

## **Simply asking questions about health behaviors increases both healthy and unhealthy behaviors**

Patti Williams

*University of Pennsylvania, Philadelphia, PA, USA*

Lauren G. Block

*Baruch College, New York, NY, USA*

Gavan J. Fitzsimons

*Duke University, Durham, NC, USA*

Several recent lines of survey research demonstrate that the simple act of asking a question can lead to changes in a respondent's subsequent behavior. In the current research we asked college students their likelihood to either (i) exercise or (ii) use illegal drugs in the coming 2 months. After 2 months we asked the same college students to report their exercising and illegal drug use behaviors. The findings provide further evidence that these "question-behavior" effects occur for socially normative personal health behaviors, a domain that should have high levels of respondent vigilance and defensive processing. Of more concern, we demonstrate that when a question is asked about a socially non-normative health behavior (i.e., illegal drug use), instead of decreases in the behavior we see increased rates of the non-normative behavior.

Survey researchers have long been aware that the manner in which a question is asked or framed can have dramatic effects on a respondent's answer to that question (e.g., Burton & Blair, 1991; Loftus, 1975; Loftus & Palmer, 1974; Schartz, Deutsch, & Strack, 1985; Strack & Martin, 1987; Sudman, Bradburn, & Schwartz, 1996). In recent years several related research streams have developed that focus not on the effect of questions on the reported response, but rather on later behavior about which the question is asked. That is, asking a respondent a question leads to changes in their subsequent behavior. Sherman (1980), for example, demonstrated that

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Address correspondence to: Gavan J. Fitzsimons, Associate Professor of Marketing, Fuqua School of Business, Duke University, Box 90120, 1 Towerview Drive, Durham, NC 27708, USA. Email: [gavan@duke.edu](mailto:gavan@duke.edu)

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asking participants “whether they would agree to spend 3 hours collecting for the American Cancer Society if contacted over the telephone with such a request?” 3 days in advance of an actual volunteering request by the American Cancer Society led to an increase in volunteering behavior from 4.2% to 31.1% of respondents. A variety of terms have been used to describe this phenomenon: the mere-measurement effect (e.g., Chapman, 2001; Fitzsimons & Morwitz, 1996); the self-erasing error of prediction (Sherman, 1980); and the self-prophecy effect (Spangenberg & Greenwald, 1999). Hereafter, we refer to it as the question–behavior effect or phenomenon. These research streams have found that the simple act of asking questions can substantively change the behavior of the respondent in domains as broad as volunteering for charity (Fitzsimons & Williams, 2000; Sherman, 1980), voting (Greenwald, Carnot, Beach, & Young, 1987), and even automobile and personal computer purchases (Morwitz, Johnson, & Schmittlein, 1993).

Although this “question–behavior” effect has been found in a variety of domains, questions may remain regarding its applicability in domains for which people hold higher a priori levels of vigilance and scepticism, such as personal health-related behaviors. Some evidence has demonstrated that asking questions about health behaviors can indeed lead to changes in actual behavior, despite presumably higher levels of vigilance in this domain (e.g., Spangenberg, 1997; Spangenberg, Sprott, Grohmann, & Smith, 2003; Sprott, Smith, Spangenberg, & Freson, 2004). Interestingly, however, all of this research has focused on health-related behaviors that are socially normative, or positively valenced (e.g., health club attendance; Spangenberg, 1997). In these cases the act of asking a question leads to a beneficial change in health behaviors. However, many researchers are often interested in asking questions about health behaviors that are negative or socially non-normative. For example, it is relatively common for researchers interested in understanding the causes of various risky behaviors (e.g., smoking, drinking, unsafe sex) to ask questions about them.

In the current study, we find additional evidence that question–behavior effects do occur for personal health behaviors, a domain typically regarded as one in which respondents’ defences are most rigorously employed. Consistent with previous work on asking questions about socially normative health behaviors we find that those asked an intent question about exercising increased their actual exercise rates, in effect benefiting the respondent. Of considerable public policy concern, however, and counter to some previous findings, we find that asking an intent question about a socially non-normative behavior (i.e., illegal drug use) also led to an increase in its incidence, leading to a potentially harmful effect on the respondent.

