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Exploring engagement with web-based surveys by New Zealand medical student and junior doctor

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Abstract

Introduction: Response rates to surveys of medical students and junior doctors have not previously been explicitly examined. Reasons for the observed response rates have not been scrutinised. The aims of the present study were to establish an expected response rate to electronic survey among medical students and junior doctors, and to explore reasons behind non-response.

Methods: A follow-up online survey was sent to 93 medical students and junior doctors. The primary method for participants to complete the survey was via the Internet using a well-known and established survey tool. Descriptive and inferential statistics were used to assess response rates and reasons for non-response.

Results: Out of 93 invited medical students and junior doctors, 47 returned the follow-up survey (response rate = 50.5%). The main reasons for non-response were: there were too many surveys (74.4%), lack of time (25.5%), and the original survey being too long (10.6%).

Conclusion: We found a mediocre response rate (50.5%) to electronic surveys by medical students and junior doctors included in this study. Several factors that may impede response to surveys (survey-related, and participant-related) have been identified, and these may be specifically targeted to improve survey response rates.

Keywords: *Medical Student, Survey, Response Rate, Research, Methodology*

I. INTRODUCTION

Surveys offer an important method of collecting quantitative data from physicians and medical students on various aspects of medical and clinical research. The ease and convenience of online and web-based surveys (compared with telephone or face-to-face interviews) should theoretically enhance response rates. However, the ideal method of surveying the medical workforce (which would yield a high rate of and representative responses) is yet to be identified.

Physicians have traditionally been reported to have poor response rates to surveys in general. Studies that have specifically assessed response rates to surveys among physicians revealed overall rates of 35–50% (Cunningham et al., 2015). Response rates to surveys and reasons for non-response by medical students and junior doctors have seldom been specifically examined. Previous response rates to the National Physician Survey in Canada reported response rates of approximately 28–35% by medical students and junior doctors (Grava-Gubins & Scott, 2008), although these data are almost two decades old now.

Several reasons for non-response emerge from reviewing the pertinent literature; these can be divided into: survey-factors, and respondent-factors. Survey-factors include the length of the questionnaire (Grava-Gubins & Scott, 2008), perceived interest in and sensitivity of the surveyed topic (Cunningham et al., 2015), and the mode of survey delivery (i.e., electronic, telephone or face-to-face) (Grava-Gubins & Scott, 2008; Weaver et al., 2019). Several incentives have been instigated in order to improve response rates by addressing some of these survey-factors, including utilising electronic surveys that can be completed in more than one setting (at the

participants' convenience)(Weaver et al., 2019), monetary gifts or "educational credit" for participation (Grava-Gubins & Scott, 2008; Viera & Edwards, 2012), and employing internal "buy in" from a respected member of the intended sample (e.g., senior clinician or head of department) (Akl et al., 2011). Respondent-factors for non-response include lack of time, demographic differences, and the specialty of the respondent.

The aims of the present study were to establish an expected response rate to electronic survey among medical students and junior doctors, and to explore reasons behind non-response. No previous study has focused on medical students and junior doctors (i.e., junior medical workforce); therefore, addressing these issues would help fill several gaps in our knowledge.

II. METHODS

A. Study Setting

A previous study (Alamri et al, *in press*) invited all medical students at the University of Otago, and junior doctors at the Christchurch Hospital (both in Christchurch, New Zealand), to complete an electronic 'index questionnaire' on their research activities. The overall response rate of the original survey was 36% despite employing an online survey, several reminders and monetary gift vouchers.

B. Study Participants and Instrument

For the present study, eligible participants were medical student and junior doctor who had started the 'index questionnaire', but never completed it. The identified 'non-responders' were then invited to a secondary follow-up survey which was sent after the allotted time-period for the index questionnaire had lapsed (August–September 2018).

The follow-up survey was intentionally designed to be very brief, and based upon previous similar surveys (Cunningham et al., 2015). It only included four questions: participant age and sex, current career, and "what were the reasons for not completing [the index questionnaire]?".

C. Statistical Analysis

Descriptive statistics (means ± standard deviations, and percentages) were used to analyse most of the data. Comparisons between medical students and junior doctors (two sub-populations with different responsibilities and time commitments) were conducted using Chi-square analyses for categorical values (e.g., sex, and entry to medical school), and Mann-Whitney U test for nonparametric continuous variables (e.g., age). Statistical significance was determined if type I error rate was < 5% (p-value < 0.05). All analyses were performed using the Statistical Package for Social Sciences software (SPSS Statistics®, version 22.0.0.0).

