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Predicting Intentions to Use a Condom From Perceptions of Normative Pressure and Confidence in Those Perceptions

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Two experiments were performed to test the hypothesis that confidence in the correctness of one's perceptions of normative pressure to use a condom influences the correspondence between those perceptions and intentions to actually perform the behavior. In Study 1, confidence in perceptions of normative influence was manipulated in an experimental paradigm using hypothetical scenarios. In Study 2, confidence in subjects' actual perceptions was measured. Results from both experiments indicate that the correspondence between perceptions of normative influence and intentions was greatest when subjects were confident that their perceptions of normative influence were correct.

Researchers have studied a large number of variables in the hope of identifying those that predict or determine condom use. For example, Fishbein, Middlestadt, and Trafimow (1993; see also Fishbein, Trafimow, et al., 1993) measured AIDS knowledge, cues to action, perceived susceptibility, perceived severity, perceived (locus of) control, normative pressure, and attitudes (or outcome expectancies) in St. Lucia. Although each of these variables was significantly correlated with condom use, normative pressure was easily the best predictor. Furthermore, none of the other variables, when included with normative pressure in a multiple regression analysis, significantly added to the prediction of condom use above and beyond that engendered by normative pressure alone.

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Further evidence of the importance of normative pressure as a determinant of high-risk behavior was obtained by Kelly and his colleagues (Kelly et al., 1991; Kelly et al., 1992). They identified popular opinion leaders in gay clubs and trained them to endorse risk reduction behaviors to their friends. High-risk behavior was reduced by 25% from baseline in the original study and from 15% to 29% in other cities in a second study (Kelly et al., 1991). Thus, normative pressure not only predicts high-risk behaviors (Fishbein, Middlestadt, & Trafimow, 1993) but manipulations of it have also been shown to affect performance of such behaviors.

Although the studies cited above are suggestive, there seems to be a missing variable that needs to be addressed in order to provide a better understanding of the relationship between normative pressure and condom use. Consider that the correlation between normative pressure and condom use in the Fishbein, Middlestadt, and Trafimow (1993) study was .58, accounting for 34% of the variance, and that the addition of any or all of the other variables mentioned earlier did not account for any more variance. Therefore, 66% of the variance was left unaccounted for! Unless one wishes to attribute that 66% to measurement error, it seems clear that there is at least one other variable of importance. The goal of this study was to identify that variable.

One possibility is that confidence in the correctness of one’s perceptions of normative pressure mediates the relationship between such perceptions and condom use. Consider, for example, two hypothetical situations. First, suppose a person feels that his or her partner believes that a condom should be used during sex (high perceptions of normative pressure). Further, suppose that the person is confident that he or she knows what the partner thinks (high confidence). Given all of this, we might predict that the person will be likely to intend to use a condom. Compare this with a second person who, like the first person, feels that his or her partner believes that a condom should be used during sex (high perceptions of normative pressure). However, suppose that this person is not confident that his or her belief about what the partner thinks about using a condom is correct (low confidence). This person’s intention to use a condom might be less correspondent with his or her perceptions of normative pressure simply because of a lack of confidence that those perceptions are, in fact, correct.

Another example further illustrates the relationship between confidence and normative pressure. Suppose that two people feel that their partners believe a condom should not be used during sex, but one person is confident in the correctness of his or her perception and one is not. In this case, we might predict that the highly confident person will be less likely to use a condom. More generally, it seems reasonable to hypothesize that when people are confident in the correctness of their perceptions of normative pressure toward
condom use, such perceptions should play a much more important role in determining condom use than when people are not confident.3

This hypothesis was explored in two ways. In Study 1 (the pilot study), subjects were asked to imagine a situation in which they were either sure or unsure about whether their sexual partner thought a condom should be used, and they indicated how likely they would be to intend to use a condom. The experimental prediction was that subjects who imagined they were sure about what their partner thought should anticipate being more likely to behave in a correspondent manner. In Study 2 (the main study), subjects were asked to indicate their actual attitudes, perceptions of normative pressure, and behavioral intentions to use a condom. In addition, confidence in the correctness of their perceptions of normative pressure was measured. As in Study 1, the correspondence between perceptions of normative pressure and intentions to use a condom was expected to be greater for confident subjects than for those who were not confident.

Study 1

Method

Subjects

Twenty-eight introductory psychology students participated as subjects in the experiment. Thirty-nine percent of them were male, and 61% were female. Participation partially fulfilled a class requirement.

