

# Comparing initial and follow-up responders to a New Zealand patient experience survey

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## ABSTRACT

**AIM:** This study investigates non-response bias in an inpatient experience survey with a low response rate by comparing sociodemographic characteristics and response behaviours of initial responders with responders to follow-up, and further explores the factors contributing to non-response. Prior research suggests non-response may be endogenously related to patient characteristics.

**METHOD:** We re-contacted a convenience sample of non-responders to a nationally representative, cross-sectional inpatient survey conducted in New Zealand. Participants were given a subset of six items drawn from the initial survey and the opportunity to disclose reasons for non-response. Responders to follow-up ( $n=163$ ) were subsequently compared with responders to the initial survey ( $n=910$ ) using chi-squared tests of association and logistic regression to assess differences in sociodemographic variables and substantive responses.

**RESULTS:** We find no significant differences in the responses given by initial and follow-up responders. The most common reasons for non-response were “can’t remember” (33%), not receiving the survey (25%) or being too busy at the time (25%).

**CONCLUSION:** Responders to follow-up have similar experiences of inpatient care in New Zealand to initial responders. Further study is needed to strengthen inferences regarding hard-to-reach patients.

The decline in survey response rates in most developed countries over the past few decades has prompted serious concern about the validity of survey findings.<sup>1</sup> A low response rate is thought to increase the risk of non-response bias, where significant differences exist between the characteristics of people who responded to a survey and those who did not. These systematic differences can bias results, particularly if characteristics that distinguish responders from non-responders are correlated with the outcome of interest.

A number of scholars have benchmarked response rates below 50% or 60% as highly likely to produce biased results, particularly when the sample size is small and there are associations between attributes of non-responders and the outcome variable.<sup>2-5</sup>

However, such rules-of-thumb imperfectly proxy the complications of non-response bias<sup>5</sup> and indeed several meta-analyses have found response rate to be a poor predictor of non-response bias.<sup>3,6</sup>

Theories of non-response bias offer more precise understandings about how non-response produces error. One influential theory—‘leverage-salience theory’—conceptualises non-response bias as error resulting from endogenous relationships between individual and survey characteristics (for instance, its length, mode or subject matter).<sup>7</sup> The extent of bias will increase with the salience of endogenous survey characteristics at the time of the survey request.<sup>6,7</sup> The results of a meta-analysis by Groves and Peytcheva<sup>6</sup> suggest such relationships can significantly moderate the

beneficial effects of a high response rate. Other theories of non-response also provide useful insights; for example, continuum of resistance theory predicts non-responders will be more similar to respondents who responded late than initial responders, lending support to inferences made with follow-up responders about non-responders in general.<sup>8-11</sup> Both theories seek to identify endogenous relationships between individual characteristics and the model error term. Accordingly, researchers are increasingly encouraged to supplement response rates with alternative indicators of non-response bias,<sup>1</sup> and pay close attention to the specific relationship between the survey and the participants.<sup>6,7</sup>

Empirical studies assessing non-response bias have tended to compare non-responders and responders on observed variables such as sociodemographic characteristics, administrative health records, and health conditions reported or observed during screening procedures. Sociodemographic characteristics tend to differ between responders and non-responders,<sup>12-22</sup> although a smaller number of studies find no significant differences between groups.<sup>23-27</sup>

Fewer studies have followed up with participants to measure response behaviour directly. These studies are split between those finding significantly different responses between groups<sup>28,29</sup> and those that do not,<sup>30,31</sup> which likely reflects the heterogeneity in survey topics and sampled populations. Longitudinal drop-out studies also contribute similar evidence to follow-up studies; again, finding mixed results.<sup>32-34</sup> The foremost among these studies examined a prescription drug database, while the latter two were large-scale cohort studies of health and disease. Finally, studies comparing early and late responders to surveys find late responders to exhibit more extreme behaviours than early responders, as continuum of resistance theory predicts.<sup>8-11</sup> The results to date suggest that the presence of bias is heterogeneous among surveys and sample populations, as leverage-salience theory would suggest, and that generally those who are more difficult to contact tend to have more extreme results.

