

Technical Report

Wellcome Trust Monitor Technical Report

Wave 3

Research methodologies and data management

April 2016

Wellcome Trust Monitor: Wave 3

Research methodologies and data management

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Ipsos MORI

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Contents

| | |
|--|-----------|
| 1. Introduction | 1 |
| Background and objectives | 1 |
| Archiving of data | 2 |
| Report on the findings..... | 2 |
| 2. The samples..... | 3 |
| Overview..... | 3 |
| Drawing the sample | 3 |
| 3. Development of materials | 5 |
| Scope of development work | 5 |
| Questionnaire review | 5 |
| Cognitive testing | 6 |
| Pilot survey | 7 |
| 4. Data collection | 10 |
| Advance letter and leaflet | 10 |
| Briefings..... | 10 |
| Scheduling of interviews | 11 |
| Quality control | 11 |
| Fieldwork progress | 11 |
| Incentivisation..... | 11 |
| Interview length | 12 |
| 5. Response | 13 |
| Response rate | 13 |
| Outcomes | 14 |
| Further information on response..... | 16 |
| 6. Weighting | 17 |
| Overview..... | 17 |
| Calculation of the weight..... | 17 |

| | |
|--|-----------|
| 7. Sampling errors | 20 |
| 8. Data processing and management | 22 |
| Editing..... | 22 |
| Missing data..... | 22 |
| Coding..... | 22 |
| Appendices | 24 |

1. Introduction

This report describes the research methods used in the third Wellcome Trust Monitor survey, a survey of the UK public conducted by Ipsos MORI on behalf of the Wellcome Trust, carried out in 2015. The Wellcome Trust Monitor is designed to measure the public's awareness, interests, knowledge, behaviours and attitudes in relation to science, and, in particular, biomedical research. This wave of the survey was designed to provide comparability with selected findings from both the baseline survey, carried out in 2009, and the second wave, carried out in 2012. The survey also aimed to build on the first two waves, by refining the questionnaire to collect data on new topics.

Background and objectives

The first (baseline) Wellcome Trust Monitor was conducted in 2009 by the National Centre for Social Research (NatCen). The second Wellcome Trust Monitor was conducted in 2012 by Ipsos MORI. The Wellcome Trust Monitor is repeated every three years in order to measure long-term trends in public attitudes.

For over 75 years the Wellcome Trust has worked to promote advances in the fields of animal and human health. Over this time the Trust has become the UK's largest charitable funder of biomedical research, aiming to improve health and wellbeing through new discoveries. The Wellcome Trust also has a long history of promoting public engagement with science and biomedical research. The Wellcome Trust Monitor is an important study that not only explores interest in and attitudes towards biomedical science, but also helps the Wellcome Trust and others to plan and direct their public engagement work.

The questionnaire retained key questions from the 2009 and 2012 questionnaires to allow changes over time to be tracked. Examples include questions assessing interest in medical research; what kinds of information about medical research people actively seek, or passively encounter; past participation in medical research; participation in scientific and cultural experiences; trust in professions to provide information about medical research; optimism about medical research; understanding of clinical trials, and of particular biomedical terms; use of alternative medicines; and scientific literacy, assessed via a knowledge quiz.

New questions were added to gather evidence of attitudes, behaviours, and knowledge relevant to a number of the Wellcome Trust's initiatives. These included questions about antibiotics and antibiotic resistance; interest in hearing directly from scientists; factors affecting what people choose to eat and drink; understanding of the drug development process; the perceived value of science in everyday life; and medical and scientific networks.

In 2009 and 2012, young people (aged 14 to 18) in the UK were interviewed as part of the Wellcome Trust Monitor. In accordance with the recommendations of an independent review of the Wellcome Trust Monitor in 2014, the 2015 Wellcome Trust Monitor interviewed only adults (aged 18 or over) in the UK. The Wellcome Trust has commissioned a separate Science Education Tracker survey to measure the views of young people, to be carried out in 2016.

This report focuses on the technical aspects of the third Wellcome Trust Monitor. Chapter 2 describes the sampling, with development work on the survey and the data collection process outlined in chapters 3 and 4. Response rates are described in detail in chapter 5,

while chapter 6 reports on the weighting, chapter 7 looks at sampling errors and, finally, chapter 8 describes the procedures for the editing and coding of the data.

Archiving of data

A data set with complete documentation will be deposited with the UK Data Service (www.ukdataservice.ac.uk) at the University of Essex.

Report on the findings

A substantive report based on the survey findings is published by the Wellcome Trust, available at: www.wellcome.ac.uk/monitor.

2. The samples

Overview

The third wave of the Wellcome Trust Monitor comprises a representative sample of UK adults aged 18 or over living in private residential accommodation.

The sample covered England, Wales, Scotland and Northern Ireland, and was drawn from the Postcode Address File (PAF). At each sampled address, the interviewer screened for dwelling units (DUs) containing at least one person aged 18 years or over. If there was more than one eligible DU at the sampled address, one was randomly selected.

At responding DUs interviewers randomly selected one individual aged 18 years or over to complete the interview.

Drawing the sample

The Wellcome Trust Monitor uses a random probability sampling methodology. As is common in high-quality surveys of the general public, a multi-stage stratified sample was drawn to maximise precision while minimising cost.

The first stage of the sampling was to select the “clusters” (or Primary Sampling Units, PSUs) from which addresses for interviewers to visit would be sampled. Postcode sectors were chosen to be used as PSUs.

