

2015 New Zealand Mental Health Survey: Methodology Report

Report commissioned by the Health Promotion Agency

December 2015

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COMMISSIONING CONTACT'S COMMENTS

The New Zealand Mental Health Survey (NZMHS) is an annual, nationally-representative survey, conducted for the first time in 2015. The purpose of the NZMHS is to provide useful and up-to-date information about issues relating to mental health in New Zealand. To this end, the 2015 NZMHS included topics relating to social support and connectedness, wellbeing, attitudes towards people experiencing mental distress, help-seeking knowledge and behaviour, and measures of personal mental distress.

The 2015 NZMHS comprised two arms: (1) a general population survey with New Zealanders aged 15-years-and-over, conducted face-to-face in people's homes using computer-assisted personal interviewing (CAPI); and (2) an online survey of women who had given birth in the past two years. This report describes the methodological approach to both arms of the survey.

HPA commissioned National Research Bureau (NRB) to conduct the fieldwork for the 2015 NZMHS.

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NOT EXTERNALLY REVIEWED

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New Zealand Mental Health Monitor Methodology Report

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1. INTRODUCTION

The Health Promotion Agency (HPA) has an overall function to lead and support activities to:

- Promote health and wellbeing and encourage healthy lifestyles.
- Prevent disease, illness and injury.
- Enable environments which support health, wellbeing and healthy lifestyles.
- Reduce personal, social and economic harm.

In its Statement of Intent (2014-2018) HPA states that it aims to minimise the impact of mental health issues on New Zealanders in the context of a broader approach to wellbeing. It does this through two main programmes:

“The National Depression Initiative (NDI), through its websites (depression.org.nz and lowdown.org.nz) and campaign messages, aims to improve people’s recognition of and response to people experiencing depression, increase their motivation to protect themselves and others from depression, and encourage social environments to be more responsive to and protective of those at risk of or experiencing depression.

Like Minds, Like Mine (Like Minds) aims to reduce the stigma and discrimination faced by people with experience of mental illness, as stigma and discrimination are major barriers to a person’s recovery. Like Minds seeks to create a socially inclusive nation in which all New Zealanders treat people with mental illness respectfully and as equals.”

In 2015 the HPA sought to develop a new nationally-representative survey aimed at providing regular and robust quantitative data on key mental issues in New Zealand. The new annual survey was to be called the New Zealand Mental Health Monitor (NZMHM). Ethics approval for the study was obtained from the New Zealand Ethics Committee (Otago) early in 2015. Through a tender process National Research Bureau Ltd (NRB) was selected to conduct the fieldwork for the 2015 wave of the NZMHM. The fieldwork (excluding piloting) was conducted from 25th July to 27th September 2015.

2. RATIONALE FOR THE APPROACH

The following rationale relates to the selection of a dual method research approach to the 2015 Mental Health Survey: a main CAPI (Computer Assisted Personal Interview) survey based on a nationwide random probability sample, and a separate online survey of a sample of new mothers.

There were a number of requirements of the survey that influenced the approach. These included the budget and the need to scientifically sample not just general members of the public, but very specific audiences of new mothers, youth, and people of Māori and Pacific ethnicities.

The approach needed to take into consideration the fact that the very issue of mental health is a subject area that for some people is of a highly sensitive nature, or at least a topic that some people may not necessarily be keen to address. Of particular concern were respondents that might be especially vulnerable such as youth aged 15 to 17. This group was identified by the Health and Disabilities Ethics Committee as a population requiring a more careful approach for surveys about mental health.

The method selection needed to be a balance of a good scientific sampling, an approach that maximised participation, as well as a way to manage the sensitive nature of the topic. The need for the method to be repeatable as a monitor was also important.

Sampling from pre-existing 'panels' was considered, but this was dismissed, as such samples are typically not adequately representative of the general population - usually a requirement for robust public health surveys. There are also statistical issues with self-selection as there can be significant bias where people volunteer for panels or specific surveys. Taking a New Zealand example, A. Gray in an analysis of a pilot survey notes evidence of extreme differences in the makeup of a panel compared with the general public "...twice the percentage of SmileCity (a panel) main respondents are renting compared with NonSmile City and about half as many own their own home outright..." (Analysis of the Travel Diaries Mobile Trial Run by TNS for the Ministry of Transport, Gray, A, 31 July 2014, Pg11). Repeatability of surveys can also be an issue where the makeup of panels can change over time, as the panel is replenished from diverse unknown sources.

The telephone interview method was also considered, but rejected as it was considered the response rate would not be very high for a survey of this topic and length (around 30 minutes). Reaching some of the subgroups, such as, Pacific, youth and new mothers by random digit dialling or sampling numbers from the White Pages would also be difficult, due to their low incidence in the population.

Large scale New Zealand government surveys (eg, Health Survey, Crime and Safety Survey, International Survey of Adult Skills) commonly make use of the face-to-face method using meshblocks as primary sampling units and it was felt that this survey of mental health merited this approach as the primary method.

The oversamples of Māori, Pacific peoples and youth could be accommodated by booster samples, and this is also normal procedure for such surveys (although this project has a particularly high proportion of such subgroups).

Choosing CAPI (Computer Assisted Personal Interview) as the survey mode was based on previous experience with similar topic surveys. There are advantages to this method over paper-based methods including: data collection is at the interview, standardisation of delivery, better control over routing and piping, confidential recording and storing of responses.