It is surprising that relatively few studies have followed up with non-responders to

directly measure differences in response behaviours, given that comparisons of socio-demographic characteristics are limited to providing inferences of such responses. If we are to maintain confidence in the validity of surveys as instruments in spite of low response rates, it is necessary to measure as directly as possible whether non-responders are genuinely likely to respond differently to initial responders. This study contributes to the literature in this field by attempting to answer the following research questions:

1. Do follow-up responders to an inpatient survey have a significantly different sociodemographic structure to initial responders?
2. Do follow-up responders significantly differ from initial responders in how they answer survey questions?
3. What factors are correlated with non-response?

We re-contacted non-responders to a nationally representative, cross-sectional inpatient survey in New Zealand and asked them to respond to a subset of seven items drawn from the initial survey, and to disclose their reasons for non-response. Differences among groups were tested for significance using chi-square tests of association and logistic regression. The study ultimately determines whether there are observable differences between initial and follow-up responders, and discusses how this relates to broader evidence of non-response bias.

## Methods

### Study design

This study analyses cross-sectional primary data collected in January 2016 in New Zealand. Eligible participants were non-responders to a nationally representative, cross-sectional survey conducted in December 2015. Data are compared across surveys to sample both initial responders and responders to follow-up.

### Study population and data

The Adult Inpatient Experience Survey is a quarterly 20-item online survey designed by the Health Quality & Safety Commission in August 2014. The survey runs in all 20 health administration regions (district health boards, or 'DHBs') across New Zealand. In each DHB, 400 patients aged

15 years or above who spent at least one night in hospital within the two-week study period were invited via email, SMS or post to participate in the survey. To maximise survey response and minimise cost to DHBs, patients who had provided email addresses were preferentially selected, with random sampling of patients with a mobile phone number or postal address subsequently. Preferential selection of patients with email addresses may skew survey participation towards groups with greatest access to the associated technologies, and is therefore considered a limiting trade-off between cost and the representativeness of data.<sup>35</sup> Reminders were sent after seven days via email or SMS if available, or via post if not. Where DHBs had less than 400 eligible patients within the two-week time period, all patients were contacted. A complete methodology document is available on the Health Quality and Safety Commission's website.<sup>36</sup>

During the survey wave ending December 2015, approximately 14,000 patients were eligible to participate in the study. Of these, 6,089 individuals were randomly selected to participate, 1,668 returned and completed the survey, while 4,421 did not start or did not complete the survey, comprising a 27% response rate. Results were weighted subsequently to account for non-representative demographic composition.

The present study conducts a comparative follow-up survey, examining the sociodemographic characteristics and response behaviour of non-responders who obtained services in a sample of 10 DHB catchments, comprising Capital and Coast, Counties Manukau, Hutt Valley, Northland, Southern, Taranaki, Wairarapa, Waitemata, West Coast and Whanganui DHBs. The selection of cases focused on DHB catchments where response rates were particularly low, and a spread of geographical regions. Eligible patients were convenience-sampled by software-as-a-service firm Cemplicity from lists of individuals in each DHB catchment who had been sent the inpatient experience survey via email or SMS but did not complete the survey. While data collected through convenience sampling are limited by potential for non-random bias,<sup>37</sup> the ease and affordability of this method aligns with the data's function in enabling the Health

Quality & Safety Commission to provide continuous feedback on DHB performance. Where cell phone numbers were available, patients were called and asked about their reasons for non-response on the initial survey. They were further invited to participate in a truncated seven-item version of the Adult Inpatient Experience Survey, at the time of the call or in future, and either over the phone or online. Where cell phone information was not available, participants were contacted with a short email containing a link to the truncated survey and an invitation to reply with their reasons for non-response.

