

# Assessing the potential to combine attitude tracking and health campaign evaluation surveys

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## Abstract

**Issue addressed:** Online surveys are becoming increasingly popular in health research because of the low cost and fast completion time. A large proportion of online survey costs are allocated to setup and administration expenses, which suggests that conducting fewer, longer surveys would be a cost-effective approach. The current study assessed whether the incorporation of a health campaign evaluation survey within a longitudinal attitudes and behaviours tracking survey produced different outcomes compared with the separate administration of the evaluation survey.

**Methods:** Data were collected via an online panel, with 688 respondents completing the combined survey and 657 respondents completing the evaluation-only survey. Regression analyses were conducted to examine whether survey type was related to the campaign evaluation results.

**Results:** Those who completed the combined survey perceived the campaign advertisement to be more personally relevant than those completing the evaluation-only survey. There were no differences in results relating to campaign awareness and reported behavioural change as a result of campaign exposure.

**Conclusions:** There were minimal differences between results obtained from combining an attitude/behaviour tracking survey with a campaign evaluation survey. Any priming or order effects were limited to respondents' cognitive responses to the advertisement.

**So what?** The results suggest that health practitioners with limited resources available for tracking and evaluation research may be able to maximise outcomes by administering fewer, longer surveys.

**Key words:** online survey, priming, questionnaire design, survey length.

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## Introduction

Survey research is routinely conducted in health-related areas to obtain information regarding condition prevalence rates, health behaviours and responses to interventions.<sup>1–3</sup> Online surveys are increasingly being used for such research because of lower costs and faster completion times relative to other forms of data collection.<sup>4</sup> A large proportion of online survey costs are allocated to setup and administration expenses, which suggests that conducting fewer, longer surveys would be a cost-effective approach. However, previous research examining other survey modalities (e.g. telephone and mail) indicates that longer survey length can be detrimental to data quality.<sup>5</sup>

A potential issue when combining or lengthening surveys is priming effects. These effects occur when an idea or concept from an earlier question is stored in short-term memory and accessed

when answering subsequent questions.<sup>6</sup> In various fields of research, survey responses have been found to differ as a function of the presentation context (e.g. formatting and graphics) and order in which the questions are asked.<sup>7–12</sup> In the context of health, two recent studies found that the order of questions significantly influenced self-rated health such that including preceding questions about chronic or mental health increased the likelihood of reporting better health status.<sup>13,14</sup>

Another consideration is respondent fatigue. Longer online surveys have generally been found to result in lower response rates,<sup>5,15–18</sup> greater provision of shorter and 'don't know' responses<sup>5,16</sup> and higher non-completion rates.<sup>5</sup> There may therefore be substantial disadvantages associated with merging health surveys to administer a smaller number of longer surveys.

The aim of the present study was to investigate whether incorporating attitudinal and behavioural tracking items with a campaign evaluation survey produces different outcomes compared with the separate administration of the campaign evaluation survey. Should the combination result in minimal differences to the evaluation survey outcomes, health researchers may be able to administer fewer, longer surveys to conserve limited resources.

As part of an ongoing evaluation of a sun exposure health promotion campaign, annual surveys are conducted to assess Western Australians' sun protection knowledge and behaviours and their awareness of the television advertisements that run each summer. Historically, a single questionnaire has been used that includes general attitude/behaviour items relating to sun exposure and items specifically assessing the effectiveness of the sun exposure awareness campaign being aired at the time (the 'long' survey). To assess whether this combination of items influences respondents' answers to the campaign evaluation questions that appear at the end of the survey, the evaluation items were also administered separately to a different sample in the summer of 2014/15 (the 'short' survey).

## Method

### Respondents

Respondents were recruited to complete the surveys via an online panel. The panel included ~200 000 Australians who are broadly representative of the general population. The web panel provider was instructed to recruit 1200 Western Australian respondents, half of whom were randomly allocated to the long survey and half to the short survey.

For both surveys, quotas were stipulated in an attempt to recruit a sample characterised by (i) an equal representation of males and females, (ii) an even split between adolescents aged 14–17 years and adults aged 18–45 years, and (iii) a 70% metropolitan, 30% country split. Australian adolescents and younger adults were overrepresented in the sample because they are the primary target audience for sun exposure awareness messages due to the increased risk of skin cancer from sun exposure earlier in life.<sup>19</sup>

### Procedure

Data collection for both surveys occurred immediately following the conclusion of the health promotion campaign in January and February 2015. Both the long and short surveys were delivered to respondents in an online format. Approval for the study was obtained from the Curtin University Human Research Ethics committee.

