBS ➔ PC
4. SI ➔ PC ➔ S-WEMWBS
5. PC ➔ S-WEMWBS ➔ SI
6. PC ➔ SI ➔ S-WEMWBS

4.12 Interactions between mode and sequence were also tested, as well as interactions between mode and demographic characteristics and sequence

and demographic characteristics. The interaction between mode and sequence was analysed to test whether the initial hypothesis that sequencing effects were independent of mode was true.

4.13 Another hypothesis was made at the outset which was that sequence effects were 'short term'. Thus when 'sequence' was included in the model, alternative sequence variables were also tested that looked only at the question immediately preceding the question of interest. There were six additional mini-sequences tested:[10]

1. S-WEMWBS ➔ SI
2. S-WEMWBS ➔ PC
3. SI ➔ S-WEMWBS
4. SI ➔ PC
5. PC ➔ S-WEMWBS
6. PC ➔ SI

4.14 For the binary logistic regression models, a 'stepwise' procedure was used to identify the smallest number of significant predictors in each group. Although the intention was to retain the identified predictors in the model, even if they lost statistical significance due to the addition of a subsequent group of variables, in practice this was not always the most sensible way to proceed, so a more flexible approach was taken when this arose i.e. assessing practical significance along with statistical significance.

4.15 In these models, the Hosmer-Lemeshow test was used to assess model fit. This is a chi-square test in which cases are divided into deciles based on modelled response propensity. The expected number of cases in each class is then compared with the actual number of responding cases. A significant test result suggests that the model works better for one end of the distribution than the other (a phenomenon called heteroscedasticity). All Hosmer-Lemeshow tests were non-significant suggesting that heteroscedasticity was not a problem for any of these models.

4.16 For the multiple linear regression model constructed for S-WEMWBS, variables were entered into the model and were assessed for statistical significance. Model fit was assessed using the adjusted R^2 measure, which looks at the proportion of the variation in the dependent variable accounted for by the explanatory variables.

4.17 Having fitted the model, the main underlying assumptions of multiple linear regression were assessed by examining the residuals. The residuals were checked for constant variance (homoscedasticity), normality and independence. All of the assumptions were valid.

[10] The sample size for each mini-sequence was double that of each full sequence.

Interpreting the results

4.18 In the binary logistic regression models, odds ratios were produced (exp(B)). The odds ratios were calculated by taking the ratio of the odds of one group being coded as 1 e.g. refusing to answer the sexual identity question, compared with the odds of the reference group being coded as 1. The 'odds' are equivalent to the ratio of the probability of the event occurring to the probability of the event not occurring i.e. refusing to answer the sexual identity question against answering the sexual identity question. Odds are another scale for representing probabilities.

4.19 An odds ratio greater than one implies an increased tendency of being coded as 1 e.g. refusing to answer the sexual identity question, whereas an odds ratio of less than one implies a decreased tendency, compared with the reference group. The reference groups are labelled as such in the tables and have odds ratios of one.

4.20 In the multiple linear regression model for S-WEMWBS, unstandardised coefficients were produced (B). As mentioned earlier, the objective was to produce a linear function that was most likely to produce the value of the dependent variable.

4.21 The linear function takes the form:

$$y_i = \alpha+\beta_1 x_{1i} + \beta_2 x_{2i} [\ldots] + e_i$$

y_i = value of dependent variable for case i[11]
x_{1i} = value of predictor variable x_1 for case i
x_{2i} = value of predictor variable x_2 for case i
e_i = error term ("residual")

4.22 Thus, the coefficients from the S-WEMWBS regression model can be inserted into a linear function that will give a predicted S-WEMWBS score.

Sexual Identity

4.23 The following tables show the results of the sexual identity question, presented according to whether respondents answered the split sample experimental section or not, if so, whether they answered the sexual identity question, and if they did, the answers they provided.

4.24 Table 4.1 shows the outcome of all respondents on this question, including the percentage giving each answer, the percentage refusing to answer the sexual identity question and the percentage not answering the split sample experimental section at all.

[11] In logistic regression y_i is transformed into the log odds of the target category (e.g. 'yes' in a yes/no question) before the linear function is produced.

Table 4.1: Outcome of the sexual identity question
Base: Adults aged 16+ interviewed in the SOS
Column percentages

	Total (unweighted)
Base:	2033
Gave a response at all to sexual identity question:	90.1
Heterosexual/straight	*88.1*
Gay/lesbian/bisexual/ other	*2.0*
Refused/not stated/prefer not to say (sexual identity question)	3.0
Refused experimental section/parental refusal (16-17 year olds)	6.8

Rows in italics are sub-groups of 'gave a response at all' row
Figures do not add to 100% due to rounding

4.25 Table 4.2 shows the outcome of the sexual identity question by mode, among those who answered the split sample experimental section.

Table 4.2: Outcome of the sexual identity question by mode
Base: Adults aged 16+ interviewed in the SOS agreeing to answer the split sample experimental section
Column percentages

	CAPI (unweighted)	CASI (weighted)	Paper (unweighted)
Base:	668	493	573
Gave a response at all:	99.0	97.3	94.7
Heterosexual/straight	*97.2*	*94.5*	*91.8*
Gay/lesbian/bisexual/ other	*1.5*	*2.8*	*2.8*
Refused/not stated/ prefer not to say	1.0	2.7	5.3

Rows in italics are sub-groups of 'gave a response at all' row
Figures do not add to 100% due to rounding

4.26 Table 4.3 shows the outcome of the sexual identity question among those who provided an answer to the sexual identity question.

Table 4.3: Outcome of the sexual identity question
Base: Adults aged 16+ interviewed in the SOS providing an answer to the sexual identity question
Column percentages

	Total (unweighted)
Base:	1832
Heterosexual/straight	97.8
Gay/lesbian/bisexual/ other	2.3

Figures do not add to 100% due to rounding

Refusing to give an answer to sexual identity question

4.27 A binary logistic model was set up and tested whether different modes and different sequences were significant predictors of whether an individual refused to give a response at the sexual identity question. The final model is shown in Table 4.4.

Table 4.4: Final regression model for sexual identity – refusing to give an answer to sexual identity question

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Mode of completion			16.277	2	.000			
CAPI (reference)	1.000							
CASI	1.108	.466	5.651	1	.017	3.027	1.215	7.545
Paper	1.683	.425	15.657	1	.000	5.383	2.338	12.391
Age group			22.825	5	.000			
16-24	-1.357	1.062	1.633	1	.201	.258	.032	2.063
25-34	-.391	.611	.409	1	.523	.676	.204	2.242
35-44	-.471	.568	.687	1	.407	.624	.205	1.902
45-54	.106	.460	.053	1	.817	1.112	.451	2.741
55-64	1.145	.407	7.921	1	.005	3.141	1.416	6.971
65+ (reference)	1.000							
Sequence of questions – Perception of crime before S-WEMWBS before Sexual identity								
Not in this sequence (reference)	1.000							
Questions in this sequence	.694	.319	4.722	1	.030	2.002	1.070	3.744
Constant	-4.896	.492	99.201	1	.000	.007		

Notes

- The response is 1 = Refused to answer, 0 = Did not refuse to answer.
- The model Nagelkerke R^2 was 0.115.
- B is the estimate coefficient (odds) with standard error S.E.
- Exp(B) is the odds ratio.
- The Wald test measures the impact of the categorical variable on the model with the appropriate number of degrees of freedom df. If the test is significant (sig < 0.05) then the categorical variable is considered to be significantly associated with the response variable and therefore included in the model.
- The Wald test for each level of the categorical variable is also shown. This tests the difference between that level and the baseline category. The full Wald test is found in the first line of each variable.

4.28 The final model created indicated that there were mode effects and sequence effects in the proportion of respondents who refused to answer the sexual identity question.

4.29 Compared with CAPI respondents, both CASI and paper respondents were more likely to refuse to answer the question. This is consistent with ONS findings during their work to develop this question. Furthermore, paper respondents were more likely to have refused this question than CASI respondents.

4.30 Sequencing effects occur when one question or set of related questions makes the respondent think or feel in a way that affects how they respond to the next set of questions. One full sequence was a significant factor that entered the model. Respondents who received the sexual identity question after receiving first the perception of local crime rate question then the S-WEMWBS inventory were more likely to refuse the sexual identity question. However it should be noted that the mini-sequence of S-WEMWBS preceding the sexual identity question did not lead to any sequence effects.

4.31 There were no interaction effects between mode and sequence, which supports our initial hypothesis that mode administration has no effect on sequence effects.

4.32 Age was added to the model as it was found to be a significant predictor of refusing the sexual identity question. In particular, those aged 55-64 had a higher likelihood of refusing the sexual identity question compared with those aged 65+. It was added as a way of controlling the final estimates produced from the model. However there were no interaction effects between age and mode or between age and sequence.

Proportion saying they have a minority sexual identity

4.33 A higher proportion of respondents to the CASI or paper questionnaire said they had a minority sexual identity, compared with CAPI respondents, although this difference was not statistically significant (table 4.2).[12] The difference in those saying they were heterosexual between CAPI and CASI and CAPI and paper modes were significant (table 4.2).[13]

4.34 A binary logistic model was set up and tested whether different modes and different sequences were significant predictors of whether an individual said they were heterosexual compared with saying they had a minority sexual identity. Individuals who refused to answer the question were not included in

[12] The lack of statistical significance arises because confidence intervals are *relatively* wide when prevalence estimates are very low. The confidence interval might be 0.5% to 2.5% with a point estimate of 1.5% - a range of only 2 percentage points but the upper limit is five times that of the lower limit. In contrast, a mid-prevalence confidence interval might be 45% to 55% - a range of 10 percentage points but the upper limit is only 1.2 times the lower limit.