Particular methodological attention was given to maximising responses on the follow-up survey. Sampled individuals were telephoned up to six times before being recorded non-responsive, with calls spread across different days and times of the day. The interviewers also offered opportunities to make alternative appointments, as well as allowing time-pressed responders to opt out of the seven-item survey and instead comment briefly on their reasons for non-response. Market research firm Buzz Channel conducted all interviewing.

Of the 2,209 eligible individuals who did not respond to the initial survey and were treated in one of the 10 selected DHBs, 163 were contacted using convenience sampling to surpass a target of 150 respondents recommended by power analysis. The flow of participant recruitment and selection is summarised in Figure 1. Individuals who did not respond to the original Adult Inpatient Survey, but did respond to the follow-up survey, are henceforth referred to as follow-up responders in this article. Follow-up responders were compared to respondents to the Adult Inpatient Survey from the same 10 selected DHBs (henceforth termed initial responders) to allow for valid comparisons. Finally, these two groups were compared to the overall pool of 6,581 individuals from which they were drawn, comprised of individuals eligible to participate in the Adult Inpatient Survey in the 10 DHBs selected for the follow-up study. Table 1 summarises characteristics and inclusion/exclusion criteria of the three comparison groups referred to henceforth in this article.

Figure 1: Flow of participant recruitment and selection.