## THE QUESTION-BEHAVIOR EFFECT

The question-behavior effect was first documented nearly 20 years ago. While studying the intentions-behavior link, Sherman (1980) found that respondents systematically over-predicted their likelihood to perform socially desirable behaviors (volunteering for the American Red Cross), and similarly under-predicted their likelihood to perform socially undesirable behaviors (publicly singing *The Star Spangled Banner*). Subsequently, however, when those actual behaviors were measured, the errors of over-prediction became self-erasing, as respondents ultimately acted in accordance with their biased stated intentions. Those asked regarding volunteering, volunteered at a greater rate than a control group, consistent with their over-prediction, while those asked about singing *The Star Spangled Banner* did so less than a control group.

Some empirical work has studied the process by which the question-behavior effect occurs. Sherman (1980) originally conjectured that the act of giving a prediction evokes a cognitive representation of a script that then re-emerges and essentially runs to completion when the imagined situation is at hand, although no evidence in support of this conjecture was found. Additional work has proposed at least two mechanisms through which the act of asking a question could change behavior. One stream of research has argued that the act of asking an intentions question automatically increases the accessibility of beliefs about the target, and that actual behavior will increase or decrease depending on the valence of the respondent's attitude towards the target (Fitzsimons & Morwitz, 1996; Morwitz & Fitzsimons, 2004). For example, asking a question regarding intentions to choose a brand towards which respondents have an accessible and positive attitude increases choice of that brand relative to a control group, while asking the same question about a brand towards which respondents have an accessible but negative attitude decreases choice incidence relative to a control (Morwitz & Fitzsimons, 2004).

A second stream of research on self-prophecy has argued that asking people to make predictions about their future behavior can lead to the creation of dissonance. This stream of research has focused on the impact of questions about socially normative behaviors. The authors argue that under such circumstances, respondents are aware of normative responses and thus know how they "should" respond. However, their own actions in the past may well conflict with the socially normative response they gave when asked a question, leading to a state of internal conflict. As a result of this dissonance, the respondents change their behavior to be in line with their stated prediction about their own future behavior (Spangenberg et al., 2003). Sprott, Spangenberg, and Fisher (2003) demonstrated the key role normative beliefs—evaluations of what is socially desirable or

appropriate—play in driving behavioral change as a function of making a prediction. They find that the impact of questions on behavior is greatest when normative beliefs are strongest, and when previous behavior is in conflict with those beliefs (generating the most dissonance).

While both attitude accessibility and dissonance have clearly been shown to play a role in the question–behavior effect, there are situations when one likely plays a greater role than the other. In the accompanying commentary, Sprott, Spangenberg, Block, Fitzsimons, Morwitz, & Williams (2006) discuss the conditions when each might be influencing behavior to a greater or lesser degree. The current investigation is not designed specifically to pit dissonance and attitude accessibility against one another, as in the vast majority of question–behavior situations they predict the same outcome. However, past research on self-prophecy has focused largely on socially normative, or positive, behaviors. In the current experiment, we examine the nature of question–behavior effects both for questions regarding a socially desirable and a socially undesirable health behavior. If asking an intention question is perceived as innocuous and non-manipulative, the question–behavior effect will occur despite a relatively high desire to defend oneself against health-persuasion techniques. Further, we explore the direction of the effects of these questions on future behaviors. According to self-prophecy, the direction of these effects should be consistent with respondents' understanding of social norms towards the behavior: for health behaviors viewed as socially positive, responding to an intent question should increase the behavior, while the opposite should be true for harmful health behaviors. According to attitude accessibility explanations, the direction of the behavior should be consistent with respondents' own attitudes toward the behaviors, regardless of their knowledge of external social norms. Thus, for behaviors towards which respondents have positive attitudes, responding to an intent question should increase the behavior, while the opposite should be true for behaviors for which respondents hold negative attitudes. This suggests for example, that if respondents know they should exercise, a socially desirable behavior, but have negative attitudes towards doing so, being asked an intent question could actually *decrease* their incidence of exercise.

## METHOD

Participants were 169 undergraduate students at a large northeastern university in the United States who took part in the experiment that was ostensibly a national survey of college student behavior. Participants took part in the study in exchange for partial class credit, and were assured that their responses would be entirely confidential.