A list of all UK postcode sectors was drawn from the most up-to-date small-user Postcode Address File (PAF)¹, maintained by the Post Office. All sectors containing fewer than 1,000 delivery points were combined with adjacent sectors, so that each combined sector contained at least 1,000 delivery points.

Prior to selection the list of (combined) postcode sectors was stratified by Government Office Region, proportion of the population with qualifications at A level or higher, and proportion of population living in owner-occupied dwellings based on 2011 census data. This was the same stratification scheme used in the first and second Wellcome Trust Monitors. Stratification can increase the precision of survey estimates if the variables used as stratifiers correlate with survey variables. Given the topics covered by the survey, educational achievement and tenure were considered appropriate choices.

A total of 129 PSUs were selected with probability proportional to PAF delivery point count² by applying the method of random start and fixed interval to cumulative PAF totals. Within each PSU, 25 addresses were randomly selected from the list of addresses in that PSU, sorted by postcode. Thus, each UK address had an equal probability of being sampled.

The resulting 3,225 (129 x 25) selected addresses were issued to interviewers. At each address interviewers, where necessary, randomly selected one dwelling unit, and approached those living there to take part. At each dwelling unit, interviewers attempted to identify and interview one adult aged 18 or over (where a household contained more than one adult, one was randomly selected).

¹ The version of the PAF used was the Royal Mail postcode update from May 2015.

² After expanding by MOI in Scotland but not elsewhere.

Note that the survey covered individuals living in private residential accommodation only, and therefore those living in communal establishment - for example students living in university halls of residence - were not eligible. Some other surveys, for example the Labour Force Survey, include this type of student in their population definition and sample them via parents' homes. However, in these cases student data are collected by proxy (through parents), an approach which can only work in a survey that collects relatively simple factual information. Although in principle it would be possible to sample students via parents' addresses in this way, and then conduct follow up interviews (which could be via telephone), this was not considered a cost-effective or feasible option for the Wellcome Trust Monitor.

3. Development of materials

Scope of development work

The development stages of the survey were conducted over a three month period between February and April 2015. While the Wellcome Trust Monitor is a tracking survey, many new questions were included to reflect topical issues in science and medical research and areas of interest to the Wellcome Trust. Furthermore, new features were introduced in the third wave such as the electronic contact sheet (ECS), which replaced the previous paper contact sheet (see chapter 4). As such, the main requirements of this work were to test new questions, identify any changes that needed to be made to existing questions, and test the operation of the ECS.

The programme of development work comprised of three stages:

1. Questionnaire review
2. Cognitive testing of proposed new questions for wave 3.
3. A pilot survey to test the procedures to be used in the main survey.

Questionnaire review

A thorough review of the Wellcome Trust Monitor questionnaires fielded in waves 1 and 2 was conducted in preparation for wave 3. This review identified questions to be retained, those to be rotated out of the questionnaire, and potential new topic areas and questions to be added.

The wave 3 questionnaire ultimately comprised questions on the following topics:

- Interest in medical research
- The value of science in everyday life
- Sources of information on medical research
- Trust in professions
- Participation in scientific and cultural experiences
- Medical and scientific networks
- Involvement in medical research
- Scientific literacy³
- Understanding of the scientific method
- Awareness and understanding of antibiotic resistance
- Awareness and understanding of genetic modification
- Experiences of antibiotics
- Interest in hearing directly from scientists
- Factors affecting what people choose to eat and drink
- Understanding of the drug development process
- Awareness and knowledge of the Wellcome Trust
- Alternative medicine
- Openness to experience
- Digital games
- Conspiracy theories

³ This was measured in the form of a knowledge quiz, with ten “true or false” questions.

Around one third (34 per cent) of the questions used in wave 3 of the Wellcome Trust Monitor had been previously fielded in both waves 1 and 2, an additional two per cent had been fielded in wave 1 only, and a further two per cent had been fielded in wave 2 only. The remaining 62 per cent of the wave 3 questionnaire were entirely new.

Cognitive testing

Where new questions were developed for wave 3, these were tested using an iterative cognitive testing approach.

The primary aim of the cognitive testing was to test how well newly-developed questions worked, in terms of: respondents' understanding of the terms or concepts used in the questions; whether questions had the same meaning for different groups of respondents; whether questions were clear; whether questions were easy for respondents to answer; and where questions should most appropriately be positioned in the questionnaire.

The cognitive pilot was split into three rounds, with findings discussed with the Wellcome Trust between each round, and the questionnaire developed and re-tested from round-to-round in light of these discussions.

Respondents

The cognitive interviews were conducted by members of the research team, in various locations in the South East and London, as well as in Ipsos MORI's Borough office. Respondents were recruited from local areas by specialist recruiters within Ipsos MORI's field team. Attempts were made to recruit respondents from both low-income and high-income areas. It was anticipated that knowledge and understanding of medical research and science would vary by socio-economic status.

While strict quotas were not enforced for the cognitive pilot, recruiters were instructed to recruit respondents with a variety of characteristics, according to a recruitment specification created for each round of interviews. These were identified through the use of a screening questionnaire. In total, 30 interviews were conducted with adults. These respondents consisted of 20 women and 10 men. Adults ranged from their 20s to their 60s.