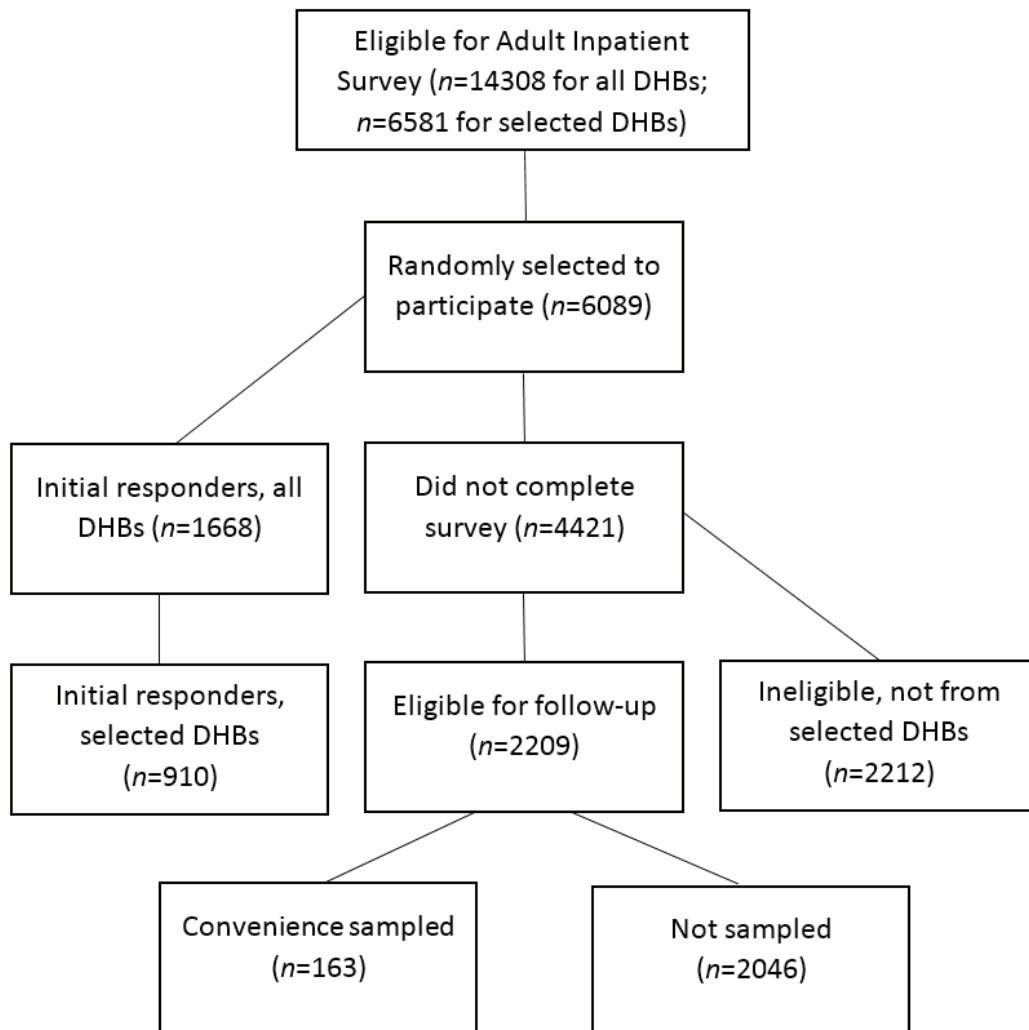


Table 1: Summary of comparison groups.

|                      | Sample size | Data source  | Inclusion/exclusion criteria  |
|----------------------|-------------|--|---|
| Pool                 | n=6,581     | Demographic data requested from district health boards | Potential responders to the Patient Experience Survey, aged 15+, who were discharged from hospitals during the two-week study period, from selected DHBs.   |
| Initial responders   | n=910       | Adult Inpatient Experience Survey, December 2015       | Individuals drawn from the pool who were contacted and completed the Adult Inpatient Experience Survey.   |
| Follow-up responders | n=163       | Follow-up survey, January 2016                         | Individuals drawn from the pool who were contacted and either did not start or did not complete the Adult Inpatient Experience Survey, but were re-contacted and started or completed the follow-up survey. |

## Measures

### Demographic variables

Both surveys contained questions eliciting the respondent's demographic characteristics. Participants identified as either male or female, and age was reported as a continuous variable. Ethnicity was reported following Statistics New Zealand's prioritised ethnicity categorisations.<sup>38</sup> Patients identifying as Pacific peoples, Asian, MELAA (Middle-Eastern/Latin-American/African), Other, or any residual responses were grouped into the category 'Other' to resolve issues with the size of the sub-sample. Thus, ethnicity was compared on the basis of the groups 'European', 'Māori' and 'Other'.

### Survey items

The Adult Inpatient Experience Survey consists of 20 items derived by the Health Quality & Safety Commission from licensed access to the Picker library of 200-plus questions. Items of importance were established via testing conducted in tandem with KPMG. Some questions were slightly reworded to suit a New Zealand cultural context. Participants in the follow-up survey were asked to respond to a seven-item survey consisting of core questions from the initial survey. Six of these were multiple-choice questions, and the last question allowed free response.

Given that comparison groups come from distinct surveys and potentially held differential sociodemographic structures, non-responders were weighted to match the characteristics of responders. In order to determine which demographic variables were important, the two groups were compared based on age, sex and ethnicity alone and as a two-way interaction using logistic regression. Age and ethnicity were found to be associated with being a responder or non-responder. These two variables were subsequently used individually to weight the non-responders to the responders. Responses are reported in both raw and weighted terms for comparison.

### Reasons for non-response

Follow-up responders were asked why they did not take part in the survey using two open-ended questions—"Why did you not take part in the survey?" and "Is there anything we could have done differently to make you take part?" The data for this question was thematically coded into appropriate categories. Categories that were meaningful and had a sufficient number of responders were investigated to see if they depended on demographic variables such as age, sex and ethnicity.