The need to include a sample of 'new mothers' (defined as having a child less than 2 years old) was problematic with the face-to-face approach as their incidence in the population would simply be too low to be cost effective. Thus this group required a different research approach. A method was selected where the sample was obtained by using a list of new mothers obtained from New Zealand hospitals. The selected mothers would then be telephoned to explain the survey and invite their participation via an online survey. Naturally this procedure is much more intensive than the usual 'email only' invitations that research companies prefer. However, it was felt that by telephoning first, this would give a chance to explain the survey properly, and thereby ensure the best response rate possible.

3. MAIN SURVEY METHODOLOGY

3.1 Main Survey Method Summary

The main survey was designed to be nationally representative of New Zealand adults aged 15 years and over. In addition, boosting of certain groups was conducted to adequately represent Māori and Pacific peoples, and youths aged 15 to 24.

The primary sampling frame was meshblocks, the smallest geographical unit for which statistical data is collected by Statistics New Zealand. The meshblock definitions (boundaries) from the last census (2013) were used. As of the 2013 Census there were 46,637 meshblocks in New Zealand.

A known probability sampling method was used where each meshblock (with some exclusions) has a chance (greater than zero) of being selected. The pps (probability proportional to size) sampling method was employed which uses the size (number of permanent private dwellings) of meshblocks to determine the likelihood of its being included in the sample. Within each meshblock homes are sampled, and within homes people. At each stage the probability of selection is known. This allows results to be weighted back to population estimates.

The mode of interview was face-to-face CAPI (Computer Assisted Personal Interview). Interviews are administered verbally by NRB interviewers, normally in respondent's homes with results recorded using a laptop computer.

3.2 Sample Size

The agreed target sample composition was:

Group	Number
Māori	300
Pacific	300
Other	700
Total	1300

Within the above there was also a target of 300 youth interviews (those aged 15 to 24).

3.3 CAPI Questionnaire Development

The main sample mental health questionnaire was supplied by HPA and developed further by NRB in consultation with HPA.

Printed showcards, which presented the response options for each question, were developed to assist interviewers in administering the questionnaire and respondents in providing their answers. Instructions for the interviewer on which showcards to display were incorporated into each relevant question.

A section specifically for those identifying as Māori was included. Initially it was intended that there be a choice of two routings with questions in either English, or in Māori. It was considered, however, that this could be problematical in its use. For example, if a person selected Māori and then discovered words or phrases that were not known to them, they would possibly end up 'stuck' or having to guess answers. Also, most NRB's interviewers are not fluent in Māori and could not deliver the questions orally in Māori anyway. The solution was to provide two sets of showcards for the questions, one in each language. These would be shown together in the interview with the respondent having the choice of either.

The questionnaire was converted into CAPI and benchtesting of the program conducted. This included question and answer wording, routing and navigation.

3.4 Sampling And Recruitment

In order to achieve the target sample and subsample numbers, 150 meshblocks were selected using PPS sampling (described in the table below). Of these, 30 were meshblocks with a high density of Pacific peoples, necessary to be able to reach the desired number of Pacific respondents. The density figures are produced by Statistics New Zealand based on the 2013 Census. The other subsamples in theory would be able to be achieved within the 120 core meshblocks.

In each of the 120 core meshblocks, a randomly selected 13 homes were 'core homes' from which anyone aged 15 and over could be recruited to do the survey. A further 22 homes (unless the size of the meshblock limited this) were then screened and anyone 15 and over who was Māori, Pacific or Youth determined as eligible to participate. In the 30 Pacific rich meshblocks, 32 homes were screened just for Pacific people aged over 15 years.

Note that in addition to the above, in order to try and reach the target numbers for the subgroups, all houses in the 30 Pacific rich meshblocks were finally approached. Also in 29 of the general meshblocks which had the highest Māori density, all houses were finally approached and screened for Māori, Pacific and Youth.

A Kish procedure was used in each home to select the respondent for that household. In this procedure, eligible respondents in each home are listed in age order on the 'Kish Grid'. This indicates which person will be the respondent and accounts for the number of (eligible) persons living in the home. Note that only one person per home is chosen and they may not be replaced if unwilling to do the interview.

Following is a more detailed description of the sampling and recruitment procedures. The expression 'core' in each meshblock refers to homes where all ethnicities and age groups are eligible. The expression 'screened' refers to homes where only persons screened as belonging to one of the boosted samples is eligible.

Procedure/Item	Description
Survey Frame:	Meshblocks as defined by Statistics NZ and as enumerated in the 2013 Census are the primary sampling units.
Geographic Coverage:	All New Zealand, excluding small offshore islands smaller and remote minor urban areas and remote rurals.
Qualifying Meshblocks:	Meshblocks with fewer than 30 homes are removed. Coverage of all NZ homes is 66%.
Stratification:	<p>The sequence for stratification proceeded as follows. The frame of Qualifying Meshblocks was first separated into two major strata: Pacific Dense meshblocks and the Others. The Others stratum was then further stratified into the four urban categories: Major Urban, Secondary Urban, Minor Urban and Rural These will be referred to as the Core strata. Note that the Pacific Dense meshblocks contained elements from all the urban categories but they were mainly Major Urban. There was no overlapping with meshblocks contained in any of the Core strata.</p>
Ordering Meshblocks:	The meshblocks were sorted within each stratum according to their Region number and within Region number by Urban Area number and then within Urban Area number, by their meshblock number. This achieves an approximate North to South order.
Meshblocks As The Primary Sampling Units (PSU):	Within each ordered stratum a running total of the number of permanent, private dwellings is compiled from the number of such dwellings within each meshblock (its measure of size). Each meshblock is therefore associated with a number range within that running total equal in extent to its measure of size.
Sampling Procedure:	<p>A sample of PSU's was taken from each of the five strata. The probability of a PSU selection within each stratum was proportional to its measure of size otherwise known as a pps sample. The reason for sampling pps is that when coupled with a constant cluster size of dwellings being sampled from each PSU we will achieve an approximately equal probability of selection for each dwelling.</p> <p>The sample is taken systematically from each stratum using a 'skip' and a random integer within the range of that 'skip' as the starting point. The 'skip' is calculated by dividing the total number of permanent, private dwellings within the relevant stratum (the final total from the running total) by the number of PSU's to be taken from that stratum.</p> <p>The PSU containing the dwelling (from the running total) equal to the random integer is the first PSU to be selected in the</p>