[13] ONS also found an increase in those who said they were heterosexual for CAPI administration compared with CASI.

the regression so this analysis only looks at those who did give an answer. The final model is shown in Table 4.5.

Table 4.5: Final regression model for sexual identity – of those who gave an answer, proportion saying gay, lesbian, bisexual or other

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Sequence of questions – S-WEMWBS before Perception of crime before Sexual identity								
Not in this sequence (reference)	1.000							
Questions in this sequence	-.860	.342	6.343	1	.012	.423	.217	.826
Constant	3.979	.191	435.172	1	.000	53.464		

Notes

- The response is 1 = Heterosexual/straight, 0 = Lesbian, gay, bisexual or other.
- The model Nagelkerke R^2 was 0.016.
- B is the estimate coefficient (odds) with standard error S.E.
- Exp(B) is the odds ratio.
- The Wald test measures the impact of the categorical variable on the model with the appropriate number of degrees of freedom df. If the test is significant (sig < 0.05) then the categorical variable is considered to be significantly associated with the response variable and therefore included in the model.
- The Wald test for each level of the categorical variable is also shown. This tests the difference between that level and the baseline category.

4.35 After controlling for refusals, mode effects were not apparent in the proportion of respondents saying they were heterosexual or straight compared with those saying they had a minority sexual identity.

4.36 A full sequence effect was detected. Respondents who received the sexual identity question after receiving first the S-WEMWBS inventory then the perception of local crime rate question were more likely to report having a minority sexual identity, compared with those who received questions in a different sequence. However it should be noted that the mini-sequence of the perception of local crime rate question preceding the sexual identity question did not lead to any sequence effects.

Perceptions of local crime rate

4.37 Table 4.6 shows the outcome of the perceptions of the local crime rate question, showing the percentage giving an answer and what that answer was, as well as the percentages where no answer was available.

Table 4.6: Outcome of the perceptions of local crime rate question by mode
Base: Adults aged 16+ living in their local area for two years or more answering the split sample experimental section for each mode
Column percentages

	CAPI (unweighted)	CASI (weighted)	Paper (unweighted)
Base:	605	445	512
Gave a response at all:	100	100	97.6
Increase	*26.6*	*27.3*	*32.0*
Same / decrease	*68.6*	*64.7*	*54.9*
Don't know	*4.6*	*8.0*	*10.7*
Refused	*0.2*	-	-
Not stated	-	-	2.3

Proportion saying decreased or stayed the same

4.38 A binary logistic model was set up and tested whether different modes and different sequences were significant predictors of whether an individual believed that the crime rate in their local area had stayed the same or decreased (the national indicator measure) since two years ago. The final model is shown in Table 4.7.

Table 4.7: Final regression model for perceptions of local crime rate – proportion saying decreased or stayed the same

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Mode of completion			9.752	2	.008			
CAPI (reference)	1.000							
CASI	-.142	.144	.969	1	.325	.868	.654	1.151
Paper	-.423	.137	9.546	1	.002	.655	.501	.857
Socio-economic grade (SEG)			32.374	3	.000			
AB	.848	.169	25.132	1	.000	2.334	1.676	3.252
C1	.654	.151	18.784	1	.000	1.923	1.431	2.585
C2	.533	.159	11.247	1	.001	1.704	1.248	2.327
DE (reference)	1.000							
Constant	.503	.122	17.147	1	.000	1.654		

Notes

- The response is 1 = Stayed the same or decreased, 0 = Increased.
- The model Nagelkerke R^2 was 0.041.
- B is the estimate coefficient (odds) with standard error S.E.
- Exp(B) is the odds ratio.
- The Wald test measures the impact of the categorical variable on the model with the appropriate number of degrees of freedom df. If the test is significant (sig < 0.05) then the categorical variable is considered to be significantly associated with the response variable and therefore included in the model.

- The Wald test for each level of the categorical variable is also shown. This tests the difference between that level and the baseline category. The full Wald test is found in the first line of each variable.

4.39 Individuals who said 'don't know' or refused to answer the question were not included in the regression so this only looks at those who did give an answer. However those not giving a 'valid' answer are an important group and, as table 4.2 shows, CAPI administration had the lowest rate of missing responses (5%), followed by CASI (8%) while paper self-completion suffered from the greatest proportion not giving a 'valid' answer (13%). Previous research has suggested higher use of 'don't know' in opinion questions when self-completed compared with when interviewer administered.

4.40 The final model created indicated that there were mode effects in the proportion of respondents who answered 'stayed the same' or 'decreased'. Compared with CAPI respondents, those responding via a paper questionnaire were less likely to say that the crime rate in their local area had stayed the same or decreased since two years ago. This is consistent with findings in previous research where respondents were found to downplay social problems in their local community when answering in a face-to-face interview compared with a postal interview (Nicolaas and Tipping, 2006).

4.41 Socio-economic group (SEG) was added to the model as it was found to be a significant predictor of answering 'stayed the same' or 'decreased'. SEG was positively correlated with the proportion answering this i.e. those in socio-economic group AB had a higher likelihood of saying this compared with those in socio-economic group DE. However there were no interaction effects between mode and socio-economic group.

4.42 Sequence effects were not apparent.

S-WEMWBS

4.43 Table 4.8 below shows the outcome of the S-WEMWBS inventory by mode, showing the combined mean score and standard deviation. It also shows the percentage of respondents within one standard deviation above and below the mean.

Table 4.8: Outcome of the S-WEMWBS inventory by mode
Base: Adults aged 16+ answering the split sample experimental section for each mode where a mean score could be calculated for the SWEMWBS inventory

	CAPI (unweighted)	CASI (weighted)	Paper (unweighted)
Base:	668	493	506
Mean score	26.79	26.10	26.38
Standard deviation	4.30	4.98	4.64
% within 1 SD above mean	42%	40%	40%
% within 1 SD below mean	30%	31%	34%

If the answer to one or more of the constituent questions was missing (paper only), no score was calculated. This applied to 14% of respondents who completed via paper.

Mean score

4.44 As the S-WEMWBS measure is a score created from 7 constituent questions (ranging from 7 to 35), a conventional multiple regression model was set up. This tested whether different modes and different sequences were significant predictors of mental well-being. If an answer to one of the constituent questions was missing (applying to the paper mode only), no score was calculated. This affected 14% of responses to the paper questionnaire. The final model is shown in Table 4.9.

Table 4.9: Final regression model for S-WEMWBS

	Unstandardised Coefficients				95.0% Confidence Interval for B	
	B	Std. Error	t	Sig.	Lower Bound	Upper Bound
(Constant)	27.325	.201	135.952	.000	26.931	27.719
Mode of completion – CASI (1=CASI / 0=CAPI or paper self-completion)	-.989	.298	-3.324	.001	-1.573	-.406
Sequence of questions – Sexual identity before S-WEMWBS (1=Yes / 0=No)	.256	.271	.944	.345	-.275	.786
Interaction term – CASI and Sexual identity before S-WEMWBS (1=Yes / 0=No)	1.342	.526	2.550	.011	.310	2.374
Age 45-54 (1=Yes / 0=No)	-.881	.273	-3.232	.001	-1.416	-.346
Socio-economic grade C2 (1=Yes / 0=No)	-.868	.279	-3.108	.002	-1.416	-.320
Socio-economic grade DE (1=Yes / 0=No)	-1.503	.254	-5.922	.000	-2.000	-1.005

Notes

- The dependent variable is the S-WEMWBS score.
- The model adjusted R^2 was 0.03.
- B is the estimate coefficient with standard error S.E.
- The t test determines whether the B estimate coefficient is significantly different from 0. If the test is significant (sig < 0.05) then the categorical variable is considered to be significantly associated with the response variable and therefore included in the model.

4.45 The final model created indicated that there were mode effects and sequence effects in the derived S-WEMWBS score. Respondents who completed the questions by CASI had a lower mental well-being score compared with respondents who completed the questions via the other two modes. Based on previous research which has shown that respondents were more likely to disclose sensitive information using self-completion methods, we might have expected this result when comparing CASI with CAPI results.

4.46 There was a significant interaction effect between the CASI mode and sequence. The interaction effect means that those who completed via this method and received the sexual identity question before answering the S-WEMWBS inventory were more likely to have a higher mental well-being score, reversing the mode effect identified in paragraph 4.45.

4.47 Both age and socio-economic group were added to the model as controls to reduce the standard errors around the mode/sequence coefficients. They were found to be significant predictors of S-WEMWBS scores, although there were no interaction effects between age and socio-economic group with either mode or sequence:

- Those in the lowest socio-economic groups (C2DE) were more likely to have a lower mental well-being score, compared with those in the ABC1 group
- Similarly, those aged 45-54 were more likely to have a lower mental well-being score, compared with all other age groups.

Developing a showcard for CAPI administration

4.48 In this section we have summarised the key strengths and weaknesses of each of the three different showcard approaches tested for use with S-WEMWBS administered using CAPI. Importantly, on the whole there was an initial acceptance of the showcard respondents were first shown and they were able to answer the question without too much difficulty whichever approach was first displayed.

