Improving the reliability of self-reported attribute non-attendance behaviour through the use of polytomous attendance scales

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Introduction

Choice experiments are used to discover preferences for goods and services which can be described as bundles of attributes by asking individuals to choose between bundles. We assume they pay attention to all the attributes, but they may not, potentially biasing and invalidating results.

Example choice set with ignored attributes

	Program A	Program B
Program location	Workplace	Community center
Weekly weight control goal	Losing 2 lbs	Attending weekly weigh-ins and turning in records of diet and exercise
Weekly reward available	$9	$2
Payment frequency	Once at end of program	Weekly
Payment form	Pre-paid gym pass	Healthcare debit card
Total reward available in program	$9 × 24 wks = $216	$2 × 24 wks = $48

Despite its prevalence and importance, **attribute non-attendance** behaviour is difficult to identify. Self reports have been criticized for disagreeing with theoretical expectations and inferred attendance behaviour.

5 How frequently did you consider each of the following program characteristics when choosing weight control programs in the previous four questions?
Please rate how frequently you considered each aspect of the incentive by checking one box for each aspect on the following 7-point scale.

		Never	←		→		Always
a)	Program location	1	2	3	4	5	6
b)	Weekly weight control goal	1	2	3	4	5	6
c)	Weekly reward available	1	2	3	4	5	6
d)	Payment frequency	1	2	3	4	5	6
e)	Payment form	1	2	3	4	5	6
f)	Total reward available	1	2	3	4	5	6

Polytomous attendance scales may have the potential to increase the reliability of self-reported attendance behaviour compared to the dichotomous scales used in previous studies. They may lessen social desirability bias, reduce conflation between low and zero preferences, and allow varying attendance over choice tasks.

The objective of this study is to assess whether polytomous attendance scales improve the reliability of self-reported attendance behaviour.

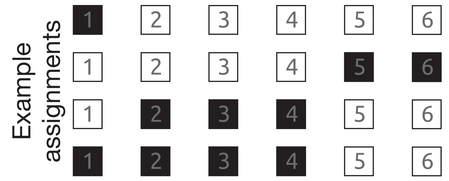
Data

We conducted a choice experiment in late 2011 and early 2012 on financial incentives for a behavioural weight loss program. We recruited obese and overweight individuals among the patients of Carilion Clinic, a healthcare organization in southwest Virginia (671 respondents, 49% response rate).

Methods

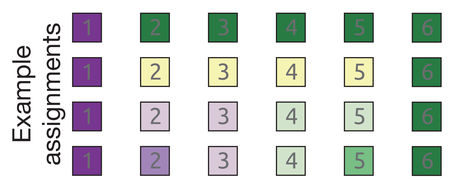
Models constrained by stated attendance

Here, "ignored" attributes are assumed to have zero effect on choice. For each model, a different set of attendance levels that are assigned to "ignored".



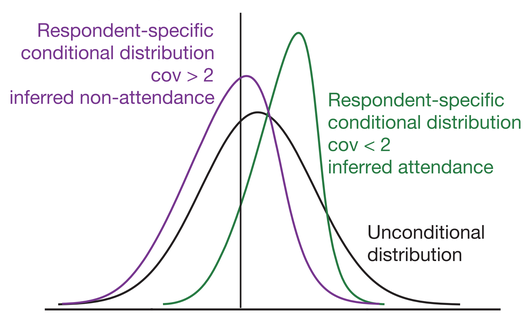
Models unconstrained by stated attendance

Here, interactions allow attribute preferences to vary by attendance level. For each model, attendance levels are mapped differently to the points of the original six-point attendance scale.



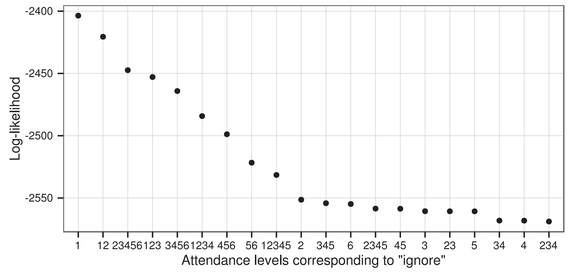
Inferred attendance

We infer attendance from preference distributions conditioned on an individual's responses. Non-attendance is inferred when the coefficient of variation of the respondent-specific conditional distribution is greater than two.



Results

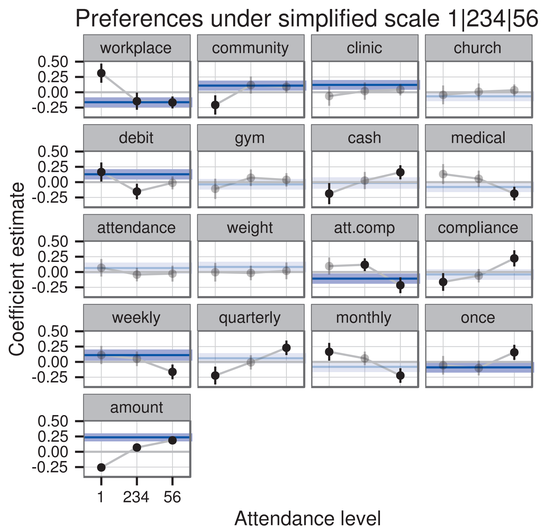
Models constrained by stated attendance



The models achieving the best fit assign, respectively, point 1 and points 1 and 2 to "ignored". This result matches with a priori expectations based on the wording of the attribute non-attendance question.

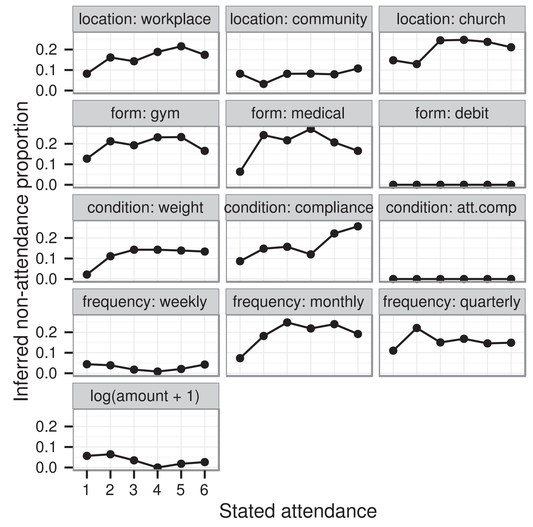
Models unconstrained by stated attendance

The best fitting models simplify the original six-point scale to two- and three-level attendance scales. The simplified scales are not significantly different from the original six-point scale, suggesting that the six-point scale is no more informative than the simplified scales.



Non-attendance should correspond to zero effect. As attendance level increases, there should also be an upward (downward) trend in preference intensity for positively (negatively) preferred attributes. However, we do not see this trend for most attribute preferences.

Inferred attendance



If inferred attendance were consistent with stated attendance, then the rates of inferred non-attendance should decrease with higher stated attendance. However, we do not see this trend for any of the attribute preferences.

Conclusions

- The six-point attendance scale is no more informative than the simplified two- and three-level scales, suggesting that a dichotomous or trichotomous scale may be sufficient.
- The simplified scales do not provide consistency with either theoretical expectations or inferred attendance behaviour, suggesting that polytomous attendance scales did not improve the reliability of self-reported attendance behaviour.

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