Condom Use Among U.S. Students: The Importance of Confidence in Normative and Attitudinal Perceptions

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ABSTRACT. The author performed a study among U.S. undergraduates to test an earlier conclusion (D. Trafimow, 1994) that confidence in the correctness of one's perceptions of normative pressure to use a condom influences the correspondence between those perceptions and the intentions actually to perform the behavior. Consistent with previous findings (Trafimow), the participants' perceptions of normative pressure strongly predicted their intentions to use condoms only under conditions of extreme normative confidence. Otherwise, their attitudes were better predictors of their intentions to use condoms. In addition, 2 other variables (attitudinal confidence and perceived behavioral control) were found to be unimportant predictors of intentions. Results of a 2nd study suggest that behaviors performed by sexual partners and knowing the sexual partners affected the participants' normative confidence.

Key words: attitude, confidence, subjective norm

RESEARCH concerned with the determinants of condom use has progressed in the last few years. Findings from several research paradigms have demonstrated that the perception of normative pressure to use condoms often produces the intention to use them; the intention, in turn, causes people actually to use condoms (Fishbein et al., 1995; Kelly et al., 1991; Kelly et al., 1992). Trafimow (1994), however, showed that perceptions of normative pressure did not always account for significant variance in intentions to use condoms; such perceptions were important only when the individuals were confident that the perceptions were accurate (i.e., they were confident that they knew what important others thought that they should do). In particular, although the participants who were confident in the correctness of their perceptions of normative pressure intended to behave in accordance with those perceptions ($r = .94$), those who were less...
confident did not \( (r = -0.09) \). Furthermore, the confident participants’ intentions to use condoms were not affected by attitudes, whereas those who were not confident intended to behave in accordance with their attitudes. More generally, the participants’ confidence in the correctness of their perceptions of normative pressure determined whether intentions to use condoms were controlled by those perceptions or by their attitudes toward the behavior. It is important to know the degree to which behaviors are under attitudinal or normative control because, as Trafimow and Fishbein (1994a, 1994b) have shown, the types of control may affect the types of manipulations likely to be effective.

Unfortunately, several potential limitations reduce the importance of the Trafimow (1994) findings. The first is that only one sample was used; therefore, a replication is clearly in order. A second limitation is more conceptual. Trafimow measured confidence in perceptions of normative pressure but did not measure confidence in perceptions of attitudes. Thus, it is possible that, had such a measure been included, the importance of attitude in determining intentions to use condoms would also have been found to depend on the participants’ confidence. Trafimow argued against this conclusion by assuming that people are always confident in their perceptions of their attitudes, so there was no point in measuring them. Although people may not be sure that they really know what important others (e.g., sexual partners) think that they should do, how can they not know their own evaluation of a behavior? On the other hand, however, literature on the distinction between implicit and explicit cognitions suggests this possibility (Cleeremans & McClelland, 1991; Gomez & Schvaneveldt, 1994; Reber, 1967, 1989). If the relationship between attitudes and intentions to use condoms does depend on confidence in perceptions of attitudes, then Trafimow’s conclusion about the importance of confidence in perceptions of normative pressure may be incomplete.

A third limitation is that Trafimow (1994) did not measure perceived behavioral control. Because research (Ajzen, 1988, 1991) has suggested that the perception that one has control over a behavior can contribute to an intention to perform it, it has become customary to include perceived behavioral control in studies using multiple regression paradigms to predict condom use (see Sheeran & Taylor, 1999, for a review).

Finally, even if the other limitations do not apply, the Trafimow (1994) data did not show how to make people confident in the correctness of their perceptions of normative pressure. Clearly such data are needed if successful interventions are to be performed.

**STUDY 1**

**Method**

**Participants**

In 1996, 51 undergraduate psychology students at New Mexico State University volunteered to participate in Study 1. There were two important differ-
ences between the present sample and the one that Trafimow (1994) used at Virginia Polytechnic Institute and State University (other than simply being from a different part of the United States). First, about 16% of the present participants were Hispanic, and 4% were African American, as opposed to the almost 100% Caucasian sample in the earlier study. Second, more of the participants in the present sample were women (78%) than in the other study (54%).