4.49 In the first omnibus wave, when asking the S-WEMWBS inventory, a single show card approach was adopted, using showcard B which included the response scale. We used the cognitive testing to identify whether there was a clear 'winner' between that and two other designs to include in the second round of omnibus testing, if different. There were benefits and drawbacks to each of the show cards in the cognitive testing and no outright winner.

4.50 Showcard B was a single showcard providing numbered answer options and represented a 'typical' CAPI approach to asking a battery of attitude statements. Respondents had no issues understanding the process, they found the approach simple and having only one show card was a benefit as it made the process less complex.

4.51 The issue of confidentiality came out stronger for this approach than any other. Some of those who initially expressed a preference for this showcard, stated a preference for one of the other two if the question was to be asked in their home or in front of others who would be able to hear the statements being read out.

4.52 The second approach combined showcard B with a second showcard, A, including the S-WEMWBS statements. This was viewed as more complex than having a single showcard, and some respondents needed to ask for clarification of what was required of them. It was suggested that adding the headings: 'statements' and 'answers' to the showcards would improve them.

4.53 Showcard C was a single showcard including both the statements and answers in a grid format, replicating the layout of the paper questionnaire. While some did not like this approach because it reminded them of maths

classes at school, on the whole respondents knew what was expected of them and were able to complete the task successfully.

4.54 The multiple random numbering used was seen as potentially problematic. Although respondents could often understand why multiple sets of numbering might be used to increase confidentiality, a common suggestion for improving this card was to use universal numbering for all the statements to simplify and increase the user-friendliness of the format.

4.55 The cognitive testing clarified the continuum of modes, starting from the 'classic' CAPI approach – reading out each statement and respondents providing an answer from the show card – and, at the other end, the paper self-completion method – which is how S-WEMWBS was originally designed to be administered. In between is the CASI self-completion, the third mode we tested in the omnibus survey.

4.56 The testing drew out some of the separate components of mode, including the layout of the showcard or of the question on screen or on paper. Introducing a showcard with a grid layout (replicating the original paper-based grid) moves the CAPI option closer to the CASI option as this also was tested in a grid format on the screen.

4.57 The response showcard B continued to be used in the second omnibus wave, so that we were able to identify the extent of the most extreme difference to the paper self-completion version. In the event no difference was detected between mean scores for S-WEMWBS generated by these two modes, although there was a difference between them and CASI, the nature of which was affected by immediately following the sexual identity question (paragraphs 4.45 - 4.46). There was also no real difference between the distribution of answers to the S-WEMWBS inventory by mode (table 4.8).

Summary

4.58 Non-response to the sexual identity question was highest amongst those answering via CASI or paper self-completion, with the paper self-completion approach having the highest proportion of refusals. In contrast however, a higher proportion of respondents in the CASI and paper sample reported a minority sexual identity. Although this wasn't significant, with the larger sample sizes in the population surveys, there is a potential that this could become a significant difference. Respondents in the CAPI sample were significantly more likely to say they were heterosexual.

4.59 Mode effects were evident for the perceptions of local crime:

- A higher proportion of non-response was seen amongst those administered by CASI or paper
- Those answering the paper version were less likely than CAPI respondents to say that the crime rate had stayed the same or decreased in the last two years.

4.60 Those answering the S-WEMWBS via CASI had a lower mental well-being score than other respondents. However, if the sexual identity question was asked before this question the CASI respondents were more likely to have a higher mental well-being.

4.61 A variety of strengths and weaknesses were identified for the S-WEMWBS CAPI showcards:

- Using a typical approach, where the showcard displays the answers and the interviewer reads out the statement was viewed as simple, but there were concerns over the confidentiality of this approach

- Using a two card approach, where one showcard displays the statement and another the answers was more complicated and some additional clarification was required

- Using a grid approach most closely replicates the paper version of this question, and while some did not like this method, on the whole respondents understood what was required.

5 CONCLUSIONS

5.1 Our review of available research into mode and sequencing effects demonstrated that we might expect to detect such effects, although the extent of these was difficult to predict as they tend to be dependent on the nature of the question and the circumstances in which it is being asked.

5.2 The development work for the sexual identity question suggested two possible mode effects and the potential for sequence effects. Previous mode and context research was not available for S-WEMWBS or for perceptions of change in the local crime rate.

5.3 The following sections consider each of the questions in turn, pulling together the existing research, the results of the split sample experiments and the cognitive testing and present conclusions and implications for the population surveys. Other considerations that could be taken into account are briefly discussed. The final section suggests further analysis that could be undertaken following the introduction of the questions to the population surveys.

Sexual Identity

5.4 The sexual identity question is currently included in all three population surveys, using a different mode for each one. In advance of this research it was suggested that this question continue to be included in the CASI section of the SCJS and to be asked in a paper questionnaire in the SHeS and possibly in the SHS.

5.5 Previous research has suggested that respondents are more likely to disclose information for questions covering potentially sensitive subjects administered using self-completion methods.

5.6 In their development work ONS found no difference between CAPI and CASI modes in the proportion answering they had a minority sexual identity. The increase in the percentage saying 'prefer not to say' in the CASI version of this question where it was explicitly available appeared to have been replaced by an increase in the percentage saying they were heterosexual in the CAPI version where the option to refuse was not explicitly presented.

5.7 As ONS suggested based on their development work, in the current split sample experiments, the mode of survey administration influenced the proportion of respondents refusing to answer the sexual identity question. Based on this criterion, CAPI appears to be the mode to administer this question in as it leads to fewer refusals/missing answers.

5.8 However, if the aim of asking the question is to measure the proportion having a minority sexual identity as accurately as possible and under the assumption that the highest reporting proportion for non-heterosexual is the most accurate, the initial results indicate that CAPI leads to an under-reporting by

those with a minority sexual identity, although the differences were not significant.

5.9 If Scottish Government wishes to ensure consistency of reporting of sexual identity across different national surveys, either CASI or paper could be used, since the reporting of minority sexual identity appears consistent. However, paper leads to a higher refusal rate so, in this respect, CASI seems to be the optimal administration method for this question.

5.10 An important judgement in deciding the optimal mode might be whether non-reporting of heterosexual identities is more or less important than under-reporting of minority sexual identity. Another consideration might be the equalities implications of excluding older people by asking the sexual identity question in CASI compared with those of not allowing people with a minority sexual identity to say this confidentially, where they do not want to reveal this openly to an interviewer or other people who may be present during the interview.

5.11 Some mild sequencing effects were identified but the patterning was not consistent enough to draw firm conclusions. Proximity to a religious identity question was found by ONS to influence results if asked immediately before sexual identity, with the reason for this being clearer. This effect should be borne in mind when the order of the sexual identity question is determined.

Perception of change in local crime

5.12 Currently this question is asked in the SCJS using CAPI. It is not currently included in the SHS or SHeS. Before carrying out this research it was suggested this should be included in the SHeS in a paper self-completion questionnaire which could be administered to all adult family members alongside existing questions answered in this way to avoid household members being influenced by other members' answers.

5.13 Previous research suggests that a 'don't know' option was used more frequently in attitudinal questions when included explicitly in a self-completion questionnaire because the respondent felt under less pressure to provide an answer when they did not have an opinion. This suggests that a self completion method might provide a more accurate reflection of opinions, although a counter-argument would be that the option to say 'don't know' might allow respondents to conceal their true opinion.

5.14 The proportion of those saying 'don't know' in the split sample experiment was higher when this question was asked using CASI (8%) and the paper questionnaire (11%) than when the mode of administration was CAPI (4.6%), which appears to confirm the previous finding. Despite this, paper self-completion does not appear to be the optimal mode for this question.

5.15 Importantly, in the current study, a mode effect was found to exist which led to a lower proportion of respondents saying that they thought crime had stayed the same or decreased in their local area since two years ago if they

completed the answers themselves by paper. Previous research suggested that respondents were more likely to downplay social problems in their local community in a face-to-face survey, which could help explain this finding.

5.16 The results of the mode tests suggest that this question should not be administered by paper in the SHeS. Since the main objective is to combine data from all three major surveys (SHS, SHeS and SCJS), using paper self-completion will produce different results from the CAPI question. As this question measures attitudes, it can be assumed that the absolute accuracy of the measure is less important than that the time series is maintained to measure progress against the national indicator over time. Under this assumption, asking the question in CAPI would be the optimal mode for this question.

5.17 The concern that this mode would influence answers where multiple interviews are conducted in a household in the SHeS could be overcome by adopting the method used by ONS in these circumstances when asking the sexual identity question. This uses multiple showcards (up to 8), each with a different set of random numbers, which individuals use to answer the question and do not reveal the answer to other household members.

5.18 Alternatively, one adult per household could be selected at random to be asked this question following the collection of the details about all household members at the start of the questionnaire in the CAPI script.

S-WEMWBS

5.19 The full WEMWBS inventory is currently included in the SHeS in a paper self-completion questionnaire. Before this research was carried out, it was suggested that the shortened version (S-WEMWBS) might be administered in the SHS and SCJS using CAPI, although the scale has not been validated for use in this mode by the developers.[14] The analysis of results for this question was less-conclusive than for the other two in determining the optimal mode as the mean scores obtained and the distribution of answers were similar across modes.