**Table 2:** Demographics of follow-up responders, responders, and all patients discharged (pool).

|                          | Follow-up responders |    | Initial responders |    | All patients discharged (pool) |    |
|--------------------------|----------------------|----|--------------------|----|--------------------------------|----|
|                          | N                    | %  | N                  | %  | N                              | %  |
| <b>Sex</b>               |                      |    |                    |    |                                |    |
| Female                   | 97                   | 60 | 556                | 61 | 3,907                          | 59 |
| Male                     | 66                   | 40 | 354                | 39 | 2,674                          | 41 |
| <b>Age group (years)</b> |                      |    |                    |    |                                |    |
| 15–24                    | 18                   | 11 | 40                 | 4  | 667                            | 10 |
| 25–44                    | 45                   | 28 | 220                | 24 | 1,748                          | 27 |
| 45–64                    | 59                   | 36 | 235                | 26 | 1,628                          | 25 |
| 65–74                    | 24                   | 15 | 207                | 23 | 1,084                          | 16 |
| 75–84                    | 11                   | 7  | 145                | 16 | 911                            | 14 |
| 85+                      | 6                    | 4  | 63                 | 7  | 543                            | 8  |
| <b>Ethnicity</b>         |                      |    |                    |    |                                |    |
| European                 | 130                  | 80 | 677                | 74 | 4,452                          | 68 |
| Māori                    | 19                   | 12 | 76                 | 8  | 845                            | 13 |
| Other                    | 14                   | 9  | 157                | 17 | 1,284                          | 20 |

## Results

### Demographic differences between responders and non-responders

Table 2 displays the distribution of demographic variables across follow-up responders, initial responders and the pool of all patients discharged. The distribution of males and females in each of the three groups was similar. Initial responders were less likely to be very young (aged 15–24) compared to the pool. They were also more likely to be in early old age (aged 65–74) than the pool. Follow-up responders had a similar age distribution of those aged 15–24 to the pool but were more likely to be in middle age (aged 45–64) than the pool. They were also less likely to be in the two oldest age groups.

The initial responders group was more likely to be New Zealand Europeans than the pool, and the follow-up responders group was even more likely to be New Zealand European. Māori were less likely to be initial responders compared to the pool but equally likely to be follow-up responders. The combined ethnic group, Other, were less likely to be in the initial respondents group than in the pool and even less likely to be in the follow-up respondents groups.

### Differences in response behaviour between responders and non-responders

Initial and follow-up responders were compared on six controlled-response items measuring patient experience (see Table 3). Where the number of respondents answering “No” was low, sensitivity analyses were conducted combining these responders with those in the weakly affirmative group (ie, those responding “Yes, sometimes”). Where a notable number of participants did not answer the question or were not applicable, these responses were removed and the percentages were recalculated.

Across all questions, follow-up responders gave answers that were near identical

(Questions 5 and 6) or slightly more positive (Questions 1, 2, 3 and 4) than initial responders. Chi-squared tests do not find any significant differences between groups. This interpretation does not change in sensitivity analyses assessing the impact of low subsamples of negative responders (Questions 1, 5 and 6) or when removing participants not answering a given question (Questions 2 and 6).

### Reasons for non-response

Participants of the follow-up survey were asked to briefly comment on why they did not take part in the initial inpatient survey. Table 4 displays the categorised results.

The most common response was to say they didn’t remember or couldn’t remember why they didn’t take part in the survey (33%), followed by saying they did not receive a survey invite (25%) or they were too busy (19%).

Tree-based methods were used to analyse if there were some demographic variables that were associated with not responding. The two reasons for non-responses considered were *i)* not receiving the survey invite and *ii)* being too busy. The most common reason, not being able to remember why they didn’t do the survey, was not analysed because it was deemed not likely to provide any useful information.

The variables considered in the tree models were age group (15–44, 45–64 and 65+), ethnicity (New Zealand European, Māori, Other) and gender (male, female). None of these variables were associated with respondents reporting that they did not receive the survey invitation. However, responders who were young (15–44 years old), female, Māori or Other ethnicity were more likely to say they were too busy to respond to the survey compared to the other responders.

Only 15% of New Zealand Europeans (making up 80% of the sample) said they were too busy compared to 53% of young, female, Māori or Other ethnicity responders.