The first week of cognitive testing took place during the week commencing 23 February 2015, with ten interviews conducted in South East London and Essex. The second round took place during the week commencing the 2 March 2015, with ten interviews conducted in South London and Ashford. The third and final round was conducted during the week commencing 9 March 2015, with ten interviews conducted in South London, in Ipsos MORI's offices in Borough.

Cognitive testing materials

Interviewers used the following materials to administer the cognitive interviews:

- Cognitive pilot instructions
- Cognitive testing questionnaire and prompts
- Showcards
- Ipsos MORI's cognitive testing guidelines, detailing general prompts for the interviews

- Copies of advance letters, and of the survey leaflet, which were shown to respondents to test their impact and effectiveness

Relevant documents are presented in Appendix A of this report. Interviewers were asked to make full notes as they conducted each interview, noting down any general problems and responses to the specified probes.

Cognitive testing modifications

The outcomes of the cognitive testing were discussed with the Wellcome Trust after each round. A number of issues with specific questions and topic areas were identified as a result of the cognitive testing, and these were addressed and re-tested in the second and third rounds of cognitive testing. These revisions included the following:

- Questions around the use of personal data in medical research were reworked throughout the rounds of cognitive testing. Initial attempts to present participants with different complex uses of their data, and ask them about acceptability, proved challenging and respondents did not often identify the differences in the various scenarios presented. These questions were replaced with simpler questions asking about willingness to be involved in medical research trials that involve access to their data, and questions asking about potential concerns about such involvement.
- Attempts to create questions with long lists of response codes, such as lists of possible food purchasing behaviours, led to respondent fatigue. As a result, where possible, single questions were tested and chosen over questions which included long lists of responses.
- Questions designed to test the extent to which the public are confident using technology were dropped, given the extensive variation between people in their interpretation of what this technology constitutes.
- Questions designed to test the public's confidence in querying and challenging the conclusions of medical professionals were initially designed to ask about their prior experience of having done so. But because many people had not been presented with a reason to do so, or could not remember such an example, this questions was changed such that a description of an individual challenging the conclusions of a medical professional was read out, with respondents being asked to say how much this person was like them.
- An "Answers sheet" was produced, which provided the correct answers to the factual questions in the questionnaire, including the ten questions constituting the knowledge quiz. This sheet was designed to minimise disruption to the interview resulting from respondents asking if they had provided the correct answers. In these instances, interviewers were able to inform respondents that they would be provided with an answers sheet at the end of the interview.

Pilot survey

A pilot survey took place in April 2015. Its primary aim was to test important aspects of the Wellcome Trust Monitor, with a view to maximising the quality and effectiveness of the main-stage survey, due to go into the field in June 2015. The pilot survey sought to test a number of distinct aspects of the study: the practical administration of the questionnaire and survey in the field, the new technology of the electronic contact sheet, and the process of encouraging participation among potential respondents. In addition, this pilot helped

confirm the content and length of the questionnaire. The field pilot did not seek to test the contact or sampling procedures as these largely replicated those from the first two waves of the Monitor.

Respondents

The pilot survey used a quota sampling methodology. Three sample points (postcode sectors) were selected, in Norfolk, Slough, and London. These postcode sectors represented a broad cross-section of the UK population in terms of educational levels, and levels of economic resources as measured by home ownership. An interviewer was assigned to each postcode sector, and a total of 29 adults aged 18 and over – representing a broad spectrum of the general public - were interviewed between 15 and 29 April 2015.

Briefing and debriefing

Interviewers attended a face-to-face briefing on 14 April 2015. Prior to the briefing, interviewers downloaded the questionnaire script on to their tablet computers. At the briefing, interviewers were given background information about the purpose of the survey, were shown how to administer the questionnaire using CAPI, and were given suggestions on how to encourage participation on the doorstep. Each interviewer was also sent:

- The written interviewer instructions;
- Copies of the advance letter, and the survey leaflet, for showing on the doorstep;
- Showcards (standard, reversed, and the stand-alone showcard including the definition of medical research to be used in the survey);
- Feedback forms, one of which was to be completed for each interview;
- A quota sheet, to which respondents were to be recruited;
- £10 gift vouchers, conditional on completion of the interview;
- A paper copy of the survey questionnaire.

Relevant documents are presented in Appendix A of this report.

A debrief was held in Ipsos MORI's Borough offices on 30 April 2015. Interviewers returned their feedback forms prior to the debrief. These formed the basis of the discussion.

Outcomes

The characteristics of the achieved pilot survey sample suggest a good cross-section of the general public was interviewed in terms of demographic characteristics (11 men and 18 women; median age of 53 years old, youngest 18 years old, oldest 95 years old; 25 white and 4 black and minority ethnic backgrounds), and also in terms of attitudes towards science and medical research (for instance, 20 expressed an interest in medical research and 9 said they were not interested).

Post-pilot modifications

A number of issues were highlighted as a result of the pilot survey that were addressed prior to the main-stage. These included the following:

- Changes were made to the advance letter to place more emphasis on the provision of the incentive, and to describe the Wellcome Trust as a “charitable foundation” instead of a “charity”, to reduce the risk of recipients interpreting the letter as one asking them to make a donation.
- Changes were made to the imagery used in the survey leaflet to make it more attractive to respondents. Changes were also made to the text in the leaflet, to explain the purpose of the survey more persuasively, with emphasis on the survey being an opportunity to give views, rather than to talk about science.
- The interview length was found to be 50 minutes on average, longer than the predicted 45 minutes. In light of this, some questions were removed from the questionnaire.
- Some changes were made to questionnaire, including some minor wording changes, and some minor changes to question ordering.