5.20 The findings from previous research relevant to the sexual health question that respondents were more willing to report sensitive information in a self-completion questionnaire would appear to be equally relevant here. Mode effects were apparent in the results of the test that at least partially confirmed this effect. Respondents who completed via CASI were more likely to have a lower mental well-being score, compared with those completing via the alternative modes (although this effect was reversed when asked directly after the sexual identity question). The difference was significant between CASI and CAPI but not between CASI and paper self-completion.

[14] The WEMWBS guide identifies that the scale has been used previously in CASI and paper self-completion formats and that the inventory has not been validated for CAPI use.

5.21 The mode effects detected suggest that administration via CAPI would lead to higher mental well-being scores, compared with administration via CASI. Under the assumption that the lowest score is the most accurate (more honest), administration by CAPI does not appear to be the optimal approach.

5.22 An argument could be made for a paper approach if the intention was to use the data to measure the national indicator. As the shortened, rather than full, version is being introduced in the SCJS and SHS, this may not be the intention. Paper self-completion of S-WEMBWBS does raise the issue of missing data. A score could not be calculated for a sizeable proportion (14%) of respondents completing in this way. This was not a problem for the other modes tested. There is the inherent risk of non-response bias with the paper self-completion method in that those for whom a score could not be calculated may be different to those who could have a score derived, although inspection of their demographic profiles appeared to be similar.

5.23 If Scottish Government would like to explore the use of CAPI further, showcard option C, assessed in the cognitive interviews, most closely replicates the self-completion format. Combining this with interviewer administration might be expected to produce results that more closely replicate CASI administration, though this has not been tested.

Other considerations

5.24 In making the decisions about the modes and question sequencing, as well as the results of the split sample experiments, there are other considerations that could also be taken into account.

5.25 Previous studies have shown that paper self-completion questionnaires are not subject to sequence effects to the same extent as other modes, as all questions are visible to the respondent and they do not need to be answered in the order they appear in the questionnaire.

5.26 At the same time, in the population surveys, where paper questionnaires are not currently used, introducing them would incur additional production, delivery and processing costs.

5.27 When ONS developed the sexual identity question they reported that including this as a CASI question in a CAPI interview disrupted the flow of the interview. This finding is understandable where one CASI question is asked and time is also taken to explain how to use the equipment to answer the question, including practice questions. That disruption does not occur in the same way in a longer CASI section.

5.28 An interviewer will always be present regardless of mode used for each question. This means that benefits and drawbacks of self-completion where no interviewer is present will be moderated.

Further Research

5.29 The Scottish Government is interested in the wider context effects of asking the three questions in the three population surveys. Various possible effects can be identified, for example:

- Asking about mental well-being in a survey about crime and victimisation may well lead to different responses being given to those that would be given in a survey dealing with health issues
- Asking a question about perception of the crime rate in the local area in a survey focusing on health, where there are no obvious links to that question, could cause confusion among respondents and affect their answer in some way
- Respondents may answer a question on sexual identity differently in the context of a questionnaire about health compared with one focusing on crime and victimisation.

5.30 The current study was not designed to explore these wider context effects. A study could be designed using experiments in the population surveys when the three questions are first introduced at the start of the next contracts. As the above examples suggest, context effects might be expected to vary by survey.

5.31 Although some sequencing effects were detected in this study, the three test questions may not always be asked together in the three population surveys. Once the questions are introduced to the surveys, additional tests would be useful to detect any sequencing effects where they follow different questions.

5.32 The use of CAPI to administer the S-WEMWBS inventory has not been validated by the developers and similar statistical tests on the data to those conducted by them could be carried out if CAPI administration is introduced.

5.33 Administration of the S-WEMWBS inventory by CAPI would also benefit from split sample experiments in the population surveys, using showcard C (grid) and testing against CASI administration, before a final decision is made on mode used for this question.

Summary recommendations

5.34 Our recommendations are based on a review of research on mode and sequencing effects, the results of the mode and context effect tests and the way in which the results of the questions will be used. However, additional considerations that need to be taken into account are the practicality and costs involved in changing the existing Scottish population surveys.

5.35 Under the assumption that it is more important to measure minority sexual identity correctly than to reduce non-reporting, we would recommend that the sexual identity question is asked in CASI in all three population surveys. However, if it is impracticable to do so, paper completion would provide a

consistent measure of sexual minority, albeit at the cost of a higher non-response.

5.36 Previous research by ONS has shown a sequence effect when sexual identity is asked following religious identity, so careful consideration needs to be given to the placement of this question.

5.37 Under the assumption that it is more important to maintain the current time series of the perception of local crime rate, we would recommend that this question be asked in CAPI in all three surveys. For the SHeS, it would be possible to use multiple showcards to allow multiple household members to answer this question without influencing the answers of others. Alternatively, one adult could be selected at random to answer this.

5.38 Given S-WEMBWBS has not been validated for use in CAPI surveys, and that paper self-completion increases non-response we would recommend that this should be asked using CASI.

5.39 We would also recommend that once the questions are introduced to the surveys, additional tests should be conducted on all three questions to detect any sequencing effects where they follow different questions. This is because the three test questions may not always be asked together in the three population surveys, and asking other questions first may introduce an unknown sequence effect.

5.40 In addition, we would recommend that the wider context effects should be tested when these questions are first introduced at the start of the next contracts, as asking these questions in a survey that focuses on an unrelated topic may impact on responses.

ANNEX 1 COGNITIVE INTERVIEWS - MATERIALS

A3

COGNITIVE HALL TESTS QUESTIONNAIRE A3

Respondent number: 1 / 2 / 3 / 4 / 5

Moderator's initials:

Hello, my name is…… and I work for an independent research company called TNS BMRB. Can I take some very quick details from you before we begin?

Respondent details (please circle)

Gender: M / F

Age: 16-25, 26-45, 46-65, 66+

Social Grade: AB / C1 / C2 / DE

Opening script

We have been asked to carry out some research by the Scottish Government to help develop a set of survey questions that will be used in their large scale surveys.

As part of this process we are testing the way in which one set is asked. This is where you come in. I am going to ask you these questions, and I would like you to answer them as though this were an interview. I would also like you to tell me how you went about answering these questions; what you thought of, and any issues or concerns that you had when answering these questions.

Let me stress this is not a test; there are no right or wrong answers. This is a really important study and anything you tell us about these questions will be really useful.

It may seem very strange to be asked to describe in detail how you went about answering a question – as this is something we do everyday without really thinking about it. However it is this very process that I am interested in. If people find a question confusing, or do not understand a how to answer this is a problem with the question, and we need to put it right.

Warm-up

Let me explain a little bit more about this will work. For the statements I'm going to read out to you I want you to give me an answer from a showcard that I will give to you. I would like you to use this to give me an answer, and then tell me how you came to your selected answer, how easy it was for you to answer the question in this way and how you felt about providing that answer to me.

Let's do a quick exercise to see what this is like. This question isn't part of the survey. It was taken from a BBC website on the 24th June. I'm going to ask you the question and then explore how you came to your answer.

Question: Which of the following best describes your relationship with your family?

Please just read out the number next to the description.

SHOW SHOWCARD 1

19 I am very close to members of my family
16 I have reasonable contact with members of my family
11 I have only limited contact with members of my family
13 I never see my family

Probe: how did you feel about answering that question? How easy was it to decide on your answer? Please reflect on what you thought about when reading the showcard?

Praise respondent on difficult task!

This is a quick example of how we will explore some of the questions in the survey. I must stress once again that we are testing the survey, not you! We need to know that these questions make sense and are understandable. How did it feel doing that exercise?

Confidentiality and timing
Anything you tell me will be in strict confidence. No information that identifies you will be passed on to the Scottish Government, or any other organisation. If we do use any quotes in an end report it will not have your name next to it, but will say something like "a female respondent said…" or "a respondent in Edinburgh said…"

Finally, this should take approximately 10 minutes. Is that okay? Do you have any questions?

NOTE START TIME: _____

SHOW **SHOWCARD B**

Q4 I am now going to read out some statements about feelings and thoughts.

For each one, please tell me the answer that best describes your experience of each over the last 2 weeks.

Please just read out the number next to the description.
[MODERATOR – READ OUT EACH STATEMENT IN TURN]

	ANSWER AS GIVEN BY RESPONDENT
I've been feeling optimistic about the future	
I've been feeling useful	
I've been feeling relaxed	
I've been dealing with problems well	
I've been thinking clearly	
I've been feeling close to other people	
I've been able to make up my own mind about things	

34 None of the time
31 Rarely
35 Some of the time
32 Often
33 All of the time

PROBE: WHAT WENT THROUGH YOUR MIND WHEN ANSWERING THESE QUESTIONS? *(ASK THE RESPONDENT TO REFLECT ON WHAT THEY THOUGHT ABOUT WHEN READING SHOWCARD – LIKE IN THE WARM UP)*

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PROBE: HOW DID YOU GO ABOUT ANSWERING THAT QUESTION?

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PROBE: WAS IT DIFFICULT OR EASY TO ANSWER? WHY?

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PROBE: HOW DIFFICULT OR EASY WAS IT FOR YOU TO KNOW WHAT I WAS ASKING YOU TO DO? WHY? WERE THE INSTRUCTIONS CLEAR? WHY?

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PROBE: WHAT DID YOU THINK OF THE SHOWCARD I GAVE TO YOU FOR THIS QUESTION? WHY? WAS IT CLEAR? WHY? WAS THERE ANYTHING ELSE THAT STRUCK YOU ABOUT THE SHOWCARD?

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I am now going to show you two other ways in which we may ask this question.