**Table 3:** Responses to the follow-up survey.

|   | Follow-up responders               |            | Initial responders |
|---|------------------------------------|------------|--------------------|
|   | Raw %                              | Weighted % | %                  |
| <b>Question 1: When you had important questions to ask a doctor, did you get answers that you could understand?</b>                 |                                    |            |                    |
| Yes, always   | 76                                 | 76         | 72                 |
| Yes, sometimes  | 20                                 | 20         | 21                 |
| No  | 3                                  | 3          | 2                  |
| I had no need to ask  | -                                  | -          | 3                  |
| Not answered  | 1                                  | 2          | 1                  |
| <i>Chi-squared</i>  |                                    |            |                    |
| Unadjusted response categories  | $\chi^2=0.44437$ , df=2, p=0.8008  |            |                    |
| Combined "No" and "Yes, sometimes"  | $(\chi^2=0.1371$ , df=1, p=0.7110) |            |                    |
| <b>Question 2: Did a member of staff tell you about medication side effects to watch for when you went home?</b>                    |                                    |            |                    |
| Yes, completely   | 41                                 | 40         | 37                 |
| Yes, to some extent   | 15                                 | 15         | 22                 |
| No  | 12                                 | 14         | 16                 |
| I did not need an explanation   | 17                                 | 18         | 14                 |
| Not applicable  | -                                  | -          | 10                 |
| Not answered  | 15                                 | 13         | 1                  |
| <i>Chi squared</i>  |                                    |            |                    |
| $(\chi^2=4.4057$ , df=2, p=0.1105)  |                                    |            |                    |
| <b>Selected responses: Did a member of staff tell you about medication side effects to watch for when you went home?</b>            |                                    |            |                    |
| Yes, completely   | 48                                 | 46         | 41                 |
| Yes, to some extent   | 17                                 | 17         | 25                 |
| No  | 14                                 | 16         | 18                 |
| I did not need an explanation   | 20                                 | 21         | 16                 |
| <b>Question 3: Were you involved as much as you wanted to be in decisions about your care and treatment?</b>                        |                                    |            |                    |
| Yes, completely   | 75                                 | 75         | 66                 |
| Yes, to some extent   | 17                                 | 18         | 25                 |
| No  | 5                                  | 5          | 6                  |
| I was unable or did not want to be involved   | 2                                  | 2          | 2                  |
| Not answered  | -                                  | -          | 1                  |
| <i>Chi-squared</i>  |                                    |            |                    |
| $(\chi^2=5.1568$ , df=2, p=0.0759)  |                                    |            |                    |
| <b>Question 4: Did you feel you received enough information from the hospital on how to manage your conditions after discharge?</b> |                                    |            |                    |
| Yes, completely   | 59                                 | 60         | 55                 |
| Yes, to some extent   | 21                                 | 23         | 28                 |
| No  | 12                                 | 11         | 12                 |
| I did not need any help in managing my condition  | 8                                  | 6          | 4                  |
| Not answered  | -                                  | -          | 2                  |
| <i>Chi-squared</i>  |                                    |            |                    |
| $(\chi^2=3.05$ , df=2, p=0.2170)  |                                    |            |                    |