Procedure/Item	Description
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sample. The 'skip' is added to the random integer and the PSU containing that dwelling (from the running total) is the second PSU to be selected in the sample. Subsequent PSU's are selected by incrementally adding the 'skip' to the previous total. In this fashion the PSU's are distributed systematically across the whole of the stratum.

Sample Sizes From Strata: The following number of PSU's were systematically sampled from each stratum. The number taken from any particular Core stratum reflected the number of dwellings within that stratum across the whole of the country.

Main Urban: 85

Secondary Urban: 7

Minor Urban: 11

Rural: 17

The number taken from the Pacific Dense stratum reflected the requirement for a particular minimum of Pacifica respondents and the requirement to adequately cover the variation.

Pacific Dense: 30

Sample Size Distribution: The final sample of PSU's distributed across the District Health Boards as follows.

DHB Name	Core PSU's	Pacific Dense PSU's	Total PSU's's
Northland	4	0	4
Waitemata	14	6	20
Auckland	11	7	18
Counties Manukau	10	12	22
Waikato	9	0	9
Lakes	3	0	3
Bay of Plenty	6	0	6
Tairāwhiti	1	0	1
Taranaki	5	0	5
Hawke's Bay	4	1	5
Whanganui	1	0	1
Midcentral	3	0	3
Hutt	5	1	6
Capital and Coast	8	2	10
Wairarapa	2	0	2
Nelson Marlborough	3	0	3
West Coast	1	0	1
Canterbury	20	1	21
South Canterbury	3	0	3
Southern	7	0	7
Total	120	30	150

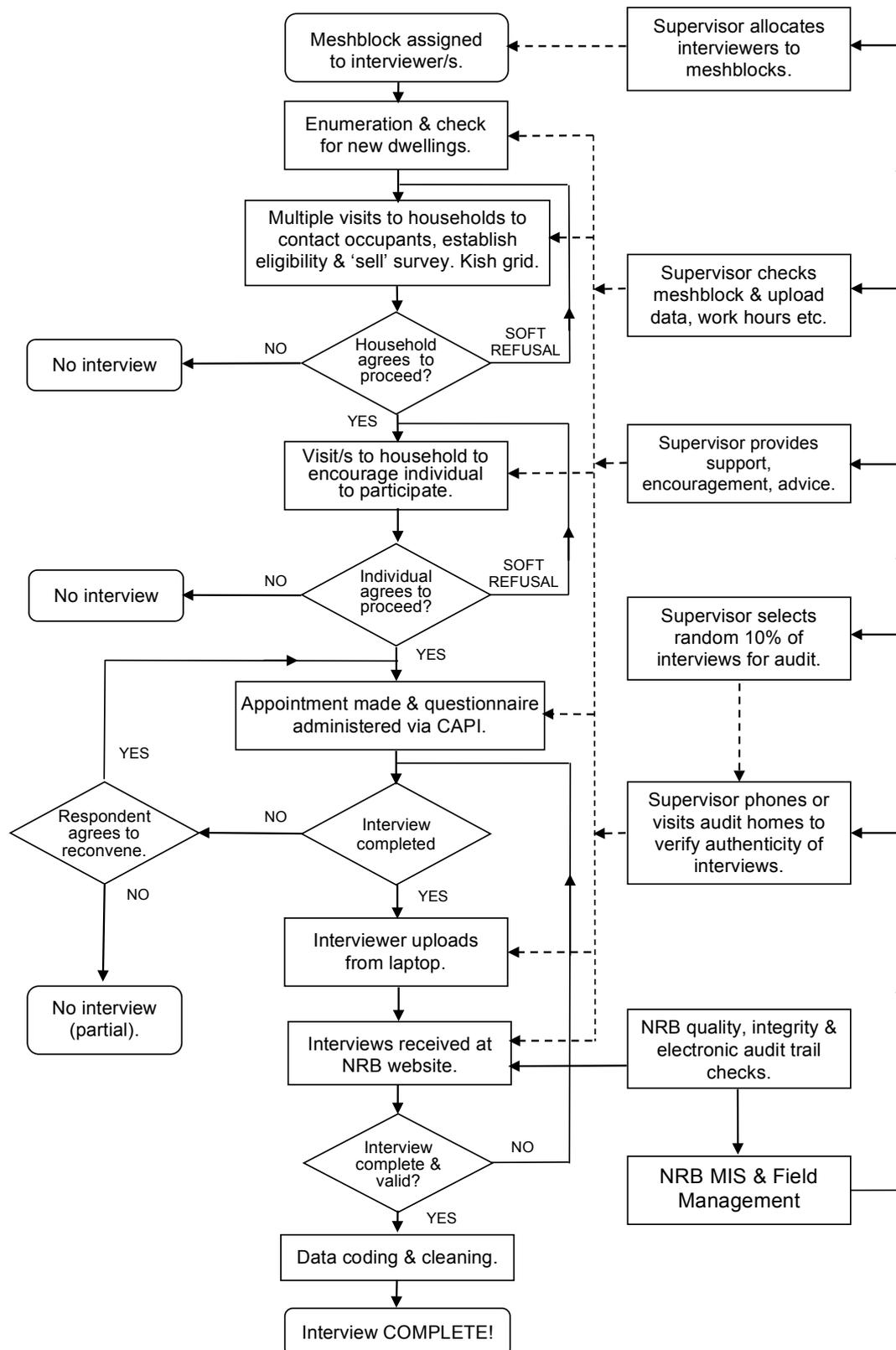
Procedure/Item	Description
Maps of Meshblocks:	NRB has the mapping software that shows the boundaries of each meshblock and the streets it contains. Each chosen meshblock is printed in map form. The streets and in-frame addresses are listed.
Map Startpoint:	A random startpoint for each meshblock is chosen by NRB to prevent interviewers' selection, in the field.
Enumeration:	Interviewers enumerate the number of houses in the meshblocks they have been assigned to update them in relation to the latest Census. Both enumeration and Census counts are recorded and kept in data.
Core Sample Homes:	Starting with the 'start house' the interviewer selects the next 13 homes as Core Main sampled homes. Core Main sample homes are identified as such, contacted, and persons aged 15 years and over of whatever ethnicity are listed for Kish selection.
Screened Homes:	In the 120 Core meshblocks (after the 13 Core Main sampled homes) a further 22 homes are selected, where meshblock size permits. These homes are Core Screened and only boosted groups are eligible. This enables Māori, Pacific, and youth numbers to be boosted in the final sample. In the 30 Pacific Dense meshblocks, 32 homes are screened for Pacific ethnicity only (15 years plus).
Respondent Selection:	The Kish procedure is used to screen one person aged 15 and over from all those normally resident who are eligible and, if appropriate, conform to the ethnic screen and age screen that applies.
Respondent Substitution:	No substitution of any refusing or uncontactable respondent is permitted.
Visit Frequency:	A total of up to six visits were made at each sampled home to attempt to contact the respondent. Days of week and times of day for these visits are varied to maximise contact. Two of the visits are spaced in time from the first four to improve contact of people on longer absences, fieldwork time permitting.
Visit Quality:	At each visit, NRB interviewers are trained to use the survey information sheet, seek informed consent, and offer gender and cultural match of interviewer to the respondent. Appointments for interviews are taken for any time or day that suits the household/respondent.