FOR **QUESTION VERSION B2** EXPLAIN HOW THIS WORKS SHOWING RESPONDENT THE QUESTION AND SHOWCARDS. In this version we use two cards. I tell you a letter and you read the statement with that letter from this card. Using the second card, you read out the number for the answer that best fits your own view.

PROBE: HOW DIFFICULT OR EASY DO YOU THINK IT WOULD BE FOR YOU TO KNOW WHAT I WAS ASKING YOU TO DO IF YOU WERE ASKED IN THIS WAY? WHY? WERE THE INSTRUCTIONS CLEAR? WHY? WAS THE SHOWCARD CLEAR? WHY?

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FOR **QUESTION VERSION C1** EXPLAIN HOW THIS WORKS SHOWING RESPONDENT THE QUESTION AND THE SHOWCARD. In this version we use this card. I tell you a letter and you read the statement with that letter from this card. You then tell me the number for the answer that best fits your own view.

PROBE: HOW DIFFICULT OR EASY DO YOU THINK IT WOULD BE FOR YOU TO KNOW WHAT I WAS ASKING YOU TO DO IF YOU WERE ASKED IN THIS WAY? WHY? WERE THE INSTRUCTIONS CLEAR? WHY? WAS THE SHOWCARD CLEAR? WHY?

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Please can you have a look at all of these and let me know which of these three versions, including the one you saw first, you would prefer to answer.

SHOW RESPONDENT THE THREE VERSIONS OF THE QUESTION AND REMIND THEM HOW WE WOULD USE EACH VERSION. Which method of asking this question do you prefer?

CIRCLE THE ANSWER GIVEN (NP= no preference)

A3 B2 C1 NP

PROBE: WHY WOULD YOU PREFER THAT VERSION?

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If you were being asked this question by an interviewer in your home, which way would you prefer to be asked?
CIRCLE THE ANSWER GIVEN

A3 B2 C1 NP

PROBE: WHY WOULD YOU PREFER THAT VERSION? IF DIFFERENT TO ANSWER GIVEN ABOVE, EXPLORE WHY

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And, if you were being asked this question by an interviewer in your home, and there was someone else in the room, which way would you prefer to be asked?

CIRCLE THE ANSWER GIVEN

A3 B2 C1 NP

PROBE: WHY WOULD YOU PREFER THAT VERSION? IF DIFFERENT TO ANSWER GIVEN ABOVE, EXPLORE WHY

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Finally, please can you now take a look at all three ways of asking these questions? Please can you tell me what you think is good about each of these? What do you not like about them? What is not so good?

QUESTIONS	**GOOD**	**NOT GOOD**
A3		
B2		
C1		

Thank and Close

ANY ADDITIONAL COMMENTS?

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NOTE END TIME: _____

Give respondent incentive and TNS thank you note.

PLEASE ADD ADDITIONAL COMMENTS AND REFLECTIONS ON THIS PAGE

B2

COGNITIVE HALL TESTS QUESTIONNAIRE B2

Respondent number: 1 / 2 / 3 / 4 / 5

Moderator's initials:

Hello, my name is…… and I work for an independent research company called TNS BMRB. Can I take some very quick details from you before we begin?

Respondent details (please circle)

Gender: M / F

Age: 16-25, 26-45, 46-65, 66+

Social Grade: AB / C1 / C2 / DE

Opening script

We have been asked to carry out some research by the Scottish Government to help develop a set of survey questions that will be used in their large scale surveys.

As part of this process we are testing the way in which one set is asked. This is where you come in. I am going to ask you these questions, and I would like you to answer them as though this were an interview. I would also like you to tell me how you went about answering these questions; what you thought of, and any issues or concerns that you had when answering these questions.

Let me stress this is not a test; there are no right or wrong answers. This is a really important study and anything you tell us about these questions will be really useful.

It may seem very strange to be asked to describe in detail how you went about answering a question – as this is something we do everyday without really thinking about it. However it is this very process that I am interested in. If people find a question confusing, or do not understand a how to answer this is a problem with the question, and we need to put it right.

Warm-up

Let me explain a little bit more about this will work. For the statements I'm going to read out to you I want you to give me an answer from a showcard that I will give to you. I would like you to use this to give me an answer, and then tell me how you came to your selected answer, how easy it was for you to answer the question in this way and how you felt about providing that answer to me.

Let's do a quick exercise to see what this is like. This question isn't part of the survey. It was taken from a BBC website on the 24th June. I'm going to ask you the question and then explore how you came to your answer.

Question: Which of the following best describes your relationship with your family?

Please just read out the number next to the description.

SHOW SHOWCARD 1

19 I am very close to members of my family
16 I have reasonable contact with members of my family
11 I have only limited contact with members of my family
13 I never see my family

Probe: how did you feel about answering that question? How easy was it to decide on your answer? Please reflect on what you thought about when reading the showcard?

Praise respondent on difficult task!

This is a quick example of how we will explore some of the questions in the survey. I must stress once again that we are testing the survey, not you! We need to know that these questions make sense and are understandable. How did it feel doing that exercise?

Confidentiality and timing
Anything you tell me will be in strict confidence. No information that identifies you will be passed on to the Scottish Government, or any other organisation. If we do use any quotes in an end report it will not have your name next to it, but will say something like "a female respondent said…" or "a respondent in Edinburgh said…"

Finally, this should take approximately 10 minutes. Is that okay? Do you have any questions?

NOTE START TIME: _____

SHOW **SHOWCARDS A and B**

Q4 Please have a look at card A, which lists some statements about feelings and thoughts.

For each statement, I am going to ask you to tell me the answer that best describes your experience of each over the last 2 weeks. The possible answers are shown on card B.

Please just read out the number next to the description.

First, please have a look at statement C. Now please tell me the answer that best describes your experience over the last 2 weeks? Remember, just read out the number next to the description.

And now for statement ….

INTERVIEWER ASK EACH IN TURN. PLEASE ONLY READ OUT THE LETTER. IF NECESSARY, ADD **Please tell me the answer that best describes your experience over the last 2 weeks. Remember, just read out the number next to the description.**

		ANSWER AS GIVEN BY RESPONDENT
C	I've been feeling optimistic about the future	
J	I've been feeling useful	
A	I've been feeling relaxed	
P	I've been dealing with problems well	
F	I've been thinking clearly	
H	I've been feeling close to other people	
R	I've been able to make up my own mind about things	

34 None of the time
31 Rarely
35 Some of the time
32 Often
33 All of the time

PROBE: WHAT WENT THROUGH YOUR MIND WHEN ANSWERING THESE QUESTIONS? *(ASK THE RESPONDENT TO REFLECT ON WHAT THEY THOUGHT ABOUT WHEN READING SHOWCARD – LIKE IN THE WARM UP)*

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PROBE: HOW DID YOU GO ABOUT ANSWERING THAT QUESTION?

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PROBE: WAS IT DIFFICULT OR EASY TO ANSWER? WHY?

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PROBE: HOW DIFFICULT OR EASY WAS IT FOR YOU TO KNOW WHAT I WAS ASKING YOU TO DO? WHY? WERE THE INSTRUCTIONS CLEAR? WHY?

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PROBE: WHAT DID YOU THINK OF THE SHOWCARDS I GAVE TO YOU FOR THIS QUESTION? WHY? WERE THEY CLEAR? WHY? WAS THERE ANYTHING ELSE THAT STRUCK YOU ABOUT THESE SHOWCARDS?

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I am now going to show you two other ways in which we may ask this question.

FOR **QUESTION VERSION A3** EXPLAIN HOW THIS WORKS SHOWING RESPONDENT THE QUESTION AND THE SHOWCARD. In this version we use one card. I read out a statement and, using this card, you read out the number for the answer that best fits your own view.

PROBE: HOW DIFFICULT OR EASY DO YOU THINK IT WOULD BE FOR YOU TO KNOW WHAT I WAS ASKING YOU TO DO IF YOU WERE ASKED IN THIS WAY? WHY? WERE THE INSTRUCTIONS CLEAR? WHY? WAS THE SHOWCARD CLEAR? WHY?

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FOR **QUESTION VERSION C1** EXPLAIN HOW THIS WORKS SHOWING RESPONDENT THE QUESTION AND THE SHOWCARD. In this version we use this card. I tell you a letter and you read the statement with that letter from this card. You then tell me the number for the answer that best fits your own view.

PROBE: HOW DIFFICULT OR EASY DO YOU THINK IT WOULD BE FOR YOU TO KNOW WHAT I WAS ASKING YOU TO DO IF YOU WERE ASKED IN THIS WAY? WHY? WERE THE INSTRUCTIONS CLEAR? WHY? WAS THE SHOWCARD CLEAR? WHY?

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Please can you have a look at all of these and let me know which of these three versions, including the one you saw first, you would prefer to answer.

SHOW RESPONDENT THE THREE VERSIONS OF THE QUESTION AND REMIND THEM HOW WE WOULD USE EACH VERSION. Which method of asking this question do you prefer?

CIRCLE THE ANSWER GIVEN (NP= no preference)

A3 B2 C1 NP

PROBE: WHY WOULD YOU PREFER THAT VERSION?

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If you were being asked this question by an interviewer in your home, which way would you prefer to be asked?
CIRCLE THE ANSWER GIVEN

A3 B2 C1 NP

PROBE: WHY WOULD YOU PREFER THAT VERSION? IF DIFFERENT TO ANSWER GIVEN ABOVE, EXPLORE WHY

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And, if you were being asked this question by an interviewer in your home, and there was someone else in the room, which way would you prefer to be asked?