In this experiment, the general behavior of interest was either a positive health-related behavior (i.e., exercising) or a negative health-related

behavior (i.e., illegal drug use). Previous research on the question–behavior effect has shown that the valence of the attitude towards the target behavior predicts the direction of behavioral change—positive, socially desirable behaviors increase as a result of an intention question, while negative, socially undesirable behaviors decrease (Sherman, 1980; Williams, Fitzsimons, & Block, 2004). The procedure was a straightforward between-subjects design. Participants were first assigned a confidential tracking number that they would use across the two phases of the study. They each then read the following:

We are conducting a nationwide survey of college student behavior. Colleges across the nation have randomly been selected as representatives for the survey. Please be truthful. Your answers are completely confidential and anonymous. Your responses will be combined with thousands of other college students across the United States.

After reading this introduction participants were asked an intention question about either the socially desirable [“How likely are you to exercise (e.g., sports or other aerobic activity) in the next two months?”] or the socially undesirable behavior [“How likely are you to use any illegal drug (e.g., marijuana, cocaine, heroin) in the next two months?”]. Respondents rated their intentions on a 9-point scale (1=definitely will; 9=definitely will not). Participants were once again assured that their responses would remain entirely confidential.

Two months after the participants answered the intention question about either exercise or drug use, they answered a follow-up questionnaire that asked them to report both how many times they had exercised in the previous 2 months [“How many times have you exercised (e.g., sports or other aerobic activity) in the past two months?”] and how many times they had engaged in illegal drug use over the previous 2 months [“How many times have you used any illegal drug (e.g., marijuana, cocaine, heroin) in the past two months?”]. Again, participants were assured of the confidentiality of their responses to the survey questions. By collecting both behaviors for all participants, the group initially asked about exercise intentions served as a control group for drug use, and the group initially asked about drug intentions served as a control group for exercise behavior. Finally, participants were debriefed by providing a brief description of previous question–behavior effects.

## RESULTS

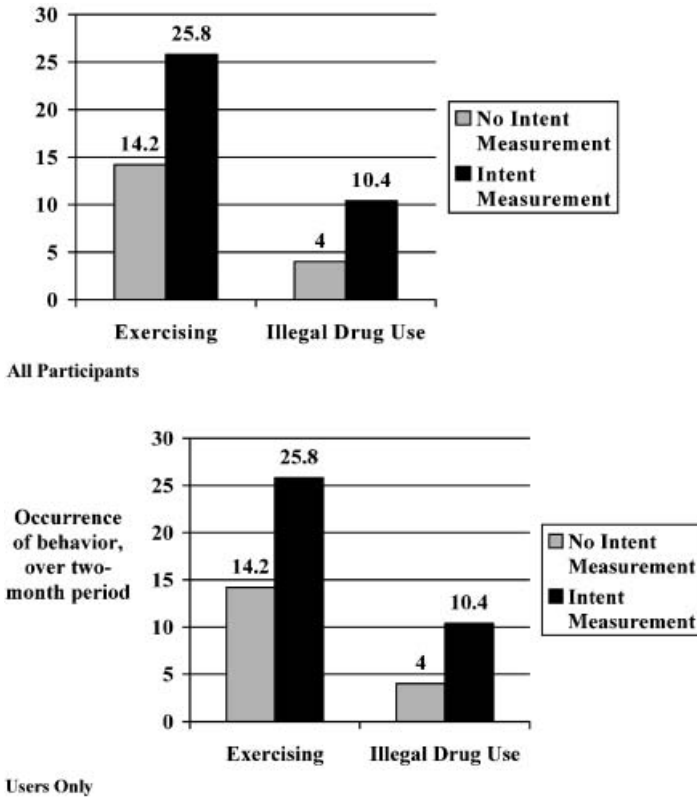
Of the original 169 participants, 2 could not be contacted at the end of the 2-month period; thus only 167 participants were used for subsequent analyses.

Mean stated intent to exercise in the coming 2 months was 6.7, with 52 of 82 respondents stating high intent of 7 or above on the 9-point scale, while 14 respondents stated intent of 3 or below. Mean stated intent to use illegal drugs in the coming 2 months was 2.67, with 12 of 85 respondents stating high intent of 7 or above on the 9-point scale, and 65 respondents stating intent of 3 or lower.