III. RESULTS

A. Study Participants

A total of 93 eligible participants were identified as potential participants. Following electronic invitation, 47 returned the follow-up survey (response rate: 47/93 = 50.5%). Two thirds (31/47; 66%) of the respondents were female. The median age was 23 years (range, 19–42). Most of the respondents (40/47, 85.1%) were medical students (see Table 1).

	Medical students	**Junior doctors**	***p* value**
N	40	7	
Sex (% male, standard error)	40% (0.08)	22% (0.09)	0.15
Age (mean, SD)	21.2 ± 3.7	24.9 ± 5.5	0.01
Entry to medical school (% post-graduate)	71.8%	59.1%	0.33

Table 1. Summary of participant data

B. Non-Response Survey Findings

Reasons for non-response varied among the participants. The most common reasons included: there were too many surveys (74.4%), lack of time (25.5%), the original survey was too long (10.6%), participant erroneously thought they had completed the survey (8.4%), and participant did not think they were eligible (2.1%). Of note, two of the participants (4.3%) responded unfavourably to the offer of the follow-up survey, finding it annoying and offensive.

IV. DISCUSSION

The response rate to the follow-up survey was 50.5% which was lower than anticipated. Non-responders to the index questionnaire were re-contacted to explore reasons behind the observed low response rate. The most common cited reasons were there were too many surveys requests ('survey fatigue'), and lack of time. Just under 10% of participants had genuinely thought that they completed the original survey, which may indicate an underlying technical problem/lack of clarity. These reasons generally echo those voiced by physician

specialists when asked about their response rates (Cunningham et al., 2015), although no studies have examined these reasons in medical students or junior doctors.

Only a handful of previous studies have specifically examined the rates of survey response by medical students and junior doctors. Canadian medical students had response rates of 30.8–31.2% to an electronic version of the Canadian National Physician Surveys in 2004 and 2007 (Grava-Gubins & Scott, 2008). From our experience over several studies in New Zealand, the average response rate from medical students seems to be around 30–35% (Alamri et al, *in press*). Response rates from junior doctors seem to be even lower, with 27.9–35.6% response rates in Canada (Grava-Gubins & Scott, 2008), and 24.9% in New Zealand (Alamri et al, *in press*). The range of response rates to surveys by junior doctors varies significantly—at least in part due to the fact that some of the surveys were compulsory to complete (thus, resulting in very high response rates).

Whilst a survey's response rate ought not be the sole judge of the study's validity (Cunningham et al., 2015), it is important to understand the reasons behind low survey response rates. We are unaware of any studies that have examined reasons for students' survey non-response, or factors that would influence them. On the other hand, several randomised trials examined the effect of various factors on the response rates by physicians. Factors that increased response rates by physicians included: contact by regular mail (Akl et al., 2011) (although this finding was inconsistent among studies (Viera & Edwards, 2012), and the availability of the survey in several local languages (Grava-Gubins & Scott, 2008). Factors that worsened response rates included: offering continuing medical education credits for completing a survey (Viera & Edwards, 2012), and surveys on sensitive topics (Cunningham et al., 2015). Finally, factors that had no influence on response rates included: length of the survey (Akl et al., 2011), the day of invitation to the survey (Akl et al., 2011), and monetary compensation for participation (Akl et al., 2011).

V. CONCLUSION

Our findings generally reflect those reported in the literature of the response rates to research surveys by medical professionals; these seem to vary between 25 and 50% (usually at the lower end for junior doctors/medical students, and the higher end for specialists). Several factors that impede response to surveys (survey-related, and participant-related) have been identified, including the number of surveys sent to medical professionals, and the general lack of time.

The current study was limited by the relatively small number of participants, and by the fact that it originates from a single centre in New Zealand which may limit its generalisability. However, it provides a unique perspective by targeting survey non-responders (i.e., the population of interest), offers recent and updated data, and corroborates findings from previous studies in other settings/countries.

Finally, it is imperative to acknowledge that a high response rate may not necessarily be the panacea to the perfect survey study. How factors can be manipulated in order to yield higher response rates remains to be answered. One solution could be the implementation of an advisory body that provides guidance to researchers about how to design surveys, and regulates the number of survey invitations received by medical professionals in order to avoid 'survey fatigue'.

Notes on Contributors

The sole author conceived the idea, collected and analysed the data and wrote the manuscript.

Ethical Approval

This study was approved by the University of Otago Human Ethics Committee (reference D18/207). All participants provided consent on the electronic survey form.

Data Availability

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request after completion of data publication as this remains a work in progress.

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Declaration of Interest

The author declares no conflicts of interest, including financial, consultant, institutional and other relationships that might lead to bias or a conflict of interest.

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