**Table 3:** Responses to the follow-up survey (continued).

| <b>Question 5: Overall, did you feel staff treated you with respect and dignity while you were in the hospital?</b> |                                     |    |    |
|---|-------------------------------------|----|----|
| Yes, always   | 81                                  | 83 | 84 |
| Yes, sometimes  | 14                                  | 13 | 12 |
| No  | 5                                   | 4  | 2  |
| Not answered  | -                                   | -  | 2  |
| <i>Chi-squared</i>  |                                     |    |    |
| Unadjusted response categories  | $(\chi^2=3.5782, df=2, p=0.1671)$   |    |    |
| Combined “No” and “Yes, sometimes”  | $(\chi^2=1.4193, df=1, p=0.2335)$   |    |    |
| <b>Question 6: Did you have confidence and trust in the nurses treating you?</b>                                    |                                     |    |    |
| Yes, always   | 81                                  | 81 | 68 |
| Yes, sometimes  | 15                                  | 14 | 13 |
| No  | 3                                   | 4  | 1  |
| Not applicable  | -                                   | -  | 1  |
| Not answered  | 1                                   | 1  | 16 |
| <b>Selected responses: Did you have confidence and trust in the nurses treating you?</b>                            |                                     |    |    |
| Yes, always   | 81                                  | 82 | 83 |
| Yes, sometimes  | 16                                  | 14 | 16 |
| No  | 3                                   | 4  | 1  |
| <i>Chi-squared</i>  |                                     |    |    |
| Unadjusted response categories  | $(\chi^2=3.5394, df=2, p=0.1704)$   |    |    |
| Combined “No” and “Yes, sometimes”  | $(\chi^2=0.051907, df=1, p=0.7624)$ |    |    |

**Table 4:** Reasons for not completing the Adult Inpatient Survey.

|  | n         | %         |
|--|-----------|-----------|
| Total people                               | 163       | 100       |
| People responding to question <sup>1</sup> | 161       | 99        |
| Total responses                            | 191       | 117       |
| <b>Don't remember/can't remember</b>       | <b>53</b> | <b>33</b> |
| <b>Social</b>                              | <b>49</b> | <b>30</b> |
| Too busy                                   | 31        | 19        |
| Bad timing                                 | 10        | 6         |
| Forgot to do it                            | 4         | 2         |
| Just didn't do it                          | 2         | 1         |
| Nothing untowards to report                | 1         | 1         |
| Old age                                    | 1         | 1         |
| <b>Objecting</b>                           | <b>8</b>  | <b>5</b>  |
| Negative feeling towards hospital          | 6         | 4         |
| Objected to survey content                 | 2         | 1         |



**Table 4:** Reasons for not completing the Adult Inpatient Survey (continued).

|  |           |           |
|--|-----------|-----------|
| <b>Medical reasons</b>                           | <b>16</b> | <b>10</b> |
| Medical condition intervened                     | 13        | 8         |
| Still needing more medical care                  | 3         | 2         |
| <b>Human-survey technology breakdown</b>         | <b>54</b> | <b>33</b> |
| Did not receive invite                           | 41        | 25        |
| Thought they had completed survey                | 7         | 4         |
| SMS survey attempted but not completed           | 3         | 2         |
| Too many solicitations                           | 1         | 1         |
| Filtered to spam                                 | 1         | 1         |
| Lost the paperwork                               | 1         | 1         |
| <b>Unwilling/unable to use survey technology</b> | <b>11</b> | <b>7</b>  |
| Not confident with SMS                           | 3         | 2         |
| Not confident with computers                     | 3         | 2         |
| Dislikes computers                               | 1         | 1         |
| Don't do online surveys                          | 1         | 1         |
| Don't do SMS surveys                             | 1         | 1         |
| Don't have computer                              | 1         | 1         |
| Don't trust phone interviews                     | 1         | 1         |

<sup>1</sup> The information was collected from two questions—"Why did you not take part in the survey?" and "Is there anything we could have done differently to make you take part?" Information that was not relevant to the question being asked was not reported. The questions were open-ended and participants could give as many responses as they liked.

## Discussion

This study contributes to the literature on survey non-response by following up directly with initial non-responders to an inpatient survey. We find that despite differences in the age and ethnic composition of initial and follow-up responders, responses do not appear significantly different between groups. Our results align with previous New Zealand research suggesting younger age-groups<sup>8,22</sup> and Maori<sup>8,11,22</sup> are associated with non-response, and supplements sociodemographic, longitudinal and early-and-late responder study designs with evidence of direct follow-up with non-responders. The most common reasons for non-response were reportedly not receiving the invite or being too busy, although a notable group reported they could not recall why they had not responded. The reliability and generalisability of these findings are subject to a number of caveats, as follows.