As would be predicted from previous question–behavior results, asking participants an intention question about their likelihood to participate in a positive, socially desirable behavior led to greater amounts of exercising (15.7 times over 2 months,  $n = 82$ ) than observed in a control group not asked the exercise intention question (11.8 times over the same 2-month period,  $n = 85$ ). This difference was significant,  $t(165) = 1.64$ ,  $p = .05$ , one-tailed, Cohen's  $d = 0.26$ . The more interesting analysis, however, is to look at the effect of the intention question on people who are currently exercisers; non-exercisers shouldn't be influenced nearly as much by an intention question, particularly as they may even hold a negative attitude towards exercising. If only participants who exercised at least once over the 2 months are included in the analysis this difference becomes magnified, with those asked about exercise intent ( $n = 63$ ) exercising 20.4 times versus a control group not asked about exercise intent ( $n = 72$ ) exercising 13.9 times (see Figure 1). This difference was statistically different,  $t(133) = 2.13$ ,  $p < .05$ , Cohen's  $d = 0.37$ .

An examination of the drug use data shows a similar and striking result. Asking questions about a negative, socially undesirable behavior—illegal drug use—did change the behavior of the respondents, but not in the direction of social norms. Instead of leading to decreased rates of drug use, asking about drug use intentions actually increased the amount of drug use versus a control group. Participants not asked about their intention to use illegal drugs over the next 2-month period used illegal drugs at a control rate of 1.1 times ( $n = 82$ ). By contrast, those asked about their likelihood to use illegal drugs actually used illegal drugs more than 2.8 times over the subsequent 2-month period ( $n = 85$ ). This difference is statistically significant,  $t(165) = 2.0$ ,  $p < .05$ , Cohen's  $d = 0.31$ . Again, we examined the data focusing only on pre-existing drug users, defined as anyone who had used illegal drugs at least once over the 2-month period. For drug users, those asked about drug intent ( $n = 23$ ) used drugs on average 10.3 times over the period of interest, while those not asked about drug intent ( $n = 22$ ) used drugs on average 4.0 times,  $t(43) = 2.3$ ,  $p < .05$ , Cohen's  $d = 0.70$  (see Figure 1).

A question naturally arises about whether the exercisers and drug users in the study were previously exercisers or drug users, or if the act of asking a question led them to become exercisers or drug users. An examination of the proportion of users in treatment and control groups yields some insight into



**Figure 1.** The panels present the number of occasions participants (all – top panel; users only – bottom panel) reported exercising or using illegal drugs. Above each column is the mean reported behavior in that condition. The dark columns are self-reported behavior by participants who had been asked about their intent to floss in the initial survey. The light columns are self-reported behavior by participants who had been asked about their intent to read for pleasure.

this question. For the drug use dependent measure, in the control group, 22 of 82 participants used drugs (26.8%), while in the treatment group 23 of 85 participants used drugs (27.1%), test of proportions  $t(165) = 0.03, ns$ . For exercising, in the control group, 72 of 85 participants exercised at least once (84.7%), while in the treatment condition 63 of 82 participants exercised at least once (76.8%), test of proportions  $t(165) = 1.29, p = .10$ . Across these two measures, it does not appear that responding to an intention question led to an increase in the proportion of respondents engaging in the behavior (similar to Spangenberg, 1997, who found increases in frequency of health club visits without differences in proportion of users across a control and treatment/question group). This suggests that rather than create new

exercisers or drug users, asking a question in this context simply reinforced pre-existing attitudes towards exercise or drug use.

Finally, we examined the relationship between stated intent and actual behavior for each domain of behavior. For both, stated intent was not significantly correlated with actual behavior (exercising: correlation = 0.00,  $p = .99$ ,  $n = 82$ ; illegal drug use: correlation = 0.03;  $p = .76$ ,  $n = 85$ ). This result suggests that in this context the questions asked did not lead to dissonance between the response and the respondent's behavior, as has been observed in a number of previous question-behavior studies (e.g., Spangenberg et al., 2003; Sprott et al., 2004). Were dissonance to be operating in the current context, we would anticipate a high correlation between stated intent and behavior, as dissonance reduction would drive the respondent to be consistent between response and subsequent behavior. We will revisit this apparent conflict in the discussion.