CIRCLE THE ANSWER GIVEN

A3 B2 C1 NP

PROBE: WHY WOULD YOU PREFER THAT VERSION? IF DIFFERENT TO ANSWER GIVEN ABOVE, EXPLORE WHY

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Finally, please can you now take a look at all three ways of asking these questions? Please can you tell me what you think is good about each of these? What do you not like about them? What is not so good?

QUESTIONS	**GOOD**	**NOT GOOD**
A3		
B2		
C1		

Thank and Close

ANY ADDITIONAL COMMENTS?

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NOTE END TIME: _____

Give respondent incentive and TNS thank you note.

PLEASE ADD ADDITIONAL COMMENTS AND REFLECTIONS ON THIS PAGE

C1

COGNITIVE HALL TESTS QUESTIONNAIRE C1

Respondent number: 1 / 2 / 3 / 4 / 5

Moderator's initials:

Hello, my name is…… and I work for an independent research company called TNS BMRB. Can I take some very quick details from you before we begin?

Respondent details (please circle)

Gender: M / F

Age: 16-25, 26-45, 46-65, 66+

Social Grade: AB / C1 / C2 / DE

Opening script

We have been asked to carry out some research by the Scottish Government to help develop a set of survey questions that will be used in their large scale surveys.

As part of this process we are testing the way in which one set is asked. This is where you come in. I am going to ask you these questions, and I would like you to answer them as though this were an interview. I would also like you to tell me how you went about answering these questions; what you thought of, and any issues or concerns that you had when answering these questions.

Let me stress this is not a test; there are no right or wrong answers. This is a really important study and anything you tell us about these questions will be really useful.

It may seem very strange to be asked to describe in detail how you went about answering a question – as this is something we do everyday without really thinking about it. However it is this very process that I am interested in. If people find a question confusing, or do not understand a how to answer this is a problem with the question, and we need to put it right.

Warm-up

Let me explain a little bit more about this will work. For the statements I'm going to read out to you I want you to give me an answer from a showcard that I will give to you. I would like you to use this to give me an answer, and then tell me how you came to your selected answer, how easy it was for you to answer the question in this way and how you felt about providing that answer to me.

Let's do a quick exercise to see what this is like. This question isn't part of the survey. It was taken from a BBC website on the 24th June. I'm going to ask you the question and then explore how you came to your answer.

Question: Which of the following best describes your relationship with your family?

Please just read out the number next to the description.

SHOW SHOWCARD 1

19 I am very close to members of my family
16 I have reasonable contact with members of my family
11 I have only limited contact with members of my family
13 I never see my family

Probe: how did you feel about answering that question? How easy was it to decide on your answer? Please reflect on what you thought about when reading the showcard?

Praise respondent on difficult task!

This is a quick example of how we will explore some of the questions in the survey. I must stress once again that we are testing the survey, not you! We need to know that these questions make sense and are understandable. How did it feel doing that exercise?

Confidentiality and timing
Anything you tell me will be in strict confidence. No information that identifies you will be passed on to the Scottish Government, or any other organisation. If we do use any quotes in an end report it will not have your name next to it, but will say something like "a female respondent said…" or "a respondent in Edinburgh said…"

Finally, this should take approximately 10 minutes. Is that okay? Do you have any questions?

NOTE START TIME: _____

SHOW **SHOWCARD C**

Q4 Please have a look at this card, which lists some statements about feelings and thoughts.

For each statement, I am going to ask you to tell me the answer that best describes your experience of each over the last 2 weeks. The possible answers are also shown on this card.

Please just read out the number of your answer.

First, please have a look at statement C. Now please tell me the answer that best describes your experience over the last 2 weeks? Remember, just read out the number of your answer.

And now for statement ….

INTERVIEWER ASK EACH IN TURN. PLEASE ONLY READ OUT THE LETTER. IF NECESSARY, ADD **Please tell me the answer that best describes your experience over the last 2 weeks. Remember, just read out the number of your answer.**

		ANSWER AS GIVEN BY RESPONDENT
C	I've been feeling optimistic about the future	
J	I've been feeling useful	
A	I've been feeling relaxed	
P	I've been dealing with problems well	
F	I've been thinking clearly	
H	I've been feeling close to other people	
R	I've been able to make up my own mind about things	

34 None of the time
31 Rarely
35 Some of the time
32 Often
33 All of the time

PROBE: WHAT WENT THROUGH YOUR MIND WHEN ANSWERING THESE QUESTIONS? *(ASK THE RESPONDENT TO REFLECT ON WHAT THEY THOUGHT ABOUT WHEN READING SHOWCARD – LIKE IN THE WARM UP)*

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PROBE: HOW DID YOU GO ABOUT ANSWERING THAT QUESTION?

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PROBE: WAS IT DIFFICULT OR EASY TO ANSWER? WHY?

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PROBE: HOW DIFFICULT OR EASY WAS IT FOR YOU TO KNOW WHAT I WAS ASKING YOU TO DO? WHY? WERE THE INSTRUCTIONS CLEAR? WHY?

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PROBE: WHAT DID YOU THINK OF THE SHOWCARD I GAVE TO YOU FOR THIS QUESTION? WHY? WAS IT CLEAR? WHY? WAS THERE ANYTHING ELSE THAT STRUCK YOU ABOUT THE SHOWCARD?

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I am now going to show you two other ways in which we may ask this question.

FOR **QUESTION VERSION A3** EXPLAIN HOW THIS WORKS SHOWING RESPONDENT THE QUESTION AND THE SHOWCARD. In this version we use one card. I read out a statement and, using this card, you read out the number for the answer that best fits your own view.

PROBE: HOW DIFFICULT OR EASY DO YOU THINK IT WOULD BE FOR YOU TO KNOW WHAT I WAS ASKING YOU TO DO IF YOU WERE ASKED IN THIS WAY? WHY? WERE THE INSTRUCTIONS CLEAR? WHY? WAS THE SHOWCARD CLEAR? WHY?

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FOR **QUESTION VERSION B2** EXPLAIN HOW THIS WORKS SHOWING RESPONDENT THE QUESTION AND SHOWCARDS. In this version we use two cards. I tell you a letter and you read the statement with that letter from this card. Using the second card, you read out the number for the answer that best fits your own view.

PROBE: HOW DIFFICULT OR EASY DO YOU THINK IT WOULD BE FOR YOU TO KNOW WHAT I WAS ASKING YOU TO DO IF YOU WERE ASKED IN THIS WAY? WHY? WERE THE INSTRUCTIONS CLEAR? WHY? WAS THE SHOWCARD CLEAR? WHY?

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Please can you have a look at all of these and let me know which of these three versions, including the one you saw first, you would prefer to answer.

SHOW RESPONDENT THE THREE VERSIONS OF THE QUESTION AND REMIND THEM HOW WE WOULD USE EACH VERSION. Which method of asking this question do you prefer?

CIRCLE THE ANSWER GIVEN (NP= no preference)

A3 B2 C1 NP

PROBE: WHY WOULD YOU PREFER THAT VERSION?

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If you were being asked this question by an interviewer in your home, which way would you prefer to be asked?
CIRCLE THE ANSWER GIVEN

A3 B2 C1 NP

PROBE: WHY WOULD YOU PREFER THAT VERSION? IF DIFFERENT TO ANSWER GIVEN ABOVE, EXPLORE WHY

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And, if you were being asked this question by an interviewer in your home, and there was someone else in the room, which way would you prefer to be asked?

CIRCLE THE ANSWER GIVEN

A3 B2 C1 NP

PROBE: WHY WOULD YOU PREFER THAT VERSION? IF DIFFERENT TO ANSWER GIVEN ABOVE, EXPLORE WHY

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.....

.....

Finally, please can you now take a look at all three ways of asking these questions? Please can you tell me what you think is good about each of these? What do you not like about them? What is not so good?

QUESTIONS	**GOOD**	**NOT GOOD**
A3		
B2		
C1		

Thank and Close

ANY ADDITIONAL COMMENTS?

.....

.....

.....

……

NOTE END TIME: _____

Give respondent incentive and TNS thank you note.

PLEASE ADD ADDITIONAL COMMENTS AND REFLECTIONS ON THIS PAGE

SHOWCARD 1

19 I am very close to members of my family

16 I have reasonable contact with members of my family

11 I have only limited contact with members of my family

13 I never see my family

SHOWCARD A

C I've been feeling optimistic about the future

J I've been feeling useful

A I've been feeling relaxed

P I've been dealing with problems well

F I've been thinking clearly

H I've been feeling close to other people

R I've been able to make up my own mind about things

SHOWCARD B

34 None of the time

31 Rarely

35 Some of the time

32 Often

33 All of the time

SHOWCARD C

		None of the time	Rarely	Some of the time	Often	All of the time
C	I've been feeling optimistic about the future	34	31	35	32	33
J	I've been feeling useful	53	52	51	54	55
A	I've been feeling relaxed	72	75	74	73	71
P	I've been dealing with problems well	13	15	12	11	14
F	I've been thinking clearly	91	94	93	95	92
H	I've been feeling close to other people	61	62	63	64	65
R	I've been able to make up my own mind about things	45	44	43	42	41

Warwick Edinburgh Mental Well-Being Scale (WEMWBS)

ANNEX 2 OMNIBUS RESEARCH – SAMPLE AND METHOD

Sampling

The SOS is designed to produce a representative sample of the Scottish population aged 16+, with sampling points selected each month to be representative in terms of geographical location. The target sample is 1000 adults, aged 16 and over, including 520 women and 480 men.

