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## Comparison of online and paper survey participation rates in a child health survey by parents of secondary school students

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Schools are a valuable setting for health research, particularly among adolescents. Parent participation in adolescent health research is important, as parental behaviour, opinions and the home environment context are determinants of adolescent health.<sup>1-3</sup> Schools provide almost universal access to parents and so are one of few opportunities to recruit research participants from a sample frame representative of the population. Participation rates of parents recruited through schools is often low (between 58% and 77%).<sup>2</sup> Rates below 80% can increase the risk of non-response bias<sup>4</sup> due to selective non-participation, affecting the precision of prevalence estimates and the generalisability of study findings.

While a number of studies and reviews have examined the impact of strategies to increase student participation in school-based health research, examination of efforts to maximise parental participation in research has been largely overlooked.<sup>2,5</sup> To date, most school-based studies requiring parent participation have used pen and paper surveys requiring parents to complete them and return them in a replied paid envelope or via students. Offering a greater range of opportunities for survey completion may increase participation rates and reduce non-response bias. The completion of surveys online represents one low-cost alternative that may improve participation rates.<sup>6</sup>

We are not aware of any studies comparing participation rates of parents of secondary school children across survey modalities. Additionally, the relationships between modality of survey completion and participant characteristics has not been examined. Such information is important to assess potential bias that might be introduced via different survey modalities.

This study was conducted to describe:

- the participation rate of parents in a survey of adolescent health when given opportunities to complete by either pen and paper or online;
- differences in the participation rate of surveys by modality;
- differences in the characteristics of participants by modality.

### Methods

We invited all parents of children in Years 7 to 10 attending schools participating in a cluster-randomised controlled trial of a universal school-based resilience intervention program<sup>7</sup> to participate in a survey. All parents were provided with both pen and paper and online survey options.

The pen and paper survey and instructions for accessing a web-based version of the survey was sent by post to 13,665 parents of children attending 32 secondary schools in one Local Health District of New South Wales, Australia. The information pack included reply paid envelopes for pen and paper survey return. Data from the online survey completion was automatically returned to the research team on survey completion. Parents were additionally provided information about the study through school newsletters prior to study information being mailed. The survey collected data on parent demographic characteristics (gender, residential postcode, and Aboriginality) and parental views regarding the factors within their child's

school that affect the health and wellbeing of their child (e.g. safety, teacher support, health and wellbeing curriculum). Residential postcode was used to calculate area-level participant socioeconomic disadvantage<sup>8</sup> and geographic location.<sup>9</sup> Chi square analyses compared participation rates by survey completion modality and by participant demographic, socioeconomic and geographic characteristics.

### Results

Of 13,665 eligible parents, 1,538 (11.3%) completed the parent survey, with more parents completing the pen and paper version than the online version (10.2% and 1.1% respectively,  $p < 0.0001$ ), see Table 1.

### Conclusion

Irrespective of the modality of survey completion, response rates to the child health survey were low and reflect the difficulty in engaging parents of secondary school students in surveys regarding the health and wellbeing of their children at school. Similar to research in other populations,<sup>6</sup> significantly more parents completed the pen and paper than the online version of the survey. While no differences were found in modality by parent gender, socioeconomic disadvantage or geographic location, none of the online participants were Aboriginal. Such results suggest that information packs mailed to Aboriginal parents may not be the most effective strategy in supporting Aboriginal parent participation in online surveys.

**Table 1: Parental participation rates by survey modality and demographic characteristics.**

	Pen and paper – n=1,392 % (95% CI)	Online – n=146 % (95% CI)	p value
Participated	10.2 (9.7–10.7)	1.1 (0.9–1.2)	<0.0001
Male	12.4 (10.6–14.1)	12.3 (7.0–17.7)	0.9
Female <sup>a</sup>	87.6 (85.9–89.4)	87.7 (82.3–93.0)	
Aboriginal parent <sup>b</sup>	3.3 (2.4–4.3)	0 (0–0)	0.018 <sup>d</sup>
non-Aboriginal parent	96.7 (95.7–97.6)	100.0 (100.0,100.0)	
Socio-economic disadvantage <sup>c</sup>			
Low	54.5 (51.9–57.1)	50.7 (42.6–58.8)	0.4
High	45.5 (42.9–48.1)	49.3 (41.2–57.4)	
Geographic location <sup>a</sup>			
Major cities	33.8 (31.3–36.3)	41.1 (33.1–49.1)	0.2
Inner regional	29.2 (26.8–31.6)	28.8 (21.4–36.1)	
Outer regional/remote	37.0 (34.4–39.5)	30.1 (22.7–37.6)	

a: 8 missing; b: 19 missing; c: 9 missing; d: Fisher exact test

The authors have stated the following conflict of interest: Associate Professor Luke Wolfenden is a current ANZJPH editor.

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While the results suggest pen and paper surveys yield greater participation in child health surveys by parents of secondary school students than online surveys, the poor overall response rate suggest other modalities (such as telephone surveys or school-based mobile phone applications) or additional strategies (such as prompts or incentives) are required to obtain acceptable levels of participation.

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