Procedure/Item	Description
Visit Integrity:	NRB supervisors call by phone or visit a minimum 10% of completed interviews to confirm the interview was done, how long it took, and that these times match the electronic log in the CAPI programme.
Outcome Codes:	Extensive coding of the outcome of each household's contact attempts is recorded in order that formal internationally used response rates (see www.aapor.org) can be calculated.

3.5 Interviewing Process

The interviewing process and its management is complex. A schematic explains some detail.

Management Of Interviewing Process



3.6 Pilot CAPI Survey

A full dress rehearsal (pilot) of the CAPI survey was undertaken with a target of 60 completed interviews. This was used to check all aspects of the sampling, screening, questionnaire and related processes. The pilot was conducted in June 2015. Eleven interviewers sampled 14 meshblocks in 9 different cities.

A pilot report provided basic data and feedback from the interviewers to give some insight into how the survey was received by the public together with issues encountered in the sampling, the screening and the administration of the CAPI questionnaire.

Sixty interviews exactly were obtained in the pilot survey which had response rate of 51.7%.

There were a number of learnings from the pilot which were used to inform the final main survey. The slightly lower response rate than expected was one of these. Although the original design for the survey did not include incentives, a participation incentive was added (\$10 plus the chance to win an iPad Air or a Samsung Tab 2) to improve the response rate. There were some changes to the questionnaire wording to try and make some of the questions less general. The main change was to using the term 'mental illness' as opposed to 'mental health problem' in various questions.

3.7 Main CAPI Survey

Interviewers were equipped with the revised CAPI program and briefed beginning 24th July 2015. Fieldwork commenced on 25th July and extended to 27th September.

A summary of the main tasks of the interviewer:

- Enumerate each allocated meshblock. Count and record every 'permanent private dwelling'.
- Note the 'start house' location and proceed to record each sampled home according to its designation as a main sample meshblock, or Pacific meshblock (see 'Sampling And Recruitment' section).
- Begin to visit each home to screen and try to obtain interviews or appointments to interview. Vary calls by time of day and day of week according to guidelines. Record all visits and outcomes.
- At each house, introduce the survey to the door opener and explain the need to screen to select a potential respondent. Use materials (letter of introduction, brochure, badge) to convince of authenticity and importance of survey. Where agreeable conduct screening procedure.
- After screening, approach person selected as the respondent. Again, use materials to convince of authenticity and importance of survey. Explain what the interview involves, the public good of the survey and the incentive. Attempt to either a) get an appointment to interview or b) permission to conduct interview there and then.
- Conduct CAPI interview. Use a quiet room if available away from others. Follow all instructions in the administration of the interview. Use showcards as directed.
- At completion of interview, thank respondent and give incentive. Give the NRB thank you card with contact numbers in case respondent needs support or information after the interview. Leave behind the Depression brochure. Respondents aged 15-17 are also sent a text thanking them for their participation and including the Youthline 0800 number in case required.
- Back at home, each night upload completed interviews. Complete all paperwork.
- Liaise with supervisor weekly or on a needs basis so as to progress on each meshblock raising any issues as needed.