Procedure

Subjects responded to each of the following scenarios by indicating how likely they would be on a 7-point scale to intend for a condom to be used. The seven possible responses were extremely likely, quite likely, slightly likely, neither, slightly unlikely, quite unlikely, and extremely unlikely. Half of the subjects responded to them in the order presented below, and half of the subjects responded to the scenarios in the reverse order.

3It is possible to argue that confidence in one’s perceptions of normative pressure cannot be distinguished from those perceptions. However, if high confidence can lead to increased or decreased condom use depending on perceptions of normative pressure to use or not use condoms, respectively, then the two constructs cannot be the same. Nevertheless, an auxiliary analysis performed in Study 2 addresses this issue.
Scenario 1: Suppose you were about to have sexual intercourse. In addition, suppose that you were absolutely sure that your partner wanted a condom to be used. How likely is it that you would intend for a condom to get used?

Scenario 2: Suppose you were about to have sexual intercourse. In addition, suppose that you were not sure about whether your partner wanted a condom to be used. How likely is it that you would intend for a condom to get used?

Results

Subjects responses were scored on a scale ranging from *extremely likely* (3) to *extremely unlikely* (-3) before being analyzed. This is consistent with previous research where intentions were the dependent variable (Trafimow & Fishbein, 1994).

Because subjects responded to two scenarios, but in different orders, it was possible to run a between-subjects analysis on the first scenario subjects responded to and to run a within-subjects analysis on subjects’ responses to both scenarios. The between-subjects analysis has the advantage of being uncontaminated by order effects, the within-subjects analysis has the advantage of greater statistical power.

Between-Subjects Analysis

Consistent with expectations, subjects indicated greater intentions to use a condom when they imagined being sure of what their partner thought than when they imagined being unsure ($M = 2.86$ and $M = 2.29$, respectively), $t(26) = 2.37, p < .05$.

Within-Subjects Analysis

As was the case in the previous analysis, subjects who imagined being sure of what their partner thought indicated greater intentions to use a condom than did the unsure subjects ($M = 2.89$ and $M = 2.50$, respectively), $t(27) = 3.03, p < .01$. In summary, the hypothesis was supported by both analyses.$^4$

$^4$It is possible that the effect of confidence on intentions is dependent upon the sex of the subjects or on the order in which the scenarios are presented. However, the confidence manipulation did not interact significantly with either of these variables ($p > .1$ in both cases). Nevertheless, I thank an anonymous reviewer for pointing out this possibility.
Discussion

Despite the initial support obtained for the importance of confidence in determining the relationship between perceptions of normative pressure and intentions to use a condom, this pilot study contained some limitations that needed to be addressed in a second experiment. Most obviously, the expressed intentions were responses to hypothetical situations, and it is not yet clear that confidence plays an important role in actual situations in which people find themselves. A second limitation is more theoretical. Specifically, according to Fishbein's theory of reasoned action (Ajzen & Fishbein, 1980; Fishbein, 1980; Fishbein & Ajzen, 1975), the two main determinants of behavioral intentions, in general, are perceptions of normative pressure and attitudes. In fact, for the vast majority of behaviors, attitudes are more important determinants of intentions than are perceptions of normative pressure (although Fishbein, Middlestadt, & Trafimow's findings suggest that this might not be true for condom use). Because attitudes were ignored in Study 1, the relative importance of perceptions of normative pressure versus attitudes at various levels of confidence could not be investigated. Such an investigation is necessary to fully support the hypothesis.

Study 2

The idea of Study 2 was to use a multiple regression paradigm to assess the relative importance of attitudes and perceptions of normative pressure in determining intentions to use a condom under different levels of confidence. Although Fishbein, Middlestadt, and Trafimow (1993) found a relatively low correlation between attitudes and intentions to use a condom, it is important to consider that an indirect measure of attitudes was used in that study. Fishbein (1980) pointed out that a substantially higher correlation can be expected with a direct measure of attitudes (Ajzen & Fishbein, 1980). In fact, it is even possible that a direct measure of attitudes will result in a better prediction of intentions to use a condom than that engendered by perceptions of normative pressure. Nevertheless, according to the proposed hypothesis, perceptions of normative pressure should be a more important determinant of intentions to use a condom than should attitudes under high levels of confidence, but the reverse should be true under low levels of confidence. In other words, in multiple regression terms, under high levels of confidence, perceptions of normative pressure should have a larger beta-weight than attitudes, but under low levels of confidence, the reverse should be true.
Method

Subjects

Seventy-two introductory psychology students participated as subjects in the study. Forty-six percent of them were male, and 54% were female. All subjects were sexually active (they had engaged in sexual activity at least once in the last 6 months). 