Procedure

Participants responded on 7-point Likert-type scales indicating their intentions to use condoms, their attitudes toward using condoms, and their perceptions of normative pressure toward using condoms (i.e., what they believed that their sexual partners thought that they should do). There was also one question about participants' confidence that they knew what their sexual partners thought that they should do and a second question about how confident they were that they knew what their own evaluations were. The intention and normative measures were single-scale measures modeled after Ajzen and Fishbein (1980) and shown to have adequate test–retest reliabilities by Trafimow and Finlay (1996). For example, I measured intentions by asking the participants to indicate the likelihood, ranging from extremely unlikely to extremely likely, that they intended “for a condom to be used when you have sexual intercourse.” I measured subjective norms by asking them to indicate on a 7-point scale the degree to which “your sexual partner thinks a condom should (should not) be used when you have sexual intercourse.” The attitude measure was formed from a combination of semantic-differential scales (also modeled after Ajzen & Fishbein). The participants indicated the degree to which “having a condom be used when you have sexual intercourse is” good–bad, rewarding–punishing, beneficial–harmful, and pleasant–unpleasant.

The only measures that could not be adapted directly from Ajzen and Fishbein (1980) were the confidence measures. Nevertheless, I tried to make these measures correspond (Fishbein & Ajzen, 1975; Trafimow, 1994) as much as possible to the other measures. I measured confidence in normative perceptions by asking the participants to indicate, on a 7-point scale ranging from confident to not confident, the extent to which they “know whether your sexual partner thinks a condom should be used when you have sexual intercourse.” I measured the participants’ confidence in attitudinal perceptions by asking them to indicate the extent to which they “know whether you think it is good or bad to have a condom be used when you have sexual intercourse.”

In addition, I measured four other variables. I measured perceived behavioral control (Ajzen, 1988) by asking participants to indicate, on a scale ranging from no control to complete control, “the extent to which you believe you have control over whether or not a condom is used when you have sexual intercourse.” Next, the participants were asked how many different sexual partners they had
had. Finally, they provided open-ended explanations of their answers to the question about confidence in normative perceptions.

**Results**

When I analyzed the Hispanic and the White participants separately, there were no differences between the groups on any of the variables that were investigated. Consequently, I combined these participants for all analyses.

**Attitude Measure**

Consistent with previous research (Ajzen & Fishbein, 1980), I averaged each participant's scores on the four attitude items and used the average as the attitude measure for the subsequent analyses.

**Multiple Regression Analyses**

I performed several multiple regression analyses. First, I conducted two overall analyses that included all of the participants, regardless of their level of confidence on either of the two confidence measures. I assessed the relative importance of perceived behavioral control in predicting intentions to use a condom. Second, I performed a set of analyses to replicate the results of Trafimow (1994), indicating that the relative contribution of attitudes and subjective norms in predicting intentions to use a condom depends on the participants’ level of confidence in those subjective norms. Third, I performed a set of analogous analyses to test whether confidence in attitudes would behave similarly to confidence in subjective norms.

**Overall analyses.** The multiple correlation for predicting intention from attitude and subjective norm was .71 ($p < .001$), the attitude beta weight was .43 ($p < .001$), and the subjective norm beta weight was .46 ($p < .001$). This analysis indicates, overall, that both attitudes and subjective norms were significant predictors of intentions to use a condom.

I performed a second multiple regression analysis in which intentions were predicted from attitude, subjective norm, and perceived behavioral control. The multiple correlation was .72, which was not significantly different from the previous value of .71, obtained when perceived behavioral control was not included in the equation. Thus, perceived behavioral control did not add appreciably to the prediction of intentions above and beyond what could be predicted on the basis of attitudes and subjective norms alone.

**Dividing on the basis of normative confidence.** Approximately 65% of the participants indicated they were "extremely" confident in their normative percep-
When I included only those participants in the analysis, the multiple correlation was .73 ($p < .001$), the attitude beta weight was .20 (ns), and the subjective norm beta weight was .62 ($p < .001$). But when I analyzed the 35% of the participants who were less confident, the pattern of beta weights was reversed. The multiple correlation was .85 ($p < .001$), the attitude beta weight was .76 ($p < .001$), and the subjective norm beta weight was .29 (ns). More generally, the data support the conceptualization.

**Dividing on the basis of attitudinal confidence.** Consistent with the assumption that people are confident that they know what their attitudes are, 86% of the participants indicated that they had “extreme” attitudinal confidence. It is reasonable to suppose that, if only these extremely confident participants were used in the analysis, then the importance of attitudes in predicting intentions should increase relative to subjective norms. In fact, however, the data did not support that hypothesis. The multiple correlation was .68 ($p < .001$), the attitude beta weight was .41 ($p < .01$), and the subjective norm beta weight was .44 ($p < .01$). The foregoing numbers are extremely similar to those obtained in the overall analysis. More generally, then, accounting for confidence in attitudes did not change the pattern of attitudinal and normative beta weights.