### Measures

The long survey had a total of 98 items including the general attitude/behaviour items and items assessing the effectiveness of the campaign. The short survey included 51 of the same items relating to demographic characteristics, campaign evaluation and

general information collected for the Cancer Council WA. The present study focused on the responses to 18 items related to the campaign evaluation included in both surveys, from which 11 outcomes were assessed. All respondents provided information on demographic characteristics.

Unprompted awareness of the campaign was assessed by asking respondents if they had seen any advertising about sun protection in recent weeks. Those who recalled seeing an advertisement were asked to describe it, and the descriptions were analysed to determine if it was the advertisement of interest. To assess prompted awareness, respondents who did not mention the advertisement were shown a picture from the ad and asked if they had seen it in recent weeks. Total awareness was measured by combining the number of respondents who were aware (unprompted or prompted) of the advertisement.

Respondents who were aware (unprompted or prompted) of the advertisement were asked on a 4-point Likert scale how believable and personally relevant they found it, and to what extent seeing the advertisement influenced their awareness, understanding, and use of the ultraviolet (UV) index. In addition, aware respondents were asked if seeing the advertisement had made them more/less likely to use sun protection or check their skin regularly. Finally, respondents were asked on a 5-point Likert scale whether seeing the advertisement made them change the time they were outdoors.

### Data analysis

Chi-square tests were conducted to test for differences between the two samples on demographic variables. All demographic variables were subsequently included as categorical covariates in the multivariate analyses to control for any associated variance. Three binary logistic regression analyses were conducted to test for any differences in campaign awareness between the two survey samples. Eight ordinal regression analyses were used to examine whether survey type was related to reported believability, personal relevance, and the behavioural indicators of the campaign. In all regression models, the long survey sample served as the reference group. Due to the large number of analyses conducted, Bonferroni corrections were applied. This made the criterion for significance a *P*-value less than or equal to 0.003.

## Results

The online panel provider was unable to deliver the required sample in terms of the quota specifications. As a result, females and metropolitan residents were overrepresented in both surveys. Table 1 shows the sociodemographic characteristics of respondents surveyed. In total, 688 respondents (338 adolescents, 350 adults) completed the long survey and 657 respondents (324 adolescents, 333 adults) completed the short survey. The average completion times for the short and long surveys in

**Table 1. Sociodemographic characteristics of survey respondents by survey length**  
d.f., degrees of freedom

	Short survey		Long survey		Comparison
	N	n (%)	N	n (%)	
<i>Gender</i>	657		688		$\chi^2 = 0.518$ , d.f. = 1, $P = 0.471$
Male		257 (39.1)		256 (37.2)	
Female		400 (60.9)		432 (62.8)	
<i>Age group</i>	657		688		$\chi^2 = 0.005$ , d.f. = 1, $P = 0.945$
14–17 years		324 (49.3)		338 (49.1)	
18–45 years		333 (50.7)		350 (50.9)	
<i>Location</i>	657		688		$\chi^2 = 0.073$ , d.f. = 1, $P = 0.787$
Metro		547 (83.3)		569 (82.7)	
Country		110 (16.7)		119 (17.3)	
<i>Socioeconomic status<sup>A</sup></i>	651		673		$\chi^2 = 0.071$ , d.f. = 2, $P = 0.965$
Low		48 (7.4)		48 (7.1)	
Medium		310 (47.6)		325 (48.3)	
High		293 (45.0)		300 (44.6)	
<i>Marital status</i>	656		687		$\chi^2 = 2.767$ , d.f. = 2, $P = 0.251$
Never married		552 (84.1)		563 (82.0)	
Married		96 (14.6)		108 (15.7)	
Separated/Divorced/Widowed		8 (1.2)		16 (2.3)	
<i>Education</i>	656		686		$\chi^2 = 8.354$ , d.f. = 4, $P = 0.079$
Primary school		4 (0.6)		7 (1.0)	
Secondary school		400 (61.0)		386 (56.3)	
Certificate/diploma		93 (14.2)		105 (15.3)	
University degree		138 (21.0)		146 (21.3)	
Other		21 (3.2)		42 (6.1)	
<i>Current form of employment</i>	657		688		$\chi^2 = 4.814$ , d.f. = 4, $P = 0.307$
Full-time		106 (16.1)		133 (19.3)	
Part-time/Casual		159 (24.2)		148 (21.5)	
Away from work		12 (1.8)		19 (2.8)	
Student		327 (49.8)		340 (49.4)	
Unemployed		53 (8.1)		48 (7.0)	
<i>Main language spoken at home</i>	656		688		$\chi^2 < 0.001$ , d.f. = 1, $P = 0.987$
English		598 (91.2)		627 (91.1)	
Other		58 (8.8)		61 (8.9)	