Procedure

All subjects made responses on 7-point scales indicating their intentions to use a condom, their attitude toward using a condom, their perceptions of normative pressure toward using a condom (i.e., what they thought their sexual partner thought they should do), and their confidence that they knew what their sexual partner thought they should do. The intention and normative measures were single-scale measures modeled after Ajzen and Fishbein (1980). For example, intentions were measured by asking subjects to indicate the likelihood that they intended “... for a condom to be used every time I have sexual intercourse” by checking a blank marked extremely likely, quite likely, slightly likely, neutral, slightly unlikely, quite unlikely, or extremely unlikely. Subjective norms were measured by asking subjects to indicate the degree to which “my sexual partner thinks a condom should (should not) be used every time I have sex” (on a 7-point scale). The attitude measure was formed from a combination of semantic-differential scales (also modeled after Ajzen & Fishbein, 1980). Subjects indicated the degree to which “having a condom be used every time I have sexual intercourse is” good-bad, rewarding-punishing, beneficial-harmful, and pleasant-unpleasant.

The only measure that could not be adapted directly from Ajzen & Fishbein (1980) was the confidence measure. Nevertheless, an effort was made to make this measure correspond (Fishbein & Ajzen, 1975) as much as possible to the other measures. Confidence was measured by asking subjects to indicate, on a 7-point scale ranging from confident (1) to not confident (7), the extent to which “... I know whether my sexual partner thinks a condom should be used every time I have sex.”

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5I considered performing separate analyses for sexually active versus sexually inactive subjects. However, there were not enough inactive subjects to make such analyses worthwhile. Thus, inactive subjects were eliminated from the study.
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Results

Attitude Measure

A principle components factor analysis was performed on the attitude scales in order to ensure that they were all measuring the same thing. Consistent with other findings (Ajzen & Fishbein, 1980), one factor was obtained with the following factor loadings: good-bad = .74, pleasant-unpleasant = .74, beneficial-harmful = .66, and rewarding-punishing = .72. Consequently, this factor was saved and used as the attitude measure for the subsequent analyses.

The Multiple Regression Analyses

Several multiple regression analyses were performed. First, an overall analysis was performed that included all of the subjects, regardless of their indicated confidence level. Second, an analysis was performed with only those subjects included who indicated extreme confidence in their knowledge of their sexual partner's opinion. Third, an analysis was performed with those subjects who were not confident in their knowledge of their sexual partner's opinion (they answered the middle to negative range of the confidence scale).

The overall analysis. The multiple $R$ for predicting intentions from attitude and subjective norm was $.71$, $p < .001$. Consistent with data obtained by Fishbein, Middlestadt, and Trafimow (1993), the perceptions of normative pressure beta-weight was greater than the attitude beta-weight $(.55$ and $.28$, respectively). Thus, as in the Fishbein, Middlestadt, and Trafimow (1993) study, intentions to use condoms seem to be driven more by perceptions of normative pressure than by attitudes, although both beta-weights were significant.

Extremely confident subjects. When only those subjects who were extremely confident were included in the analysis, the multiple $R$ increased to $.97$, $p < .001$. The reason for this increase in prediction will be addressed in a subsequent section. In addition, the difference in the attitude and subjective norm beta-weights increased drastically. Specifically, the attitude beta-weight decreased to $.12$ (and was not significant), but the subjective norm beta-weight increased to $.88$.

Not confident subjects. When only those subjects who were not confident were included in the analysis, the multiple $R$ was $.67$, $p < .05$. More important, however, the beta-weights were the reverse of those in the previous analysis. Specifically, the attitude beta-weight was large $(.68)$ and significant, but the perceptions of normative pressure beta-weight was small $(.09)$ and not significant. This reversal supports the hypothesis.
Correlational Analyses

In this section, the zero-order correlations between attitudes and intentions and subjective norms and intentions are reported when all subjects are included, when extremely confident subjects are included, and when subjects who were not confident are included.

The overall analysis. The correlation between attitudes and intentions was .52 (p < .001) compared with a correlation of .65 (p < .001) between perceptions of normative pressure and intentions. These findings are generally consistent with previous research (although the attitude-intention correlation, probably because of the use of a direct attitude measure, is a lot greater than would be expected on the basis of the Fishbein, Middlestadt, & Trafimow, 1993 findings).