The SOS uses a random location sampling methodology, where interviewers are given quotas relating to gender by shopper status and working status, and presence of children in household for females.

Interviewing

All interviews were conducted in-home, using CAPI (Computer Assisted Personal Interviewing). One interview was conducted per household.

Parental permission was sought to interview 16 and 17 year olds given the potentially sensitive nature of the sexual identity question and S-WEMWBS inventory.

Timing

Two waves of fieldwork were used to gather data, between 29th June to 5th July and 27th July to 3rd August. In total 2,033 interviews were carried out in the two waves.

Questionnaire

Four questions were placed on the SOS, positioned immediately before the demographic questions in both waves of interviewing:

- Number of years respondent has lived in local area
- Sexual identity
- Perception of local crime rate
- S-WEMWBS inventory.

The first of these questions was included as the filter question for the perceptions of local crime rate question and was not included in the analysis. It was always asked first in the sequence of four questions.

Data processing

The combined result of the two Omnibus waves, including answers to the test questions and demographic data, additional derived variables constructed for use in the analysis and flag variables indicating mode, sequence and wave of interviewing were provided in an SPSS data file along with an accompanying data dictionary.

ANNEX 3 OMNIBUS RESEARCH - MATERIALS

FACE TO FACE: CAPI QUESTIONNAIRE

Job Number	**227207 / 220070 / 220071**
Name of survey	**SG Mode and Context Effects (On June and July SOS)**
Questionnaire Version Number	**3**
Author	Pat MacLeod – 0131 243 3913

Methodology	Face-to-face
If face-to-face	Home
Questionnaire	Capi / Casi / Paper
Sample Size	1,000 each wave
Sample Description	SOS Standard
Quotas	SOS Standard
Length	3 mins
No of others	0
No of open	0

ASK ALL AGED 16+

ROTATION 1:

ONE THIRD OF SAMPLE TO BE ASKED SECTION CAPI INTERVIEWER ADMINISTERED
ONE THIRD OF SAMPLE TO COMPLETE SECTION CASI SELF COMPLETION
ONE THIRD OF SAMPLE TO COMPLETE SECTION ON PAPER SELF COMPLETION

ROTATION 2

WITHIN EACH THIRD OF THE SAMPLE, THE QUESTIONS BELOW ARE TO BE ROTATED AS FOLLOWS:

A: Q2, Q3, Q4
B: Q2, Q4, Q3
C: Q3, Q4, Q2
D: Q3, Q2, Q4
E: Q4, Q3, Q2
F: Q4, Q2, Q3

NOTE: Q1 SHOULD NOT BE ROTATED.

EACH ROTATION SHOULD START AT RANDOM, BUT THEN CONTINUE IN ALPHABETICAL ORDER, EG IF STARTING ON C, INTERVIEWER SHOULD THEN GET D, E, F, A, B (BUT WITHIN ROTATION 1).

PARENTAL PERMISSION – SCREEN 1
ASK PARENT/GUARDIAN/OTHER RESPONSIBLE ADULT OF RESPONDENT AGED 16 OR 17

INTERVIEWER: THE NEXT SECTION CONTAINS POTENTIALLY SENSITIVE QUESTIONS. FOR RESPONDENTS AGED 16-17 YOU NEED TO OBTAIN RESPONSIBLE ADULT PERMISSION TO ASK THESE.

READ OUT
The next section includes 3 questions on well-being, crime and sexual identity. Before I ask the questions I would like to ask if you are happy for them to answer this section. They may still choose whether they want to answer any of these questions or not.

Yes - permission given
No - permission not given
Responsible adult not available

INTERVIEWER IF PERMISSION GIVEN HAND SCREEN TO RESPONSIBLE ADULT AND ASK THEM TO SIGN THE SCREEN.

IF YES PROCEED, IF NO OR NOT AVAILABLE SKIP TO NEXT SECTION

PARENTAL PERMISSION – SCREEN 2

I am an adult responsible for the person being interviewed. I agree that the interviewer can ask the next section.

INSERT SPACE HERE FOR SIGNATURE.
PUT IN TYPE BOX AND ASK THEM TO PRINT THEIR NAME UNDERNEATH USING KEYBOARD

ASK ALL EXCEPT THOSE AGED 16 OR 17 WHERE PARENTAL PERMISSION NOT GIVEN

ROTATION 1: INTERVIEWER ADMINISTERED

I would now like to ask you a few more questions…

As with the rest of the interview, your answers will be treated in confidence and not identified with you personally. They will be added to all the other replies we receive from many people across Scotland to form a more general picture.

INTERVIEWER: DO NOT SHOW SCREEN THROUGHOUT SECTION, JUST READ OUT.

ASK ALL
Q1 How many years have you lived in your local area, that is the area within about a 15 minute walk from your home?

IF YOU HAVE MOVED AWAY AND RETURNED, PLEASE INCLUDE ONLY MOST RECENT TIME YOU HAVE LIVED IN THE AREA.

Less than 1 year
1 year but less than 2
2 years but less than 5
5 years but less than 10
10 years or more

ASK ALL

INTERVIEWER: SHOW SHOWCARD A

Q2 Which of the options on this card best describes how you think of yourself?

Please just read out the number next to the description.

27 Heterosexual / Straight
21 Gay / Lesbian
24 Bisexual
29 Other
(Don't know – button)
(Refused – button)

ASK IF Q1 = 3,4,5
Q3 How much would you say the crime rate in your local area has changed since two years ago?

Would you say there is more, less or about the same?

IF MORE/LESS, PROBE: A little or a lot?

A lot more
A little more
About the same
A little less
A lot less
(Don't know – button)
(Refused – button)

ASK ALL

INTERVIEWER: SHOW SHOWCARD B

Q4 I am now going to read out some statements about feelings and thoughts.

For each one, please tell me the answer that best describes your experience of each over the last 2 weeks.

Please just read out the number next to the description.

DO NOT ROTATE STATEMENTS OR INVERT SCALE.

SHOW EACH STATEMENT ON A SEPARATE SCREEN WITH SCALE

I've been feeling optimistic about the future
I've been feeling useful
I've been feeling relaxed
I've been dealing with problems well
I've been thinking clearly
I've been feeling close to other people
I've been able to make up my own mind about things

34 None of the time
31 Rarely
35 Some of the time
32 Often
33 All of the time

ROTATION 2: SELF COMPLETION – CAPI

INTERVIEWER - RESPONDENTS SHOULD ANSWER THIS SECTION THEMSELVES.

IN THIS SECTION WE ARE TESTING WHETHER THERE IS ANY EFFECT ON THE ANSWERS GIVEN DEPENDING ON WHETHER THE RESPONDENT SELF-COMPLETES OR NOT. IT IS THEREFORE VERY IMPORTANT THAT THE RESPONDENT COMPLETES THIS SECTION ON THEIR OWN.

THEY WILL THEN BE PROMPTED TO GIVE THE COMPUTER BACK TO YOU TO CONTINUE THE INTERVIEW. DO NOT WATCH WHAT THEY ARE DOING AND ONLY HELP IF THEY ASK YOU TO.

READ OUT:
I am now going to give you the computer for you to answer some questions yourself.

Please tap the answer you want to give in each case. When you have finished the computer will lock away your answers and no one else will be able to see them, including me. Instructions about which keys to press will be shown on the computer screen. If you press the wrong key I can tell you how to change the answer. When you get to the end, please tell me and I will ask you some further questions.

INTERVIEWER: PLEASE CODE WHETHER THE SELF-COMPLETION IS ACCEPTED OR NOT.

Self-completion accepted and completed by respondent
Self-completion administered by interviewer
Self-completion refused

ASK IF SELF COMPLETION ADMINISTERED BY INTERVIEWER OR REFUSED (CODES 2 OR 3 ABOVE)
INTERVIEWER - CODE REASON(S) WHY RESPONDENT REFUSED OR WANTED
INTERVIEWER TO COMPLETE.

Didn't like computer
Eyesight problems
Other disability
Objected to study
Worried about confidentiality
Could not read / write
Language problems
Children present / tending to children
Other people present in room
Other (SPECIFY)

IF REFUSED SKIP TO NEXT SECTION

HAND COMPUTER TO RESPONDENT.

Now it's over to you!

As with the rest of the questionnaire, your answers will be treated in confidence and not identified with you personally. They will be added to all the other replies we receive from many people across Scotland to form a more general picture.

Now press the "OK" button to move on to the first question.

ASK ALL
Q1 How many years have you lived in your local area, that is the area within about a 15 minute walk from your home?

If you have moved away and returned, please include only the most recent time you have lived in the area.

Less than 1 year
1 year but less than 2
2 years but less than 5
5 years but less than 10
10 years or more

ASK ALL
Q2 Which of the following options best describes how you think of yourself?

Heterosexual or Straight
Gay or Lesbian
Bisexual
Other
Prefer not to say

ASK IF Q1 = 3,4,5
Q3 How much would you say the crime rate in your local area has changed since two years ago?

Would you say there is more, less or about the same?

A lot more
A little more
About the same
A little less
A lot less
Don't know
Refused

ASK ALL
Q4 Below are some statements about feelings and thoughts.