The main survey largely went according to plan with the exception that locating people of Māori of Pacific ethnicity and gaining their agreement to participate was more difficult than anticipated.

In order to improve the yield by subgroup (Pacific, Māori, Youth) several steps were taken. Firstly, more homes were added to be screened. In the 30 Pacific meshblocks, ALL homes were included to be screened for Pacific people (ie not just the 32 homes first selected). In addition, in the main sample meshblocks, a further 29 meshblocks which were of highest Māori density were approached again and ALL homes in these screened for any of Pacific, Māori, Youth. In this way the number of successful interviews was finally built close to the target numbers.

Another technique to improve response rate for the sub groups was to mount a 'recovery' process where refusing households or individuals were reapproached in an attempt to convince them to participate.

284 (20.5%) of homes were audited by NRB's field supervisors to check the validity of the interviewers work. There was a near perfect result recorded from this process and no evidence of falsification of interviews. In 6 cases there were mistakes on the Kish Grid but in only one case was an incorrectly sampled person interviewed and this was later remedied. Those interviewed mainly reported that the interview was interesting and for a worthy cause.

3.8 Interviews Achieved

The final number of interviews obtained by the methods described in this report was 1,377. A breakdown by the original targets follows:

Group	Target	Achieved	% Of Target
Māori	300	*270	90.0
Pacific	300	*269	89.7
Youth**	300	334	111.0
Other***	700	862	123.1
Total	1300	1377	105.8

Notes:

* Includes 24 respondents of both Māori and Pacific ethnicity

** Youth (aged 15-24 years) is not a mutually exclusive category and are also within the other categories

*** All other ethnicities

3.9 Main Survey Response Rate

The response rate for a PPS survey is calculated according to internationally approved standards. The basic formula is:

$$\frac{a_i \times (a_i + b_i + d_i)}{(a_i + d_i)(a_i + b_i + c_i + d_i)}$$

The letters in the formula correspond to the various categories of outcomes from the call attempts of the interviewers. The subscript 'i' refers to the *i*th PSU (meshblock).

Category	Outcomes
Interviews (a _i)	Interviews
Not Eligible (b _i)	Not eligible, Unavailable
Eligibility Not Established (c _i)	No reply, Access Denied, Household refusal
Eligible Non Response (d _i)	Respondent refusal, Not available, Appointment not met, Language, Incapacitated, Hospitalised, Partial, Other

The response rate is calculated at the meshblock level first. The result is then averaged using a weighting of the estimated number of eligible respondents selected. Vacant homes are considered 'out of frame' and are not included in the calculations.

Using this method, the response rate for the Main Mental Health Survey is calculated as 58.9%.

Screening Summary	
Dwellings Visited	6,804
Not Eligible	3,631
Respondent Refusal	425
Unavailable **	306
Household refusal	275
Vacant	221
Not Available ***	186
No Reply	160
Access Denied *	143
Infirm	40
Language	36
Partial	0
Other	4
Interviews	1,377

Notes: * Gate, dog etc

** Not in area during survey period

*** Not available when house visited

3.10 Main Survey Interview Duration

The mean interview duration for the CAPI survey was 32 minutes and the median 30 minutes. This is excluding four outliers. There was a wide range of completion times, however, as is shown below.

Minutes	Duration		Cumulative Frequency	Cumulative Percent
	Frequency	Percent		
15 or less	12	0.9	12	0.9
16-20	92	6.7	104	7.6
21-25	306	22.2	410	29.8
26-30	322	23.4	732	53.2
31-40	416	30.2	1148	83.4
41+	225	16.3	1373	99.7
Outliers 101+	4	0.3	1377	100.0

4. MOTHERS ONLINE SURVEY METHODOLOGY

4.1 Online Survey Method Summary

Online survey of 700 plus new mothers via an online questionnaire. The sample is taken from a provided list of new mothers. Each participant is telephoned to invite to participate and is sent an invitation email with a link to the survey.

4.2 Sample Selection

A list of 2,407 names of women who recently gave birth was obtained from Bounty New Zealand. This organization approaches women (eg, in hospitals) and offers them sample packs and exclusive offers. It was felt that nearly all of these new mothers would accept these offers and therefore the list of mothers would be relatively comprehensive.

The names were obtained from locations from throughout New Zealand ensuring good geographical coverage. Names were only supplied where both a telephone number was provided, as well as an email address for the mother.

From the list of 2,407 names 1,770 mothers were randomly selected to be invited into the study. 220 were selected for a pilot version of the questionnaire and the remainder for the final version of the questionnaire.

4.3 Online Questionnaire Development

The Mothers Mental Health questionnaire was supplied by HPA and modified by NRB in consultation with HPA. A number of questions were the same or similar to those of the main Mental Health Survey. In addition, there were questions about postnatal feelings, emotions, breast feeding and parenting.

Wording was constructed to alert respondents to the presence and use of the 'Not sure/Don't Know' and 'Prefer not to answer' answer options (not overt in the CAPI Survey). An instruction discouraged use of these answer options, ie, *"Hopefully you wont need to do this much because it is more useful to us if you attempt an answer"*. These answer options were in a diminutive font, also to discourage their overuse.