Extremely confident subjects. When the data from the extremely confident subjects were analyzed, the correlation between attitudes and intentions was .71, but the correlation between perceptions of normative pressure and intentions was .94. This suggests an explanation for the multiple R of .97 that was obtained in the multiple regression analysis presented above. One possible reason for the large multiple R is that subjects who are extremely confident that their perceptions of normative pressure are correct intend to behave in a manner that is highly correspondent with those perceptions!

Not confident subjects. Consistent with the reversal in beta-weights discussed in the multiple regression section, the zero-order correlations were similarly reversed for confident versus not confident subjects. Specifically, although the correlation between attitudes and intentions was not very different with these subjects (.61), the correlation between perceptions of normative pressure and intentions was essentially zero (-.09). The data, as presented in Table 1, indicates that the correlation between attitudes and intentions does not change very much over the three analyses (r = .52, .71, and .64 for the overall analysis, extremely confident subjects, and not confident subjects, respectively), but the correlation between subjective norms and intentions changes drastically (r = .65, .94, and -.09 for the three analyses, respectively). This is consistent with the hypothesis that confidence is a mediator of the process whereby perceptions of normative pressure lead to intentions to use a condom.

Auxiliary Analyses

Two more sets of analyses were performed. The first investigated whether sex differences changed the nature of any of the relationships between

*thank anonymous reviewers for suggesting these subsidiary analyses.
intensions: in-jects was accep-ception, than 993 dent was ten-able that in a dis-Vertally, rentive d in not all pec-ages is is somether eeen

Table 1

The Prediction of Intentions to Use a Condom From Attitudes and Perceptions of Normative Pressure Depending on Level of Confidence

<table>
<thead>
<tr>
<th>Level of Confidence</th>
<th>Attitude- $R$</th>
<th>Attitude- $\beta$</th>
<th>Normative- $\beta$</th>
<th>Normative-$r$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>.71***</td>
<td>.28**</td>
<td>.55***</td>
<td>.52***</td>
</tr>
<tr>
<td>Extreme confidence</td>
<td>.97***</td>
<td>.12</td>
<td>.88***</td>
<td>.71***</td>
</tr>
<tr>
<td>Low confidence</td>
<td>.67*</td>
<td>.68**</td>
<td>-.26</td>
<td>.61*</td>
</tr>
</tbody>
</table>

*p < .05. **p < .01. ***p < .001.

variables. The second investigated whether perceptions of normative pressure and confidence in those perceptions were truly distinct constructs or whether they should more properly be seen as different measures of the same underlying construct.

Sex differences. Males and females were not evenly distributed across the extremely confident subjects and the not confident ones. Fifty-four percent of the extremely confident subjects were female, compared with 42% for the not confident subjects. These sex differences could have affected the findings. Consequently, all of the previous multiple regression analyses were performed again but with sex included as an additional predictor variable. The resulting multiple correlations were not significantly increased (alpha set at .05) nor were any of the beta-weights significantly affected. Therefore, sex differences had no discernible effect on any of the relationships studied here.

Distinguishing between normative pressure and confidence. Although there is a clear conceptual difference between perceptions of normative pressure and confidence in the correctness of those perceptions, it is not necessarily the case that subjects make this distinction. One way of exploring this issue is to determine whether there is a correlation between perceptions of normative pressure and confidence. A low correlation would support the distinction, whereas a high correlation would contradict it. The correlation was .39 ($p < .001$), which is somewhere in the middle and, therefore, does not provide much of an answer in either direction.

A look at correlations of perceptions of normative pressure and confidence with intentions and attitudes provides another way of dealing with this issue. Perceptions of normative pressure correlates .65 ($p < .001$) with intentions and .43 ($p < .001$) with attitudes. In contrast, confidence does not correlate with intentions ($r = .048$), nor does it correlate with attitudes ($r = .051$). Thus,
because normative pressure correlates with intentions and attitudes, and confidence does not, the evidence indicates that these are different constructs.

Discussion

The findings from Study 2 can be summarized as follows. First, when confidence is not figured into the analysis, previously cited evidence that perceptions of normative pressure affect intentions to use a condom are supported. Furthermore, this result was obtained despite the relatively large correlation (compared with Fishbein, Middlestadt, & Trafimow, 1993) between attitudes and intentions that was obtained due to the use of a direct attitude measure. However, the dependence of intentions on perceptions of normative pressure is greatly intensified for subjects who are confident that they know what their sexual partner thinks they should do, but it is reduced to essentially zero for subjects who are not confident that they know what their sexual partner thinks they should do. This change in dependence affects the relative beta-weights assigned to attitudes and subjective norms across the three types of analyses, and it affects the size of the multiple correlation.