4. Data collection

All fieldwork for the main-stage survey was undertaken by Ipsos MORI interviewers, and conducted using face-to-face computer assisted personal interviewing (CAPI).

Advance letter and leaflet

Interviewers were supplied with letters to send to sampled addresses two days before they intended to visit. This provided an introduction to the survey, and explained to respondents how their addresses had been selected and what their participation would involve.

The letter contained contact details for Ipsos MORI, and a link to the survey website so that respondents could find out more about the survey.

Interviewers were also provided with survey leaflets, which they handed out on the doorstep (where appropriate) as a means of engaging potential respondents, and as a way of providing further information about the survey for potential respondents to consider if they were unable to make up their mind whether to participate at that point.

Copies of the advance letter and leaflet can be found in Appendix B.

Briefings

A total of five half-day briefings were held between 27 May 3 June 2015 in London, Bristol, Manchester, Edinburgh and York. A further three briefings were held between 7 July and 7 August in Manchester, London, and Solihull. All briefings were conducted by researchers from Ipsos MORI, with 129 interviewers briefed in total.

The briefings covered the aims and background of the survey, procedures for starting work and selecting a respondent at the addresses, the procedures for using the new electronic contact sheet, an overview of the questionnaire, and strategies for gaining respondents' cooperation. Interviewers were given:

- The written interviewer instructions;
- Advance letters in envelopes for sending to the addresses in their assignments;
- Laminated copies of the advance letter, and survey leaflet, to show on the doorstep where appropriate;
- Spare letters and leaflets to hand out on the doorstep where appropriate;
- Showcards (standard, reversed, and the stand-alone showcard showing the definition of medical research used in the survey);
- £20 gift vouchers, conditional on completion of the interview⁴;
- A paper copy of the survey questionnaire.

Relevant main-stage fieldwork documents are presented in Appendix B of this report, and the main-stage questionnaire and showcards are presented in Appendix D of this report.

⁴ To maximise the response rate, it was decided to double the value of the incentive used in the pilot survey to £20.

Electronic Contact Sheet (ECS)

After successful implementation on other projects, the Electronic Contact Sheet (ECS) was employed for the fieldwork on the Wellcome Trust Monitor 2015. This innovation was new for wave 3 of the Monitor and was employed to aid in the accuracy and efficiency of face-to-face interviewing.

The ECS replaces the traditional paper contact sheet. It provides interviewers with the details of all the addresses in their assignment, allows them to manage appointments, and recording outcomes for each call they make. The ECS also provides an electronic ‘Kish Grid’ for the random selection of respondents for interview, removing potential room for error in the selection process.

Scheduling of interviews

Standard guidelines were issued to all interviewers about the timing and the number of calls they should make to an address in the sample. These stipulated that a minimum of six calls (three of which must be made on either a weekend or an evening) must be made at each address over a three-week period before recording a non-contact or refusal.

Interviewers recorded details of each contact attempt at each address. These details were recorded on the ECS. In addition to recording call-related details, the ECS allowed interviewers to record reasons for refusal, and their estimate of how likely individuals would be to cooperate in the future, both of which provided useful information at the reissue stage. Fieldwork progress was monitored using Ipsos MORI’s computerised field management system, using the data uploaded from the ECS.

Quality control

Checks were made by field management on the data returned from the ECS to ensure that interviewers were adhering to their prescribed calling protocols.

Validation checks were also made by field management to validate selected survey answers of a random subset of respondents. A total of 142 telephone validations were completed, with a further 26 validations by post, giving 168 completed validations (11 per cent of all interviews).

Research staff carried out ‘exception checking’ during the fieldwork period to identify any anomalies in the fieldwork and survey data indicative of procedures not being followed correctly (for instance, shorter or longer than expected interview lengths, low response rates, and unusual patterns of responses to the questionnaire).

Fieldwork progress

Interviewers transmitted all call-related data they had collected in the ECS to Ipsos MORI’s office, by internet, at the end of each day’s interviewing. This allowed fieldwork progress to be tracked accurately on a daily basis. Using this information, researchers were able to identify unproductive cases, and points which should be reissued. Information on fieldwork progress was reported to the Wellcome Trust weekly.

Fieldwork lasted for a total of 22 weeks, from 2 June to 1 November 2015.

Incentivisation

All respondents who completed the questionnaire were given an incentive on completion as a token of appreciation. The incentive was a £20 LoveToShop gift card.

Interview length

The interviews took an average of 45 minutes to complete.

5. Response

This chapter looks at the fieldwork outcomes for the survey.

The total achieved sample was 1,524 adults aged 18 or over. The response rate was 51.4 per cent (compared with 49.1 per cent in 2009, and 52.7 per cent in 2012).⁵

Response rate

Table 5.1 shows a summary of the fieldwork outcomes. Because there are a small proportion of cases where we do not know if there was an eligible adult at the address, the “true” response rate falls within a range where all unknown eligibility cases (for example, address inaccessible, or unknown whether address is residential) are assumed to be eligible, to an upper limit where all these cases are assumed to be ineligible. To permit easy comparison with the first and second Wellcome Trust Monitors, we have based our calculations on the (conservative) assumption that all unknown eligibility cases are eligible.