## DISCUSSION

Overall, the results of the experiment confirm our speculation that even for health-related behaviors that bear considerable physical risk, and which might as a result lead to vigilant or defensive processing among those asked about their intentions, asking about intent will lead to substantial changes in behavior. This result replicates considerable previous question-behavior research on socially normative health behaviors (e.g., Spangenberg, 1997; Spangenberg et al., 2003; Sprott et al., 2004), and shows that asking a question about exercising, a socially normative behavior, led to an increase in this behavior. However, the data for the socially undesirable health-related behavior appear at odds with a dissonance mechanism underlying the question-behavior effect in this context. Although presumably our respondents were aware of social norms against drug use, asking a question about a socially non-normative behavior (i.e., illegal drug use) actually led to an increase in drug use, rather than a decrease.

We suggest that the results for the negative behavior we chose to study (i.e., illegal drug use) are driven by the fact that those who were actually engaging in the behavior may not have held a negative attitude towards it. They may have believed it was socially normative among their peer group, even while knowing it was socially non-normative more generally. As a result, by asking about intention to use illegal drugs, we may have tapped into a positive attitude, and thus led to an overall increase in the behavior. This would be consistent with the fact that the proportion of users did not shift as a function of asking intent—those who had a negative attitude towards drugs did not convert to being users. It is also possible that some students may have an ambivalent attitude structure, a combination of both



positive and negative attitudes, towards illegal drug use. Drug users seem likely to fall into this category, and as a result increased their rate of drug use, perhaps due to the fact that the intention question activated a positive attitude towards drug use.

An important potential limitation in the study reported is that it relies on self-reported behavior rather than an objective measure of behavior. The self-report nature of the dependent variable may raise concerns that the changes in self-reported behavior may not be reflected in changes in actual behavior. Evidence suggesting that this limitation of the previous study may not be a major one can be found in previous question-behavior research, in which the basic effect has been replicated many times using actual behaviors ranging from health club memberships (Spangenberg, 1997) to automobile purchases (Morwitz et al., 1993). Williams et al. (2004) find similar effects of asking a question on both reported food consumption as well as actual food consumption across participants, providing further evidence the use of self-reports in this present study may not be a substantial limitation.

The results of the current study may well be troubling for researchers trying to survey respondents in at-risk populations about their socially non-normative behaviors. By virtue of surveying the at-risk population in an attempt to help them, serious harm may actually be done to the sampled group. This is further complicated by the fact that stated intentions were not significantly correlated with actual behavior. Had stated intentions been highly correlated and thus a good predictor of future drug use, responses to non-confidential survey instruments could be used to help design interventions for respondents most at risk. Unfortunately, it appears that responses to the types of questions asked in the current investigation are not likely to be terribly predictive of future risky behavior.

As Sprott et al. (2006) discuss in the accompanying commentary, researchers interested in asking questions about socially non-normative behaviors may be able to avoid inadvertently increasing the behavior they are concerned about through manipulation of the question format and frame itself. An examination of two often complementary mechanisms for the question-behavior effect provides some key insights. Take the current example of asking questions about illegal drugs. In the present context, the question wording, response frame, and so forth led to potential activation of a positive attitude towards illegal drug use among some respondents. While the stated intent was uncorrelated with behavior, the underlying positive attitude may well have guided future behavior. However, what if the question wording, frame, etc., were more likely to increase salience of a negative social norm, or to access the negative components of potentially ambivalent attitude structures? The effect then might be to increase commitment to avoid using drugs in the future. In that situation, dissonance

might be experienced on the part of the respondent and resolved through a decrease in future illegal drug use.

In addition it is worth exploring the differences in methods used by researchers who have studied self-prophecy versus those used by those studying attitude accessibility explanations for question–behavior effects. Notably, the former research has used binary “yes/no” responses to the target question (e.g., Spangenberg, 1997; Spangenberg et al., 2003; Sprott et al., 2004) while the latter has tended to use continuous semantic scale responses to the target question, as in the current study (Morwitz & Fitzsimons, 2004; Morwitz et al., 1993; Williams et al., 2004). When binary responses are given to the target question, dissonance appears to play a greater role. However, when continuous intention measures are taken, an accessibility mechanism appears to dominate. These different measures could inadvertently trigger different levels of norm salience or commitment to the stated intent, which would in turn guide behavior through different paths. Given the public policy implications of these issues, we hope that both the current research and the Sprott et al. (2006) commentary will fuel much more research in the area of the question–behavior effect.

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