**Correlational Analyses**

Sometimes attitudes and subjective norms are correlated, thereby making it difficult to partition variance in intentions as attributable to one or the other variable. When this happens, it is advisable to examine the pattern of zero-order correlations to determine whether they are consistent with the pattern of regression weights. Although such multicollinearity did not seem to be a problem with the present data (the correlation between attitudes and subjective norms was not significant), I nevertheless analyzed the zero-order correlations so that they could be demonstrated to parallel the multiple regression data.

**Overall analyses.** Overall, attitudes and subjective norms were each moderate predictors of intentions to use condoms. The attitude–intention correlation was .55 ($p < .001$), the subjective norm–intention correlation was .58 ($p < .001$), and the perceived behavioral control–intention correlation was .34 ($p < .05$).

**Dividing on the basis of normative confidence.** Among extremely confident participants, subjective norms were more relevant in independently predicting intentions than were attitudes ($r = .71$ and .45, respectively). However, when I analyzed the less confident participants, the reverse was true ($r = .80$ and .39 for attitudes and subjective norms, respectively). More generally, the pattern of zero-order correlations replicated the reversal obtained with the multiple regression data.
Dividing on the basis of attitudinal confidence. Among extremely confident participants, the data were very similar to those in the overall analysis. Specifically, the attitude–intention correlation was .52 ($p < .001$), and the subjective norm–intention correlation was .56 ($p < .001$).

Auxiliary Findings

One question to which the participants responded was how many sexual partners they had had. Approximately 8% responded that they had never had a sexual partner, and 12% responded that they have had only one partner; thus the majority (80%) had had more than one partner ($M = 4.82$, $Mdn = 3$), a finding that points to the importance of strategies to reduce sexually transmitted diseases.

Given the obtained support for the importance of normative confidence, the next step would be to determine how people gain or do not gain such confidence. I asked the participants the reasons for their answers to the normative confidence item (whether the sexual partner believes that a condom should be used). Their open-ended answers fell into six categories, four of which represented reasons for increasing confidence: (a) The participant and his or her sexual partner had discussed condom use (58.2%), (b) the sexual partner had indicated condom use by behavior (7.0%), (c) the participant knew the sexual partner well (11.6%), or (d) the participant assumed that the sexual partner would have the same opinion as the participant (11.7%). The remaining two categories represented reasons that confidence could have been reduced: (e) The participant did not know the sexual partner very well (7.0%), and (f) the participant and the sexual partner had not talked about condom use (4.7%).

STUDY 2

The auxiliary analyses on open-ended responses from Study 1 suggested variables that could predict normative confidence. However, a second study was needed with an independent sample of participants to provide cross-validation. Consequently, I specifically asked the participants in Study 2 about the variables suggested by the auxiliary analyses in Study 1, to determine which ones were significantly related to normative confidence.

Method

Participants

In 1997, 53 undergraduate psychology students, once again at New Mexico State University, volunteered to participate in Study 2.

Procedure

The participants responded with yes or no answers to six questions: (a) whether the participant had “discussed condom use with my sexual part-
ner," (b) whether the participant's "sexual partner performed behaviors that indicated his/her opinion about whether we should use a condom," (c) whether the participant "knows my sexual partner extremely well," (d) whether "my sexual partner and I have the same opinion about almost everything," (e) whether the participant "does not know my sexual partner well," and (f) whether the participant's "sexual partner and I have never talked about condom use." Last, as in Study 1, the participants rated on a 7-point Likert-type scale their confidence that they "know whether your sexual partner thinks a condom should be used when you have sexual intercourse."

Results

Because each of the six questions required a yes or no response, I performed a series of t tests, to determine which variables were significantly related to normative confidence.

Discussion With Sexual Partner

Given the results of Study 1, I expected that the most important variable for determining normative confidence was likely to be discussion with one's sexual partner about condom use. Two questions dealt with this issue—these pertained to (a) "discussing" or (b) "not talking about" condom use with one's sexual partner. Surprisingly, however, neither question significantly predicted condom use: For the first question, Ms = 6.46 and 6.33 for the yes and no responses, respectively; t(52) = .30, p > .1. For the second question, Ms = 6.43 and 6.45 for the yes and no responses, respectively; t(52) = .05, p > .1.

Behaviors

The second question was whether the behaviors performed by the sexual partner indicated his or her opinion about condom use. The participants who responded yes to this question were more confident than were the participants who responded no, Ms = 6.53 and 5.60, respectively; t(52) = 2.12, p < .05. That finding is consistent with results indicating that stronger attributions are made from behavior than from what people say (Srull & Wyer, 1989).