Table 5.1 Summary of fieldwork outcomes

| | Wellcome Trust Monitor 1 (2009) | | Wellcome Trust Monitor 2 (2012) | | Wellcome Trust Monitor 3 (2015) | |
|--------------------------------|---------------------------------|-------------|---------------------------------|-------------|---------------------------------|-------------|
| | Number | % | Number | % | Number | % |
| Of addresses issued | 2,650 | 100% | 2,850 | 100% | 3,225 | 100% |
| Ineligible (out of scope) | 251 | 9.5% | 202 | 7.1% | 261 | 8.1% |
| Potentially eligible | 2,399 | 90.5% | 2,648 | 92.9% | 2,964 | 91.9% |
| | | | | | | |
| Of potentially eligible | 2,399 | 100% | 2,648 | 100% | 2,964 | 100% |
| <i>Eligibility status</i> | | | | | | |
| Unknown eligibility | 56 | 2.3% | 104 | 3.9% | 26 | 0.9% |
| Definitely eligible | 2,343 | 97.7% | 2,544 | 96.1% | 2,938 | 99.1% |
| <i>Whether productive</i> | | | | | | |
| Productive (RR) | 1,179 | 49.1% | 1,396 | 52.7% | 1,524 | 51.4% |
| Unproductive | 1,164 | 50.9% | 1,148 | 47.3% | 1,414 | 48.6% |
| <i>Why unproductive</i> | | | | | | |
| Non-contact | 97 | 4.0% | 222 | 8.4% | 210 | 7.1% |
| Refusal | 940 | 39.2% | 811 | 30.6% | 1,105 | 37.3% |
| Other unproductive | 127 | 5.3% | 115 | 4.3% | 99 | 3.3% |

In total, 1,524 interviews were achieved with adult respondents aged 18 years or over. The main reason for unproductive outcomes was refusal, with 37.3 per cent of unproductive cases among eligible addresses, and addresses where eligibility was unknown, being unproductive for this reason. Non-contacts accounted for 7.1 per cent, and other unproductive outcomes (such as being away or ill during fieldwork) accounted for 3.3 per cent covered by.

Overall, the response rate for 2015 (51.4 per cent) lies in between that achieved in 2009 (49.1 per cent) and that achieved in 2012 (52.7 per cent). The fall in response rate between

⁵ The response rate was calculated using the definition of Response Rate 1, as defined by the American Association for Public Opinion Research Standard Definitions (2011). This is the number of interviews achieved expressed as a proportion of the number of addresses approached less those found to be ineligible during fieldwork (see www.aapor.org/Education-Resources/For-Researchers/Poll-Survey-FAQ/Response-Rates-An-Overview.aspx)

2012 and 2015 was mainly driven by a rise in the refusal rate, from 30.6 per cent to 37.3 per cent.

Outcomes

The full set of fieldwork outcomes is provided in Table 5.2. As part of the introduction of the Electronic Contact Sheet (the tool with which interviewers recorded call outcomes) in place of the previous paper contact sheets, the list of available outcomes codes was reviewed and revised in 2015. Inapplicable outcome codes due to revisions between waves are marked as “n/a” in Table 5.2.

Table 5.2 Full fieldwork outcomes

| | Wellcome Trust Monitor 1 (2009) | Wellcome Trust Monitor 2 (2012) | | Wellcome Trust Monitor 3 (2015) | |
|---|---------------------------------|---------------------------------|--------------|---------------------------------|--------------|
| | % | Number | % | Number | % |
| Issued | 100% | 2,850 | 100% | 3,225 | 100% |
| Ineligible | 9.5% | 202 | 7.1% | 261 | 8.1% |
| Not yet built/under construction | 0.2% | 1 | 0.0% | 4 | 0.1% |
| Demolished/derelict | 0.8% | 7 | 0.2% | 24 | 0.7% |
| Vacant/empty housing unit | 6.0% | 124 | 4.4% | 148 | 4.6% |
| Non-residential address | 1.2% | 41 | 1.4% | 21 | 0.7% |
| Address occupied, no residents | 0.8% | 20 | 0.7% | 29 | 0.9% |
| Communal establishment no private dwellings | 0.2% | 5 | 0.2% | 17 | 0.5% |
| No eligible respondent 18+ | 0.2% | 0 | 0.0% | 4 | 0.1% |
| Other ineligible | 0.3% | 4 | 0.1% | 14 | 0.4% |
| Potentially eligible | 90.5% | 2,648 | 92.9% | 2,964 | 91.9% |
| Of potentially eligible: | 100% | 2,648 | 100% | 2,964 | 100% |
| Unknown eligibility | 2.3% | 104 | 3.9% | 26 | 0.9% |
| Inaccessible | 0.2% | 7 | 0.3% | 8 | 0.3% |
| Unable to locate address | 0.1% | 5 | 0.2% | 14 | 0.5% |
| Unknown if address residential due to non-contact | 0.1% | 8 | 0.3% | 0 | 0.0% |
| Residential - don't know if eligible persons - no contact | 0.3% | 19 | 0.7% | n/a | n/a |
| Information refused about whether address residential | 0.1% | 1 | 0.0% | 0 | 0.0% |
| Contact but could not confirm resident household | 0.2% | 3 | 0.1% | n/a | n/a |
| Information refused about whether residents eligible | 0.5% | 43 | 1.6% | 0 | 0.0% |
| Unable to confirm eligibility - lack of knowledge | 0.2% | 7 | 0.3% | n/a | n/a |
| Unable to confirm eligibility - language problems | 0.1% | 3 | 0.1% | 0 | 0.0% |
| Other unknown eligibility | 0.2% | 8 | 0.3% | 4 | 0.1% |
| Issued but not attempted | 0.0% | 0 | 0.0% | 0 | 0.0% |