Question wording was modified to be suitable for online self-administration rather than being read by an interviewer. The questionnaire was converted to online form and hosted. Bench testing was conducted to ensure its correct operation and verify wording, routing etc.

4.4 Invitation To Participate

Invitation to participate was first by telephone, and then by email. Up to three telephone calls were made to each respondent to try to contact them.

Once a potential respondent had been contacted by telephone, they were asked to confirm their email address and then a customized email invitation to the survey was sent to them. The email addressed each person by name and included an individual link with embedded password so only they could access that survey form. The system was set up to that a respondent could exit and re-enter their survey as many times as they liked until the interview was completed. This is another method of ensuring a good response rate. New mothers may well not have enough time to fill in the questionnaire all at one time so accommodating multiple visits is essential.

4.5 Pilot Online Survey

A pilot of the complete method for the mothers' online survey was conducted to verify its viability. The aim was to achieve a minimum 60 completed interviews.

A sample of 220 names was randomly selected from the list of new mothers. These names were divided among 3 trained and briefed NRB interviewers. The interviewers were tasked with making the requisite phone calls, contacting the correct person on the list and asking them to participate in the survey. Every time a person agreed to participate, an email invitation was sent to the correct address with its unique link to the survey. All telephone call outcomes were recorded.

Where a person had agreed to participate, NRB monitored their completion status. If the survey was not completed in approximately 2 weeks the person was sent a reminder email which included the link once more, along with some encouraging comment.

The pilot was commenced on 29th June 2015 and was closed off on 20th July. Of the 220 invites, 96 complete interviews were obtained which is an exceptional response rate for an online survey (over 50% once disconnected numbers etc, were excluded).

A pilot report was produced which analysed response rate, interview and question duration, answer patterns and answer content (eg, for open ended questions).

The pilot verified that the processes and questionnaire were working well. Changes to some question wording was made, but largely as a result of the feedback from CAPI pilot. The most major change was using the term 'mental illness' as opposed to 'mental health problem' in certain questions.

4.6 Main Online Survey

The main online survey was commenced late July 2015 and closed off 16 September. This timing was to conduct a thorough rather than rapid execution of the survey. Enough sample (n=1,550) was issued to yield the target number of 700 complete interviews, excluding the pilot completes.

Procedures were the same for the pilot except that 7 NRB interviewers were used for the telephone work. An important part of gaining a good response rate is to use a high calibre of interviewer. Having a good telephone manner and good interpersonal communication work well to gaining the respondent's confidence and willingness to participate.

As before, the telephone call was followed up with an email invitation (with link) and reminder emails as needed.

An incentive for completing the survey was offered. Participants were informed they would be put into a draw to win their choice of either an iPad Air or a Samsung Galaxy Tab 2 if they completed the survey. NRB has had positive results with such incentives before.

NRB monitored the incoming interviews each day to ensure there were no emerging issues and to keep record of who had completed the survey, and who required a reminder. Reminders were worded differently for those that had partially completed the questionnaire, and those that had yet to start.

4.7 Online Survey Response Rate

Following is an analysis of all outcomes from both the telephone contact attempts, email reminders and the online outcomes for the new mothers' mental health survey. The results include both pilot and main samples.

C	Completed web questionnaire	805
P	Partially completed web questionnaire	84
I	Agreed to participate, but not done so yet	213
AP	Answer phone	248
DP*	Disconnected phone	202
NE*	Not eligible (no child age less than 2)	117
RR	Respondent refusal	41
NR	No response	20
U*	Unavailable (eg overseas)	17
NA	Not available during survey dates	7
E	Engaged	7
OTH*	Other (moved etc)	5
B*	Business phone only	3
L	Language problem	1
TOTAL		1,770

As at the end of the survey, the mothers completed 805 online interviews. The response rate is calculated as 56.5% (805/1426). This calculation excludes responses above indicated with an '*' which are considered to be 'out of frame' (n=344).

This response rate is more than double a typical self-completion style of online survey and can be seen as exceptional. Part of the explanation for the success, in addition to the method employed, was that new mothers appeared to be very keen on the topic. This may be because having a new baby would likely produce some challenges/stress and thus mental health might well be a very salient issue for them. New mothers are also a relatively young audience so completing an online survey is something well within their usual experience and skill set.

4.8 Analysis Of Partial

Following is an analysis of the partially completed interviews. This has been conducted to check if there is a specific question or set of questions that could be putting off respondents – in other words, eliciting a tacit refusal.

An analysis of the 73 partials from the main survey (ie excluding the pilots) revealed little distinct pattern as to which point they decided to opt out of the survey.

- 11 of the 73 are either all blank or answered A3b (ethnicity) and A4 (employment status) only.
- A further 7 failed to complete all of Section B (Overall Wellbeing and Connectedness).
- 55 respondents started Section C (Knowledge of Depression and Anxiety) (C1-C27) but 36 of these didn't complete. Most significant were the 14 who ended after C6.