The reliance on convenience-sampled data is a notable limitation of this study, exacerbating the issue of non-random bias in study participation by further selecting easy-to-reach participants. The data are hence limited in assessing the true extent of non-response bias, particularly among those theory would predict are most likely to have extreme values.<sup>9,10</sup> The small sample size and associated limited statistical power of the follow-up group represents another data limitation, although this somewhat ameliorated through pooling of small subgroups and sensitivity analyses. While population weighting is a commonly applied solution to issues of non-representation, previous empirical analysis in New Zealand demonstrates that weighting procedures may still underestimate extreme behaviours by simply magnifying unrepresentative values for small subpopulation groups rather than more comprehensively representing those who did not respond.<sup>8</sup> However, in this

study repeating the analyses unweighted did not change the interpretation of results.

Another source of potential bias arises from modality effects. Initial survey respondents answered primarily online, with those who were not available to contact through email responding via post, while the equivalent questions in the follow-up survey were undertaken either online or via phone. While mixed-modality methods were chosen to maximise response rates among harder-to-reach groups and reduce non-response bias<sup>39</sup>, error may be introduced if there are systematic differences in response behaviour associated with different modalities, as the literature suggests.<sup>40,41</sup> For example, the over-sampling of New Zealand Europeans may have partially resulted from correlations with the survey distribution methods. Access to the preferentially-selected email and SMS technologies has historically been differentially distributed among ethnicities in favour of New Zealand Europeans.<sup>35</sup> However, very few follow-up respondents indicated that technology was a barrier. Finally, the non-equivalent psychosocial dynamics of responding to an initial survey versus responding to follow-up may have introduced some degree of measurement error.

Self-reported data are subject to a well-studied range of limitations, including failure to accurately recall events, a tendency to present ones' self positively, and a tendency to withhold sensitive information.<sup>42</sup> Recall bias seems likely in this study given a third of follow-up participants reported they could not recall why they did not participate, despite the fact that this study followed up with participants within a month, which is a similar<sup>29</sup> or shorter<sup>43</sup> timeframe than other follow-up studies. Alternatively, participants might feign poor memory to avoid disclosing a sensitive or socially undesirable reason for non-participation, such as having little interest in participating.<sup>42</sup>

The notable proportion of follow-up responders claiming they did not receive the survey invitation (25% of those who

responded to the question) may be indicative of technical issues in survey distribution. If these individuals did not in fact receive a survey invitation, then they may behave more like responders than non-responders, thereby biasing the composition of each group. To test whether these ambiguous non-responders constituted a problem, we removed them from the dataset and re-ran the analyses. This made little change to the results and, more often than not, the change made the amended non-responder group more like the responder group.

The reason for non-response with the most substantive implications for survey design was being too busy (19%). This finding is in line with previous research, which suggests participants report being too busy due to "lack of time to dedicate to a topic seen as low priority, overestimated perception of time for study commitments and the inappropriate timing of the request"<sup>43</sup> (p. 57). In the framework of leverage-salience theory, future iterations of the survey should seek to reduce the salience of perceived time costs given the presumed negative correlation with response propensity.

In light of the above discussion, the findings of this study can contribute modest evidence of similarities in response behaviour between initial and follow-up responders but does not enable confident inference into residual non-responders. While theory would suggest follow-up responders are likely to be more similar to the remaining non-responders than those who responded to the initial survey request,<sup>9</sup> the data are insufficient to draw strong inferences into their likely behaviour. Future monitoring of inpatient experience undertaken by the Health Quality & Safety Commission and other sources should track and compare patients by the number of attempts made to contact participants in line with continuum of response methods, to allow broader inferences to be made about the total pool of non-responders. Case studies of groups who are least likely to respond to surveys could elucidate whether their patient experience pathways diverge from those of survey responders.

**Competing interests:**

Nil.

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