Table 5.2 Full fieldwork outcomes (continued)

| | Wellcome Trust Monitor 1 (2009) | Wellcome Trust Monitor 2 (2012) | | Wellcome Trust Monitor 3 (2015) | |
|--|---------------------------------|---------------------------------|--------------|---------------------------------|--------------|
| | % | Number | % | Number | % |
| Definitely eligible | 97.7% | 2,544 | 96.1% | 2,938 | 99.1% |
| Non-contact | 4.0% | 222 | 8.4% | 210 | 7.1% |
| No contact with anyone at address | 1.5% | 111 | 4.2% | 183 | 6.2% |
| Contact made but not with responsible adult | <0.5% | 3 | 0.1% | n/a | n/a |
| Contact made but not with selected respondent | <0.5% | 39 | 1.5% | 27 | 0.9% |
| Some contact with respondent, no interview | 2.3% | 69 | 2.6% | n/a | n/a |
| Refusal | 39.2% | 811 | 30.6% | 1,105 | 37.3% |
| Office refusal | 1.1% | 15 | 0.6% | 26 | 0.9% |
| Information refused about number of DUs | 0.2% | 22 | 0.8% | n/a | n/a |
| Information refused about number of eligible respondents | 4.2% | 93 | 3.5% | 4 | 0.1% |
| Refusal at introduction, before adult selected | n/a | n/a | n/a | 675 | 22.8% |
| Refusal by selected respondent | 27.6% | 550 | 20.8% | 268 | 9.0% |
| Refusal by proxy | 2.7% | 85 | 3.2% | 42 | 1.4% |
| Refusal during interview | 0.1% | 0 | 0.0% | n/a | n/a |
| Broken appointment - no re-contact | 3.3% | 46 | 1.7% | 90 | 3.0% |
| Other non-productive | 5.3% | 115 | 4.4% | 99 | 3.3% |
| Ill at home during fieldwork period | 1.3% | 7 | 0.3% | 11 | 0.4% |
| Away in hospital throughout fieldwork period | 1.2% | 18 | 0.7% | 25 | 0.8% |
| Respondent physically/mentally incapable | 1.7% | 40 | 1.5% | 33 | 1.1% |
| Language barrier with selected respondent | 0.5% | 9 | 0.3% | 18 | 0.6% |
| Other non-response | 0.6% | 41 | 1.6% | 12 | 0.4% |
| Productive | 49.1% | 1,396 | 52.7% | 1,524 | 51.4% |
| Fully productive | 49.0% | 1,396 | 52.7% | 1,524 | 51.4% |
| Partially productive | 0.1% | 0 | 0.0% | 0 | 0 |

Further information on response

The response rate was lower than anticipated (51.4% against a target of 55.0%). This reflected the fact that fieldwork took place during a time of extremely high demand for face-to-face fieldwork across the research industry, meaning that interviewers spent a smaller proportion of their available time working on this survey than they would have done had demand been across the industry been lower.

Efforts made to maximise response

A number of measures were taken to maximise the response rate during fieldwork:

- More interviewers were trained to work on the survey. An initial panel of 87 interviewers were trained to work on the survey between 27 May 3 June 2015. Between 7 July and 7 August an additional 42 interviewers were trained, to provide a total pool of 129 interviewers.
- An extensive reissue strategy was pursued, with selected non-productive cases being reissued, often to a different interviewer, for a second or third attempt. In selecting cases for reissue, use was made of potential respondents' reasons for refusal, as recorded by interviewers, as well as interviewers' subjective estimation of respondents' future co-operation.
- The value of the gift card offered to certain addresses at the reissues stage was increased from £20 to £40.
- Bonus payments were made to those interviewers achieving above a certain number of interviews in their sample point(s).
- The field period was extended to 22 weeks, compared with the target of 16 weeks

6. Weighting

Overview

The survey dataset has been weighted to ensure that it is representative of adults aged 18 or over according to certain known population distributions.

Three stages of weighting were applied. The data were first weighted to adjust for differing probabilities of selection, to take into account addresses with more than one dwelling unit from which one dwelling unit was selected, and dwelling units with more than adult from which one adult was selected. The next step (first implemented in wave 2) was to create a non-response weight to adjust for the propensities of people in different areas to respond (using logistic regression modelling). The final step was to apply calibration weighting, meaning both samples were adjusted to match UK population totals by region, and age within gender.

The dataset contains one weight variable (WtAd), which should be applied for all analyses.

Calculation of the weight

The weight was created in a series of steps as follows:

Dwelling unit selection weight

One dwelling unit was selected at each address and where there was more than one dwelling unit at an address the participating dwelling unit had a lower chance of selection than addresses where there was only one dwelling unit. To correct for unequal probabilities of selection, a dwelling unit selection weight was created. This was equal to the number of dwelling units found at the address. The weight was trimmed at four to avoid a small number of very high weights as these would inflate the standard errors and reduce the precision of the survey estimates.

Adult selection weight

One adult aged 18 or over was interviewed at each participating dwelling unit. Therefore adults living with others had a lower chance of selection than those living alone. To correct for this, an adult selection weight was created. This was equal to the number of adults in the dwelling unit. The weight was trimmed at four.