A breakdown of the 36 respondents who didn't complete Section C:

Ended after	Number
C1-C2	2
C6	14
C8	2
C10	3
C12-16,C23-24	6
C27	9
<i>Total</i>	<i>36</i>

The remaining 19 didn't complete as below:

Ended after	Number
D1-D8 (Stigma)	3
E1-E5 (Postnatal Depression)	3
E6-E10,Sect.F (Infant Attachment)	4
G1-G2,Sect.H (K10, GAD_7)	1
Sect.I (Adult Impairment)	5
Sect.J to end (Breast Feeding)	3
<i>Total</i>	<i>19</i>

4.9 Online Interview Duration

Interview durations for online surveys are slightly problematical to calculate. This is because some can leave the computer on while attending to other tasks. Some exit and re-enter the survey several times. In addition, completion is not a speeded task and they are free to take as long as they like to think about and form answers to the questions. Bearing this in mind, the average interview duration is calculated as 27.5 minutes. This excludes outliers and timed out interviews.

There was, however, quite a range of completion times as is shown below.

Minutes	Duration		Cumulative Frequency	Cumulative Percent
	Frequency	Percent		
15 or less	85	10.6	85	10.6
16-20	146	18.1	231	28.7
21-25	148	18.4	379	47.1
26-30	99	12.3	478	59.4
31-40	104	12.9	582	72.3
41+	69	8.6	651	80.9
Outliers 101+	35	4.3	686	85.2
Timed out (left and returned)	119	14.8	805	100

5. DATA WEIGHTING PROCEDURES

5.1 Sample Frame and Stratification

The sample of frame of Qualifying Meshblocks was stratified into four urban categories:

- a. Main Urban Areas
- b. Secondary Urban Areas
- c. Minor Urban Areas
- d. Rural Areas
- e. Pacific Dense Areas

5.2 Raw Selection Weights – PSU

Within each of these strata, the probability of a primary sampling unit (PSU) was calculated as follows:

x_i : the Census 2013 count of permanent, private occupied dwellings.

n : the number of PSU's selected from each stratum.

N : the number of PSU's within the stratum frame.

The probability of PSU selection is calculated as follows:

$$\frac{n}{N} \times x_i$$

The selection weight for a PSU within a stratum is the inverse of the probability of selection of that PSU.

As the frame of Qualifying Meshblocks did not encompass all meshblocks in NZ, the selection weights in each of the urban strata was extended by a factor which reflected this undercoverage.

The factors for each stratum were as follows:

- a. Main Urban Areas: 1.23
- b. Secondary Urban Areas; 2.17
- c. Minor Urban Areas: 5.91
- d. Rural Areas: 5.85
- e. Pacific Dense Areas: 1.0

5.3 Raw Selection Weights – Dwelling

Within each PSU, there were up to two ranges of dwellings sampled:

- a. Core Main: where all usual residents aged 15 years and older were eligible.
- b. Core Screened and Pacific Screened: where only usual residents of particular ethnicities or of a particular age range were eligible.

The dwelling weights within a PSU were calculated from the following variables:

- y_i : estimate of the currently occupied dwellings, using the current enumeration count by the interviewer and the final outcomes from those dwellings approached for an interview.
- c_i : the number of dwellings approached for a Core Main sample interview.
- d_i : the number of dwellings approached for either a Core Screened or a Pacific Screened sample interview.

The probability of dwelling selection within the PSU for Core Main respondent is calculated as follows:

$$\frac{c_i}{y_i}$$

The probability of dwelling selection within the PSU for Core Screened or a Pacific Screened respondent is calculated as follows:

$$\frac{(c_i + d_i)}{y_i}$$

The selection weight for a dwelling within a PSU is the inverse of the probability of selection of that dwelling within the PSU.

The coefficient of variation for the dwelling selection weights were as follows for each group of dwellings:

- a. Core Main Dwellings: 58.6%
- b. Core Screened Dwellings: 44.9%
- c. Pacific Screened Dwellings: 30.5%

5.4 Raw Selection Weights – Respondent

The respondent weight within a dwelling were calculated from the following variables.

e_j : the number of eligible respondents within the j th sampled dwelling.

a_k : the weight to be applied to the k th eligible respondent within the sampled dwelling.

The probability of respondent selection within a dwelling for Core Main, Core Screened or Pacific Screened respondent is calculated as follows:

$$\frac{a_k}{\sum_{k=1}^{e_j} a_k}$$

As the weights applicable to all eligible respondents with a dwelling was equal, this probability reduces to the following:

$$\frac{1}{e_j}$$

The selection weight for a respondent within a dwelling is the inverse of the probability of selection of that respondent within the dwelling.

5.5 Raw Selection Weights – Overall

The overall inclusion probability for a respondent is the product of the above three components.

- a. Core Main probability:
$$\frac{n}{\sum_{i=1}^N x_i} \times x_i \times \frac{c_i}{y_i} \times \frac{1}{e_j}$$
- b. Core Screened or Pacific Screened:
$$\frac{n}{\sum_{i=1}^N x_i} \times x_i \times \frac{(c_i + d_i)}{y_i} \times \frac{1}{e_j}$$

The overall selection weight for a respondent is the inverse of the overall inclusion probability of selection of that respondent.

5.6 Response Rate Adjustment To Selection Weights

To allow for the impact of non-response on the sums of selection weights, each overall selection weight was divided by the applicable response rate.

There were three applicable response rates:

- The rate calculated for those sampled dwellings in the Core PSU's where no screening took place.
- The rate calculated for those sampled dwellings in the Core PSU's where screening did take place.
- The rate for all sampled dwellings in the Pacific PSU's.

5.7 Benchmark Adjustment To Response Rate Adjusted Selection Weights

The sums of the response rate adjusted selection weights for 40 demographic cells were calculated. These are referred to as the 'Observeds'.