Please select the answer that best describes your experience of each over the last 2 weeks.

DO NOT ROTATE STATEMENTS OR INVERT SCALE

PLEASE DISPLAY AS A GRID MATCHING THE PAPER QUESTIONNAIRE

I've been feeling optimistic about the future
I've been feeling useful
I've been feeling relaxed
I've been dealing with problems well
I've been thinking clearly
I've been feeling close to other people
I've been able to make up my own mind about things

None of the time
Rarely
Some of the time
Often
All of the time

ROTATION 3: SELF COMPLETION – PAPER

SCREEN 1
I would now like to ask you a few more questions…

But this time I am going to give you a paper questionnaire which has some questions which I would like you to answer.

As with the rest of the interview, your answers will be treated in confidence and not identified with you personally. They will be added to all the other replies we receive from many people across Scotland to form a more general picture.

SCREEN 2

SCRIPT TO SHOW WHICH VERSION OF PAPER QUESTIONNAIRE (A-F) TO BE GIVEN

INTERVIEWER: PLEASE TYPE THE ID SHOWN ON THE QUESTIONNAIRE INTO THE SPACE BELOW BEFORE HANDING QUESTIONNAIRE TO RESPONDENT.

SCRIPT: ASK FOR ID WRITTEN ON PAPER QUESTIONNAIRE. INCLUDE A BOX TO ENTER THE ID NUMBER – ALLOW FOR 4 CHARACTERS AND ACCEPT 1000-6999.

IF POSSIBLE, CHECK THAT Q'RE VERSION A ONLY ACCEPTS 1000-1999, VERSION B ONLY ACCEPTS 2000-2999 ETC

DO NOT ALLOW INTERVIEW TO PROCEEED WITHOUT THIS ID NUMBER BEING ENTERED.

SCREEN 3

HAND CORRECT QUESTIONNAIRE TO RESPONDENT TO COMPLETE.

SCREEN 4

INTERVIEWER: ONCE QUESTIONNAIRE RETURNED PLEASE CODE WHETHER THE RESPONDENT COMPLETED THE PAPER QUESTIONNAIRE OR NOT.

Respondent accepted and completed paper questionnaire
Respondent refused to complete paper questionnaire **– GO TO NEXT SECTION**

END OF SECTION

PAPER QUESTIONNAIRE:

QUESTIONNAIRE: A
ID: XXXXXX

Q1 How many years have you lived in your local area, that is the area within about a 15 minute walk from your home? **If you have moved away and returned, please include only the most recent time you have lived in the area.** **Please 'X' one box only**	
Less than 1 year	☐
1 year but less than 2	☐
2 years but less than 5	☐
5 years but less than 10	☐
10 years or more	☐

Q2 Which of the following options best describes how you think of yourself? **Please 'X' one box only**	
Heterosexual or Straight	☐
Gay or Lesbian	☐
Bisexual	☐
Other	☐
Prefer not to say	☐

ANSWER THIS QUESTION IF YOU HAVE SAID AT Q1 THAT YOU HAVE LIVED IN YOUR LOCAL AREA FOR 2 YEARS OR MORE. OTHERWISE GO TO Q4 **Q3 How much would you say the crime rate in your local area has changed since two years ago?** **Would you say there is more, less or about the same?** **Please 'X' one box only**	
A lot more	☐
A little more	☐
About the same	☐
A little less	☐
A lot less	☐
Don't know	☐
Refused	☐

Q4

Below are some statements about feelings and thoughts.

Please tick the box that best describes your experience of each over the last 2 weeks

Please 'X' one box only for each statement.

	None of the time	Rarely	Some of the time	Often	All of the time
I've been feeling optimistic about the future	☐	☐	☐	☐	☐
I've been feeling useful	☐	☐	☐	☐	☐
I've been feeling relaxed	☐	☐	☐	☐	☐
I've been dealing with problems well	☐	☐	☐	☐	☐
I've been thinking clearly	☐	☐	☐	☐	☐
I've been feeling close to other people	☐	☐	☐	☐	☐
I've been able to make up my own mind about things	☐	☐	☐	☐	☐

SHOWCARD A

27 Heterosexual / Straight

21 Gay / Lesbian

24 Bisexual

29 Other

SHOWCARD B

34 None of the time

31 Rarely

35 Some of the time

32 Often

33 All of the time

ANNEX 4 SPLIT SAMPLE EXPERIMENT – WEIGHTING

During the interview, respondents were randomly allocated to 3 data collection modes and 6 sequences of questions. However, although they were randomly assigned to the different modes, they could opt out of answering the questions via CASI or paper self-completion. The table below details the opt-out rates for the CASI and paper self-completion modes.

	n	%
CASI		
Accepted CASI	493	72
Refused CASI – administered by interviewer	160	23
Refused CASI – questions not asked	32	5
Total	685	100
Paper self-completion		
Completed paper self-completion	573	88
Refused paper self-completion	65	10
Paper self-completion not received	16	2
Total	654	100

As respondents were randomly allocated into the three groups, the profile of the respondents were expected to be extremely similar and so when analysing for mode effects, any effects detected could be attributed to mode effects only and not respondent differences. However because of non-response to the two self-completion modes, this may not have been the case (their profiles may have differed from that of the CAPI respondents).

After analysing the profile of respondents of those who accepted CASI or paper self-completion and comparing them with the randomly allocated groups of CASI and paper self-completion, it was necessary for non-response weights to be constructed for the CASI group of respondents, but not for the paper self-completion group.

There did not appear to be a systematic pattern of those who did not complete via paper self-completion after being allocated to the group – thus the profile of the 573 respondents in this group were very similar to the 654 respondents who were originally allocated to this group. Therefore there was no need to weight the data.

The profile of respondents who accepted CASI compared with those allocated to the group was quite different, as shown below.

	Accepted CASI	All originally in CASI group
	%	%
Sex		
Male	48	48
Female	52	52
Age		
16-24	9	7
25-34	16	14
35-44	21	18
45-54	22	20
55-64	18	17
65+	13	24
Socio-economic group		
AB	22	19
C1	27	26
C2	24	24
DE	26	31
Area of Scotland		
West	38	39
East/South	38	34
North	25	26
Urban/rural status		
Urban	70	70
Rural	30	30
Working status		
Full time	54	47
Part time	13	11
Not working	33	41
Presence of children in household		
Yes	32	28
No	68	72
Base	*493*	*685*

A binary logistic regression model was set up to look at whether an individual accepted CASI, with the dependent variable coded as follows:

- 1 = accepted CASI; 0 = refused CASI / interviewer administered questions instead

Similar model building methods were used to the analysis of SI and PC. The variables tested for inclusion into the model were the demographic information available about each respondent.

The final variables included in the model are shown below along with the odds ratios.

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
							Lower	Upper
Age group			91.230	5	.000			
16-24	2.252	.446	25.532	1	.000	9.510	3.970	22.781
25-34	2.019	.319	40.133	1	.000	7.531	4.032	14.065
35-44	2.064	.304	46.217	1	.000	7.880	4.346	14.288
45-54	1.899	.284	44.817	1	.000	6.682	3.832	11.651
55-64	1.686	.279	36.565	1	.000	5.398	3.125	9.324
65+ (reference)	1.000							
Socio-economic grade (SEG)			23.967	3	.000			
AB	1.477	.320	21.302	1	.000	4.378	2.339	8.196
C1	.720	.246	8.590	1	.003	2.053	1.269	3.322
C2	.347	.243	2.044	1	.153	1.415	.879	2.278
DE (reference)	1.000							
Constant	-.907	.211	18.496	1	.000	.404		

Notes

- The response is 1 = accepted CASI, 0 = refused CASI / interviewer administered questions instead.
- The model Nagelkerke R^2 was 0.244.
- B is the estimate coefficient (odds) with standard error S.E.
- Exp(B) is the odds ratio.
- The Wald test measures the impact of the categorical variable on the model with the appropriate number of degrees of freedom df. If the test is significant (sig < 0.05) then the categorical variable is considered to be significantly associated with the response variable and therefore included in the model.
- The Wald test for each level of the categorical variable is also shown. This tests the difference between that level and the baseline category. The full Wald test is found in the first line of each variable.

The model showed that the younger respondents were, the higher the likelihood of accepting CASI. It also showed that individuals in higher socio-economic groups were also more likely to accept CASI compared with those in the DE group.

The logistic regression model produced CASI-acceptance propensity scores for each respondent. The inverse of this value was then used as a weight to reflect differential levels of non-acceptance. After applying the weight to those who completed the questions via CASI, the profile was very similar to the respondents originally allocated to the group (see table below).

	Accepted CASI (weighted)	**All originally in CASI group**
	%	%
Sex		
Male	47	48
Female	53	52
Age		
16-24	7	7
25-34	14	14
35-44	18	18
45-54	19	20
55-64	17	17
65+	24	24
Socio-economic group		
AB	18	19
C1	26	26
C2	24	24
DE	32	31
Area of Scotland		
West	38	39
East/South	36	34
North	26	26
Urban/rural status		
Urban	69	70
Rural	31	30
Working status		
Full time	48	47
Part time	12	11
Not working	40	41
Presence of children in household		
Yes	28	28
No	72	72
Base	*493*	*685*

Analyses of the three data collection modes could then be carried out. Data for the CAPI and paper self-completion groups were left unweighted while data for CASI were weighted before being compared against CAPI and paper self-completion.

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