Combined selection weight

The dwelling unit selection weight and the adult selection weight were combined (multiplied together) to create one selection weight for each adult in the sample.

Non-response modelling

A standard way of correcting for non-response is to model the probability of response in geo-demographically defined areas. We used a logistic regression model to estimate the probability that a selected address will yield a productive interview. The explanatory variables in the model were Government Office Region, ACORN category, IMD rank, and an Urban/Rural indicator. A non-response weight was calculated from this model, equal to the inverse of the predicted probability of response.

The non-response weight and the selection weight were multiplied together to obtain a “pre-calibration” weight.

Calibration to the population

The next step was to take the weighted sample and to “calibrate” the totals in each Government Office Region (GOR), and each of twelve age/gender categories, to population totals derived from the latest (mid-2014) population estimates for the UK. Calibration adjusts a set of input weights to sum to the totals specified in each category. This step adjusts for differential non-response by region and (separately) by age and gender.

After calibration, the total numbers in the weighted sample equated to those in the UK population as shown in Tables 6.1 and 6.2.

Table 6.1 Regional profile of UK adults aged 18 or over

| Region | Number of adults aged 18 or over | % of adult population |
|--------------------------|----------------------------------|-----------------------|
| North East | 2,094,000 | 4.1% |
| North West | 5,618,000 | 11.0% |
| Yorkshire And The Humber | 4,219,000 | 8.3% |
| East Midlands | 3,672,000 | 7.2% |
| West Midlands | 4,456,000 | 8.8% |
| East | 4,731,000 | 9.3% |
| London | 6,619,000 | 13.0% |
| South East | 6,970,000 | 13.7% |
| South West | 4,347,000 | 8.5% |
| Wales | 2,462,000 | 4.8% |
| Scotland | 4,314,000 | 8.5% |
| Northern Ireland | 1,407,000 | 2.8% |
| | | |
| United Kingdom | 50,909,000 | 100% |

Note: numbers are rounded to the nearest 1,000.

Table 6.2 Age and gender profile of UK adults aged 18 or over

| Age group | Men | | Women | |
|-----------|-------------------------------|-----------------------|---------------------------------|-----------------------|
| | Number of men aged 18 or over | % of adult population | Number of women aged 18 or over | % of adult population |
| 18-29 | 5,199,600 | 10.20% | 5,076,900 | 10.00% |
| 30-39 | 4,151,900 | 8.20% | 4,198,400 | 8.20% |
| 40-49 | 4,473,900 | 8.80% | 4,589,200 | 9.00% |
| 50-59 | 4,100,000 | 8.10% | 4,200,900 | 8.30% |
| 60-69 | 3,449,700 | 6.80% | 3,623,700 | 7.10% |
| 70+ | 3,408,900 | 6.70% | 4,436,100 | 8.70% |
| | | | | |
| All 18+ | 24,783,900 | 48.70% | 26,125,200 | 51.30% |

Note: numbers are rounded to the nearest 100.

Scaling the weight

The final step was to re-scale the weight so that the weighted total for the whole sample was equal to the unweighted total (1,524); this resulted in the weight having an average of 1⁶.

⁶ Individual weights were multiplied by the unweighted base size divided by the sum of weights.

7. Sampling errors

No sample precisely reflects the characteristics of the population it represents, because of both sampling and non-sampling errors. If a sample were designed as a random sample (if every individual had an equal and independent chance of inclusion in the sample), then we could calculate the sampling error of any percentage, p , using the formula:

$$s.e. (p) = \sqrt{\frac{p(100 - p)}{n}}$$

where n is the number of respondents on which the percentage is based. Once the sampling error had been calculated, it would be a straightforward exercise to calculate a confidence interval for the true population percentage. For example, a 95 per cent confidence interval would be given by the formula:

$$p \pm 1.96 \times s.e. (p)$$

Clearly, for a simple random sample (srs), the sampling error depends only on the values of p and n . However, simple random sampling is almost never used in practice because of its inefficiency in terms of time and cost.

As noted above, the Wellcome Trust Monitor sample, like that drawn for most large-scale surveys, was clustered according to a stratified multi-stage design into 129 postcode sectors (or combinations of sectors). With a complex design like this, the sampling error of a percentage giving a particular response is not simply a function of the number of respondents in the sample and the size of the percentage; it also depends on how that percentage response is spread within and between sample points.

The complex design may be assessed relative to simple random sampling by calculating a range of design factors (DEFTs) associated with it, where:

$$\text{DEFT} = \frac{\text{Standard deviation of estimator with complex design, sample size } n}{\text{Standard deviation of estimator with srs design, sample size } n}$$

and represents the multiplying factor to be applied to the simple random sampling error to produce its complex equivalent. A design factor of one means that the complex sample has achieved the same precision as a simple random sample of the same size. A design factor greater than one means the complex sample is less precise than its simple random sample equivalent. If the DEFT for a particular characteristic is known, a 95 per cent confidence interval for a percentage may be calculated using the formula:

$$\begin{aligned} p \pm 1.96 \times \text{complex sampling error } (p) \\ = p \pm 1.96 \times \text{DEFT} \times \sqrt{\frac{p(100 - p)}{n}} \end{aligned}$$

Calculations of sampling errors and design effects were made using the statistical analysis package SPSS.