The 40 nested cells were for the following demographic groups:

- a. Gender; (2)
- b. Ethnicity: (4)
- c. Age Group: (5)

These 40 totals were compared with the Census counts for those same cells (these are referred to as the 'Expecteds') and a factor equal to $\frac{Expecteds}{Observeds}$ was applied to the response rate adjusted overall weight for each corresponding respondent.

The range of benchmark adjustments was as follows:

Age Group	Other Ethnicity		Māori		Pacific		Asian	
	Male	Female	Male	Female	Male	Female	Male	Female
15 to 24 years	1.13729	1.02613	0.98147	1.21687	1.88144	1.49987	1.11975	1.01661
25 to 34 years	1.30603	1.49771	1.12939	0.65073	1.19029	1.27059	1.47670	1.21684
35 to 44 years	1.02035	0.84440	1.00887	0.77427	1.16016	1.37400	0.59379	2.27865
45 to 54 years	1.22512	0.87205	1.03725	1.09106	1.22729	0.70119	1.94665	1.25835
55 plus years	0.73314	0.79277	1.44451	0.72827	2.84315	0.65750	1.09180	1.74717

6. APPENDICES



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September 2015

Invitation to participate in the New Zealand Mental Health Survey

We would like to invite one member of your household to take part in the New Zealand Mental Health Survey, which is being completed on behalf of the Health Promotion Agency. This important survey collects information about New Zealanders' views and experiences in relation to mental health. This survey is the only way that we obtain vital information needed to understand issues relating to mental health in New Zealand. The areas selected have been randomly chosen to represent a good cross-section of the NZ population.

This is the first survey of its kind being conducted by Health Promotion Agency, and about 1,300 people will take part in this nationwide survey. Your household has been randomly chosen to participate. We rely on the goodwill and voluntary cooperation of those invited to take part to make the survey a success. Any information provided as part of the survey is confidential.

The survey is being done by the National Research Bureau (NRB), an independent research company. The interviewer will be wearing an identification badge. They will explain more about the survey, and will answer any questions that you might have. If the interviewer visits at a time that does not suit you, please let them know and they will arrange to visit at a better time.

The brochure provides further information about the survey. If you have questions or wish to change your appointment time, please call the survey helpline between 9am and 8pm seven days a week on 0800 672 476.

Thank you in advance for your help with this important work.

A handwritten signature in black ink, appearing to read 'Clive Nelson'.

Clive Nelson
Chief Executive
Health Promotion Agency

When we visit...

If you are out when we visit, we would still like to interview someone in your household for the 2015 New Zealand Mental Health Survey.

Our interviewer will visit again shortly to arrange a time that suits you.

Your rights...

If you have any questions about your rights as a participant in this survey you can contact an independent health and disability advocate for free advice.

Telephone **0800 555 050**
or email advocacy@hdc.org.nz

More information...

If you want to know more about this survey, please contact National Research Bureau on 0800 672 476 or at info@nrb.co.nz. Alternatively, you can visit the Health Promotion Agency's website at hpa.org.nz

We appreciate your help.

The Health Promotion Agency is a New Zealand government agency that promotes health and encourages healthy lifestyles.

For more information visit hpa.org.nz



What is the New Zealand Mental Health Survey?

This survey is about New Zealanders' views and experiences relating to mental health. This is the first time the New Zealand Mental Health Survey will be run, but we plan to conduct it every year for at least the next three years.

Who is carrying out the survey?

National Research Bureau, an independent New Zealand research company, is carrying out the survey for the Health Promotion Agency.

The Health Promotion Agency is a New Zealand government agency that promotes health and encourages healthy lifestyles by developing and delivering health promotion programmes for the Ministry of Health.

The New Zealand Mental Health Survey has been approved by the New Zealand Ethics Committee.

Why should I take part?

Your views and experiences are important, even if you do not have a mental illness or don't know anyone who does. Your answers will help identify any changes in people's views and experiences in future years of the New Zealand Mental Health Survey.

This survey is voluntary, however we really appreciate your participation.

How are people chosen to take part?

Addresses from throughout New Zealand are randomly selected. One person (aged 15 years and over) from your household will be chosen at random by the interviewer and asked to take part in the survey.

About 1,500 people will take part in this survey.

Where and when will I be interviewed?

You will first be visited by an interviewer wearing photo identification who will ask if you want to take part in the New Zealand Mental Health Survey. If you choose to take part, you can decide whether you want to do the interview in person, over the phone, or online. If you are busy when the interviewer visits, please ask them to come back at a day and time that suits you.

What sort of questions will I be asked?

You will be asked questions on different topics related to mental health. If you don't want to answer a question, you don't have to; just tell the interviewer.

How long will it take?

The interview will take about 30 minutes. The interviewer will be happy to arrange a day and time that suits you.

Can I have an interpreter?

Yes, we are able to provide interpreters for the following languages: Māori, Samoan, or Tongan. If you would like one of these interpreters, please let your interviewer know or call the free survey information line on **0800 672 476**.

What happens to my answers?

Your information will always be kept confidential and is protected by the Privacy Act 1993. This means the interviewer will not disclose your information with anyone else, and no-one will know that you have taken part in this survey. No person's name or address is connected to the answers they give. Everyone's answers will be grouped to report on the survey results.

What will the information be used for?

The data collected from the survey will be used by the Health Promotion Agency to develop advice, information and practical ways to help New Zealanders better understand issues relating to mental health.

Can I find out about the results from the survey?

Some of the results from the survey will be available by the end of 2015 on the Health Promotion Agency's website at hpa.org.nz.

Thank you for your time.