Knowing the Sexual Partner

Two questions (one positively worded and one negatively worded) concerned knowing the sexual partner. Consistent with expectations, the participants who responded yes to the positively worded question were more confident than were those who responded no, Ms = 6.55 and 5.71, respectively; t(52) = 2.22, p < .05. In addition, those participants who responded no to the negatively word-
ed question (whether they did not know their sexual partners) were more confident than were those who responded yes, $M_s = 6.57$ and 5.20, respectively.

**Similar Opinions**

One question was whether the participant and his or her sexual partner had similar opinions about "almost everything." The participants who said yes were not discernibly more confident than those who said no, $M_s = 6.48$ and 6.41, respectively; $t(52) = -0.28, p > .1$.

**GENERAL DISCUSSION**

The present data on condom use during sexual intercourse addressed four potential limitations in previous research on the importance of normative confidence in determining the relative weighting of attitudes and subjective norms. The findings in Study I indicate that (a) the Trafimow (1994) data were replicated with a different sample of U.S. participants from a different part of the country, (b) attitudinal confidence did not affect the way participants weighted attitudes and subjective norms, and (c) the addition of a perceived behavioral control measure did not add to the prediction of intentions to use condoms above and beyond what could be predicted on the basis of attitudes and subjective norms alone. Furthermore, (d) the data from Study 2 cross-validated some of the variables that predict normative confidence.

Although the importance of normative confidence in determining the extent to which subjective norms or attitudes control condom use now has more support than previously, not all potential limitations have been removed. The most obvious is the argument that predicting behavioral intentions is not the same as predicting actual behavior. On the other hand, intentions have repeatedly been shown to be correlated substantially with actual behavior in a number of domains such as cooperation in a prisoner's dilemma game ($r = .82$; Ajzen, 1971), having an abortion ($r = .96$; Smetana & Adler, 1980), using birth control pills ($r = .85$; Ajzen & Fishbein, 1980), breast versus bottle feeding ($r = .82$; Manstead, Proffitt, & Smart, 1983), attending church during an Easter holiday ($r = .90$; King, 1975), performing mental practice before the first football game of the season ($r = .81$; Trafimow & Miller, 1996), and many others (Ajzen, 1988). Furthermore, Morrison, Gillmore, and Baker (1995) have shown that intentions to use condoms were significantly correlated with actual condom use among both steady and less steady partners. So, although an intention measure may be a step removed from actual behavior, it does seem to be a reasonable approximation.

Three additional limitations must be noted. First, although I addressed attitudinal and normative confidence in the present studies, I did not address confidence in perceived behavioral control. The data from Study 1 indicate that per-
ceived behavioral control did not account for any unique variance in intentions among those U.S. students, but perhaps such an effect could be obtained for people who are very confident that they have, or do not have, control over whether they use condoms. Second, although the data from both studies demonstrated strong associations between variables, the lack of experimental manipulations precludes conclusive statements about the direction of causation responsible for these associations. Third, it is difficult to determine the extent to which the present findings would generalize to non-U.S. populations.

Study 2 demonstrated the importance of cross-validation. Although the majority of participants in Study 1 mentioned (in the open-ended section) gaining confidence from talking with their sexual partners, when this variable was specifically tested with an independent sample of participants, it did not have a significant effect. That finding is in marked contrast to some of the other variables elicited from the open-ended responses that cross-validated quite nicely.

Does the foregoing finding mean that interventions designed to induce sexual partners to discuss condom use are a waste of time? Such a conclusion may be premature. There are at least two reasons that such interventions may have a good chance of reducing risky sexual behavior. First, talking about condoms (in general or with one's sexual partner) may directly increase the perception of normative pressure to use condoms (even if it does not increase confidence in the correctness of that perception). This possibility seems especially likely when one considers that the present participants' attitudes toward using condoms were generally quite positive ($M = 5.64$ on a scale from 1–7). Consequently, when sexual partners talk with each other about condom use, it is very likely that at least one of the two has a positive attitude, which should increase the normative pressure on the other partner to agree to use a condom (Oliver & Bearden, 1985; see Shimp & Kavas, 1984, for evidence of "crossover" effects). Second, discussion of condom use with one's partner could cause both (a) to think that they know each other better (Trafimow & Sniezek, 1994) or (b) to perform relevant behaviors, both of which significantly predicted normative confidence in Study 2. And the data from Study 1, along with the Trafimow (1994) data, suggest that increasing normative confidence can lead to an increase in the correspondence between perceptions of normative pressure to use condoms and actual condom use, whereas such correspondence might have been unlikely under conditions of lower normative confidence.

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