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Brief report
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The Impact of Asking About Interest in Free Nicotine Patches on Smoker's Stated Intent to Change: Real Effect or Artefact of Question Ordering?

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Abstract

Introduction: Stage of change questions are often included on general population surveys to assess the proportion of current smokers intending to quit. The current study reported on a methodological experiment to establish whether participant's self-reported stage of change can be influenced by asking about interest in free nicotine patches immediately prior to asking about intent to change.
Methods: As part of an ongoing random digit dialing survey, a randomized half of participants were asked if they would be interested in receiving nicotine patches to help them quit smoking prior to being asked whether they intended to quit smoking in the next 6 months and 30 days.
Results: Participants who were first asked about interest in free nicotine patches were more likely to rate themselves as in preparation for change (asked first = 33%; not asked first = 19%), and less likely to rate themselves as in the precontemplation stage of change (asked first = 34%; not asked first = 47%), compared with participants who were not asked about their interest in free nicotine patches prior to being asked about their stage of change ($P < .001$).
Conclusions: There are several possible explanations of the results. It is possible that offers of free nicotine patches increases smokers intentions to quit, at least temporarily. Alternatively, smokers being asked about interest in free nicotine patches may expect that the researchers would like to hear about people intending to quit, and respond accordingly.

Introduction

Asking about smoker's intent to change is a common question in epidemiological surveys focusing on smoking cessation. The most common format is probably the stage of change algorithm, where current smokers are asked nested questions about intent to quit in the next 6 months and in the next 30 days.[1,2] These questions are regarded as indicators of the extent to which those surveyed are likely to stop smoking in the near future and, in fact, have some predictive validity of this outcome.[3]

One possible concern associated with the measurement of intent to change in smokers is the potential for what has been called demand characteristics,[4,5] in which some smokers might regard a stated intent to quit as a response preferred by the researchers, and shape their answers accordingly. There is a literature on question-order effects, demonstrating that earlier questions can change responses to later questions,[6] and create new thinking in so doing.[7] Systematic reviews on mere measurement or assessment

reactivity effects provide evidence that, at least in certain circumstances, answering questions produces small effects on subsequent behavior, with objectively ascertained outcomes in some studies.[8–11] The current study investigated the impact of question order on smokers' stated intent to change; assessing whether asking about interest in free nicotine patches before asking about intent to change might have an impact on the proportion of smokers who stated they were thinking about quitting. Asking questions about future intentions has been identified as particularly likely to give rise to subsequent reactivity effects.[12,13]

Methods

This study took advantage of a random digit dialing survey used to recruit participants for a randomized controlled trial examining the impact of mailing free nicotine patches to smokers interested in receiving them.[14] Participation was restricted to adult smokers, 18 years of age and older, who smoked 10 or more cigarettes per day, and were willing to take part in three interviews (now, 8 weeks, and 6 months), and to provide a saliva sample by mail at each time point. Participants were paid $20 for the completion of each survey. The survey was offered in both English and French, and participants were recruited from across all of Canada.

After being asked a series of questions about the quantity, frequency and severity of their current smoking (the latter being assessed using the Fagerstrom Test for Nicotine Dependence),[15] participants were randomized to two conditions that varied the order in which the next series of questions were asked. Group one was asked about their intent to quit smoking (stage of change algorithm) in the next 6 months and 30 days (nested questions), and their confidence in quitting smoking for good (1 = very little confidence; 10 = very confident) before being asked about their interest in free nicotine patches. In group two, the order of questions was reversed (interest in free nicotine patches asked before the other questions). The specific wording asking about interest in free nicotine patches was, "The Ministry of Health is considering different ways to help people stop smoking. One option would be to provide interested smokers with free Nicotine Patches. If Nicotine Patches were offered for free, would you be interested in receiving them?" Participants who said they would be interested in free nicotine patches were also asked a series of nested questions about how they would use the patches. These questions were asked before the questions about stage of change in group two.

While the survey was conducted using random digit dialing procedures, we are not treating the findings as a representative sample, in part because the inclusion criteria employed were so restrictive, but also because the procedures used to recruit participants emphasized recruiting participants for the randomized controlled trial rather than to recruit a representative sample of smoking. The analyses are conducted on unweighted data.

Results

A total of 2092 participants who smoked 10 or more cigarettes per day completed the telephone survey. There were no significant differences between condition on smoking and demographic characteristics ($P > .05$). Table 1 displays demographic and smoking characteristics by the two question order groups.