General Discussion

The results of both studies can be summarized as follows. First, Study 1 indicates that manipulating confidence affects the extent to which intentions to use condoms are correspondent with perceptions of normative pressure in hypothetical situations. Second, Study 2 demonstrates that the relative effectiveness of attitudes and perceptions of perceptions of normative pressure on intentions to use condoms reverses depending on the level of confidence. Finally, the correlational analyses demonstrate that this reversal is mainly due to changes in the correlation between perceptions of normative pressure and intentions to use a condom across the levels of confidence. Overall, the data suggest that confidence in the correctness of one’s perceptions of normative pressure is an important variable that is capable of accounting for a large portion of the unexplained variance in previous investigations (Fishbein, Middlestadt, & Trafimow, 1993).

Before discussing an implication of the obtained data for intervention, it is worth mentioning some limitations of these exploratory studies. The most obvious limitation has to do with the use of an intention measure rather than a measure of actual condom use. Given that the ultimate goal is to reduce high-risk behavior, a behavioral measure would have been better. On the other hand, intentions have repeatedly been shown to correlate substantially with actual behavior in a number of domains such as cooperation in a prisoner’s dilemma.
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The 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), and many others (see Ajzen, 1988, for a review). So, although an intention measure is not ideal, it does seem to be a reasonable approximation.

A second limitation concerns the population from which subjects were drawn. In the reported studies, these subjects were drawn from an undergraduate subject pool. Unfortunately, the fact that confidence is an important variable for determining undergraduate students’ intentions to use a condom does not necessarily mean that it is an important variable for other populations. This is an empirical issue that can only be settled by testing other populations.

It is interesting that although normative pressure is an important determinant of condom use, it is not an important determinant of most other behaviors (Ajzen & Fishbein, 1980). Because the available data are insufficient to provide an explanation, it is necessary to speculate. One possibility is that a person’s sexual partner is affected by condom use or nonuse in a way that has a direct impact on the reward (or punishment) that the subject obtains from the relationship, but most other behaviors do not affect the partner in this way. This hypothesis implies that reminding subjects that the partner might be affected by particular behaviors should increase their tendency to be driven by their perceptions of normative pressure. Trafimow & Fishbein (in press) provided some preliminary support for this implication.

Another possibility is that there is a general tendency for health-related behaviors to be driven by normative pressure. For example, Stasson and Fishbein (1990) found that intentions to wear a seat belt under risky driving conditions were controlled by perceptions of normative pressure, whereas these intentions were controlled by attitudes under safe driving conditions. More health-related behaviors need to be tested before this possibility can be definitively supported or disproved.

A further puzzle concerns the way in which people gain confidence in the correctness of their perceptions of normative pressure. One possibility is that confidence is gained through experience. As a person gets to know his or her sexual partner better, or has experience with several sexual partners, that person gains the ability (or at least the feeling of having the ability) to accurately perceive the beliefs of the partner. Another possibility is that there are individual differences in people’s confidence in their ability to know what other people think they should do that stem from more general individual differences. For example, people with high levels of self-esteem or self-efficacy may feel they are good at almost everything, which would include the ability to accurately perceive normative pressure. Finally, some people may
simply care so little about others that they simply assume that their partner has the same attitude that they do. The present data seem consistent with this last possibility because the correlation between attitudes and perceptions of normative pressure was significantly greater for extremely confident subjects ($r = .66$) than for those who were not confident ($r = .24$). On the other hand, if subjects’ intentions were simply paralleling their own attitudes, it is difficult to explain the subjective norm-intention correlation of .94 for extremely confident subjects.

As is generally the case, the present research brings up more questions than it answers. Nevertheless, it does seem clear that confidence in the correctness of one’s perceptions of normative pressure is an important determinant of the extent to which such perceptions will lead to intentions to use a condom. This suggests that intervention programs designed to get people to talk to each other about condom use can lead to risk reduction in at least two ways. First, of course, such an intervention can increase normative pressure to use condoms. Second, however, the mere act of talking to important others (e.g., sexual partner, friends, opinion leaders, etc.) can increase one’s confidence that his or her perceptions of what other people think about condom use are correct. This increase in confidence, then, can lead to an increase in the correspondence between perceptions of normative pressure to use a condom and actual condom use, where such correspondence might have been unlikely under conditions of lower confidence.

References


7This could backfire if neither partner thinks that a condom should be used (because each partner would find out that the other believes a condom should not be used), but research by Fishbein, Middlestadt, and Trafimow (1993) suggests that this is unlikely.