Table 7.1 Complex standard errors and confidence intervals of selected variables

| Variable | Estimate description | Estimate | Standard error | 95% confidence interval | | Design effect | Design factor | Un-weighted base | Effective base |
|---|---|----------|----------------|-------------------------|-------|---------------|---------------|------------------|----------------|
| | | | | Lower | Upper | | | | |
| Interest in medical research (Interest) | % very or fairly interested | .7705 | .01501 | .7407 | .8003 | 1.939 | 1.392 | 1,524 | 786 |
| Understanding of the term GM or genetically modified (KnowGM) | % at least some understanding of the term | .7482 | .01546 | .7175 | .7789 | 1.931 | 1.390 | 1,524 | 789 |
| Whether has tried to find out any information on medical research in the past year (MrInfo) | % have tried to find information | .4186 | .01791 | .3830 | .4541 | 2.007 | 1.417 | 1,524 | 759 |
| Whether medical research will lead to an improvement in quality of life in the UK over next 20 years (MRImprov) | % definitely will | .5842 | .01316 | .5581 | .6103 | 1.086 | 1.042 | 1,524 | 1,403 |
| Level of trust in medical research charities to provide accurate information about medical research (TrMed) | % complete trust | .0702 | .00742 | .0555 | .0849 | 1.285 | 1.134 | 1,524 | 1,186 |
| Willingness to allow genetic information to be used in a medical research study (WillAccGen) | % Very or fairly willing | .7458 | .01337 | .7192 | .7723 | 1.436 | 1.199 | 1,524 | 1,061 |
| Behaviour when last prescribed antibiotics (ABCourse) | % took all antibiotics at the right times | .8596 | .00988 | .8400 | .8792 | 1.105 | 1.051 | 1,368 | 1,238 |

8. Data processing and management

Editing

A number of checks were included in the CAPI programme (Table 8.1) and carried out by the interviewer when prompted during the interview

Table 8.1 Checks included in the CAPI programme

| Question | Check |
|----------------|---|
| AgeIf, Marstat | Marital status was only asked of respondents aged 16 or over |
| AgeIf | Check to confirm ages greater than 97 |
| DtJbLv | Confirm date left last job if date entered is before 1900. Query if date provided is before 1980. Query if date provided is in the future. Query if date provided is before date provided at StartDat |

Given that most of the questions asked as part of this study related to respondents' own attitudes, and given that it is perfectly possible that one individual may hold a variety of inconsistent attitudes, attitudinal responses were not subject to editing, and any inconsistencies in respondents' answers remain as recorded during the interview.

Missing data

The CAPI script was programmed such that each question asked of a respondent required the interviewer to enter a response before proceeding to the next question. This meant that there were no missing data to items in the questionnaire. At each question, interviewers could record responses of "don't know" or "can't remember", as well as "refused" should respondents wish not to provide an answer. No imputation was carried out in the case of these responses.

Refusal levels were low throughout the questionnaire, being highest with respect to household income (243 respondents refused, equating to 16 per cent of the productive sample), and next highest (albeit far lower) among various other demographic questions (15 respondents, one per cent, refused to provide their age; 12 respondents, one per cent, refused to say whether they regard themselves as belonging to any particular religion; six respondents, less than half of one per cent, refused to say what their highest educational qualification was; and two respondents, less than half of one per cent, refused to provide their ethnic group).

Coding

Post-interview coding was undertaken by members of Ipsos MORI's coding department using our coding software, Ascribe. Coders were briefed by researchers and provided with full instructions (see Appendix C of this report). In total, four coders worked on the coding of the open-ended and other-specify questions, and three coders worked on the coding of the occupational questions (SIC and SOC coding).

Each coder's work was quality checked by subjecting a random selection of their allocated codes to cross-checks by other members of the coding team.

Other-specify questions

For “other – please specify” questions, coders first checked the verbatim answer against the existing codes at the question, and “back-coded” into an existing code where applicable. Researchers then considered, based on the verbatim responses that were unable to be back-coded, whether any additional codes needed to be added to the code frame. These decisions were taken based on the data received from the first 500 interviews, and then on an ongoing basis throughout fieldwork in order to finesse the codes raised where relevant.

Open-ended questions

The adult interview contained seven open-ended questions. These open-ended questions were mainly designed to measure respondents’ awareness and knowledge of medical research, without giving them any prompts. They also enabled us to obtain a picture of the sorts of language and terms the public use when talking about medical research.

Where questions were consistent between waves, code frames were carried over from previous waves. Five new open-ended questions were inserted into the questionnaire for wave 3. Researchers developed code frames for these new questions based on the data received from the first 500 interviews, and then on an ongoing basis throughout fieldwork in order to finesse the codes raised where relevant. As far as possible, these new code frames were created to reflect the style of pre-existing codes.

In several instances, large numbers of the verbatim answers provided to the open-ended and other-specify questions remain in the “other” category. This reflects respondents’ provision of highly specific answers, any one identified by only a small number of respondents across the survey, and therefore not justifying a newly created code.

Occupation coding

Respondents’ job details were coded by a team of three coders to the Standard Industrial and Standard Occupational classifications – SIC (2007) and SOC (2010). Industry was classified to a 2-digit level and Occupation to a 4 digit-level. Respondents’ National Statistics Socio-economic Classification (NS-SEC) was derived from these data, as well as relevant employment related questions in the questionnaire.

Appendices

Appendix A – Cognitive testing and pilot survey documents

Appendix B – Main-stage fieldwork documents

Appendix C – Coding documents

Appendix D – Questionnaire and showcards

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