<sup>A</sup>As per the Australian Bureau of Statistics' Socioeconomic Indexes for Areas.<sup>20</sup>

**Table 2. Binary and ordinal logistic regression models testing for differences between the two surveys**

The reference group was the long survey. All models control for age, gender, location, socioeconomic status, marital status, education, employment and main language spoken at home. UV, ultraviolet; s.e., standard error; OR, odds ratio; CI, confidence interval. Bonferroni adjusted significance level is  $P \leq 0.003$

	N	Estimate	s.e.	OR	95% CI	P-value
<i>Dichotomous variables</i>						
Unprompted awareness	1318	0.081	0.115	1.085	0.866–1.358	0.478
Prompted awareness	795	0.002	0.145	1.002	0.753–1.331	0.992
Total awareness	1318	0.053	0.126	1.054	0.824–1.348	0.675
<i>Categorical variables</i>						
Believability	951	0.257	0.130	1.293	1.002–1.670	0.048
Personal relevance	951	0.459	0.126	1.582	1.235–2.028	<0.001
Use sun protection	907	0.178	0.134	1.195	0.919–1.556	0.185
Check skin regularly	904	0.072	0.137	1.075	0.822–1.406	0.598
Understand UV index	797	0.269	0.138	1.309	0.998–1.714	0.052
Aware of the UV index	724	0.090	0.143	1.094	0.827–1.446	0.528
Use the UV index	843	0.230	0.127	1.259	0.982–1.614	0.070
Change time outdoors	951	0.215	0.126	1.240	0.967–1.589	0.089

the current study were 19 and 26 minutes, respectively. When compared on demographic attributes, no significant differences were observed between the two samples (see Table 1).

There were no significant differences between the two samples for unprompted, prompted or total awareness of the advertisement (see Table 2). Long survey respondents were 1.6 times more likely

to rate the advertisement as personally relevant compared with short survey respondents, but there was no significant difference for believability (see Table 2). Finally, there were no significant differences by survey type on any of the behavioural indicators measured (see Table 2).

## Discussion

The present study assessed whether including an online campaign evaluation survey with a longitudinal attitudes/behaviour tracking survey resulted in different evaluation outcomes relative to separate administration of the evaluation survey. Of concern was whether the increased length of the instrument and the potential priming effects of exposure to sun protection items earlier in the instrument would contaminate the evaluation results.<sup>5,16</sup> Across all the evaluation items, a significant difference was found only for the personal relevance of the campaign advertisement; those completing the long survey perceived it to be more personally relevant than those completing the short survey. There were no differences in results associated with campaign awareness, campaign believability and reported behavioural change as a result of campaign exposure.

It appears that combining the two surveys did not result in substantial differences in campaign evaluation outcomes. Any priming or order effects from earlier exposure to sun protection items were limited to respondents' perceived personal relevance of the advertisement. Additionally, the length of the survey did not appear to negatively affect the responses provided. It is possible the long survey was not adequately lengthy to induce effects from fatigue or boredom. Studies finding a negative relationship between survey length and responses have typically involved instruments taking more than 30 minutes to complete.<sup>5,16,18</sup> Therefore, simultaneous collection of data may be successfully achieved without disproportionately changing the results with surveys that can be completed in under half an hour.

This study has limitations that could be addressed in future research. First, the use of an online panel prevented the calculation of survey response rates. Some panel members access the surveys through the panel provider's website, as such it is not possible to quantify the number of individuals who may have been exposed to the survey and an accurate response rate cannot be determined. Second, the results of the present study may not generalise to other contexts. Further research is needed to assess whether separate surveys on other health-related topics can be effectively combined into single instruments to reduce overall data collection costs.

## Conclusion

This study found minimal differences in results obtained from combining an attitude/behaviour tracking survey relating to sun exposure with a sun protection campaign evaluation survey.

The results indicate that health practitioners with limited funding available for tracking and evaluation research may be able to maximise outcomes by administering fewer, longer surveys.

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