There was a significant difference in participants' self-reported stage of change, depending on whether they were asked about interest in free nicotine patches before or after being asked about stage of change ($\chi^2 = 59.0$, 5 *df*, $P < .001$). Inspection of the pattern of results displayed on Figure 1 indicates that participants who were asked about interest in free nicotine patches first were more likely to rate themselves in the preparation stage (asked first = 33%; not asked first = 19%), and less likely to rate themselves in the precontemplation stage (asked first = 34%; not asked first = 47%), as compared to participants who were asked about their interest in free nicotine patches after being asked to rate their stage of change.

There was no significant difference ($P > .05$) in the proportion of participants who stated that they would be interested in receiving free nicotine patches depending on whether participants were asked about their interest in nicotine patches before (73%), or after (72%),

Table 1. Demographic and Smoking Characteristics

	Group 1 (n = 1090)	Group 2 (n = 1002)	P
Age, mean (*SD*)	49.6 (13.7)	50.0 (13.6)	.5
Female (%)	49.5	50.6	.6
Married/common-law (%)	53.8	51.8	.4
Employed full- or part-time (%)	60.2	59.0	.6
Cigarettes/d, mean (*SD*)	18.7 (8.0)	18.5 (7.8)	.7
FTND score, mean (*SD*)	4.9 (2.0)	4.8 (2.0)	.4
Years as smoker, mean (*SD*)	26.2 (15.1)	26.2 (15.0)	.9

FTND = Fagerstrom Test for Nicotine Dependence.

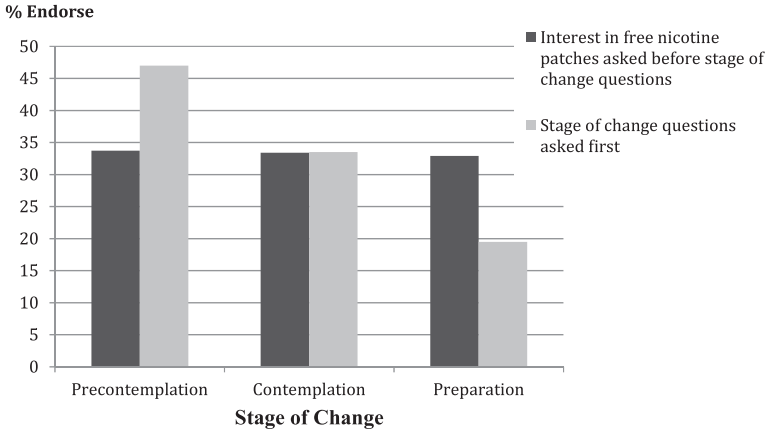

Figure 1. Effect of nicotine patch question presentation order on stage of change.

being asked their stage of change. Finally, there was a significant difference in participant's ratings of their confidence that they could quit smoking for good ($t(2067) = 7.9$, $P < .001$) with participants first being asked about their interest in free nicotine patches rating themselves as more confident that they could quit as compared to participants who were not asked about interest in free nicotine patches first (Mean [*SD*]: Asked about nicotine patches first = 5.6 (2.7); Not asked about nicotine patches first = 4.7 (2.6)).

Discussion

There was a large impact on participants' stage of change resulting from asking about interest in free nicotine patches first. When asked about interest in nicotine patches first, participants were more likely to rate themselves as considering quitting smoking than when they were not asked about interest in nicotine patches. Similarly, first asking about interest in free nicotine patches also appeared to increase participants' confidence in their ability to quit. Asking stage of change first had no impact on the proportion of participants who stated that they would be interested in free nicotine patches.

There are several possible interpretations for these findings. The most positive interpretation from a tobacco control perspective would be that the offer of free nicotine patches, even a hypothetical one, itself encourages people to think about making a quit attempt. Simply asking the question could also be responsible for the observed effect. We cannot know, however, whether this increase in stated intentions to quit smoking is a lasting one. It is possible that an additional aspect of the benefit of mass distribution initiatives that offer free nicotine patches is that they get more people to think about quitting smoking, regardless of whether they actually respond to the offer and receive free nicotine patches.

The alternate type of explanation for this pattern of findings is that they are a methodological artefact which has little real world meaning. For example, participants who are asked about interest in free nicotine patches before being asked about their stage of change may be more likely to anticipate that the interviewer would prefer to hear that they are thinking about quitting, as compared with participants who are not asked about their interest in nicotine patches first. It is also possible that other aspects of engagement with the questions are involved in the differences between the two groups. There is no way to rule out this alternate explanation with the current data. This study suggests the need for careful survey design, and attention to how participants actually engage with the research process.[16]

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Declaration of Interests

None declared.

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