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Psychological Distress Moderates the Intention-Behavior Association for Sexual Partner Concurrency among Adults

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Abstract

Research suggests that intentions are an important determinant of sexual risk behavior. However, this association is often weaker than hypothesized. This research investigated whether psychological distress (i.e., depression, anxiety) can help to explain the intentions-behavior gap. We used data from 397 patients seeking care at an STI clinic to test whether the association between partner concurrency intentions and behavior 3 months later was moderated by distress. Intentions predicted concurrency behavior only among less-distressed individuals; however, exploratory analyses for condom use did not demonstrate this effect. Comprehensive sexual health intervention programs should address affective determinants of risk behavior.

Keywords

sexual partner concurrency; health behavior theory; behavioral intentions; depression; anxiety

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Introduction

Despite recent NIH guidelines that emphasize biomedical factors as priorities in HIV/AIDS research, behavioral factors continue to be important at every stage of the cascade of HIV prevention and care. Social-cognitive theories, such as the Theory of Reasoned Action, (1) propose that the key determinant of sexual risk or protective behaviors is behavioral intentions. Indeed, a committee of expert theorists convened by the National Institute of Mental Health concluded that the intention to act is both “necessary and sufficient” for behavior change and is the variable “most proximal to behavior.” (2) Social-cognitive theories of HIV risk behavior have been supported in epidemiologic research and have been used to guide evidence-based interventions to reduce sexual risk. (3–4) However, the association between intentions and behavior is often weaker than hypothesized ($r = 0.53$) and accounts for only 28% of the variance in behavior across studies, revealing the so-called “intention-behavior gap.” (5)

Moderators of the association between intentions and subsequent behavior include perceived behavioral control, type and complexity of behavior, and stability and strength of intentions. (5) In addition, socioeconomic status (SES) influences the strength of the intentions-behavior association, such that intentions are unreliable predictors of behavior among low-SES groups. (6–7) These studies suggest that vulnerable groups may experience structural and psychosocial constraints in translating healthy intentions into behavior.

Health behavior theories have been criticized for neglecting affective processes. When emotions have been taken into account in theoretical models, they have been defined as the emotional response to thinking about or enacting a particular health behavior and have been treated as predictors of intentions. (2) Psychological distress has not been sufficiently included in these models, despite some evidence that depression attenuates the relation between key variables in these models (e.g., self-efficacy) and behavioral outcomes, (8) and despite recognition that stress and negative emotions are barriers to engaging in healthy behaviors. Results from the only two studies identified by the authors that examined the role of psychological distress in the association between intentions and behavior supported this idea: The first examined adherence to a gluten-free diet regimen among Celiac disease patients and found that the “inclined abstainers” (healthy intentions, unhealthy behavior) reported greater psychological distress than the “inclined actors” (healthy intentions, healthy behavior). (9) The second examined breastfeeding in pregnant women and found that psychological distress predicted breastfeeding intentions but not breastfeeding initiation among those with healthy intentions. (10) However, neither study explicitly tested the interaction between intentions and distress in predicting behavior, an important step in understanding how distress might change this fundamental relationship.

This interaction has not yet been examined in the sexual health literature. Psychological distress may be particularly relevant in understanding sexual risk, given the strong association between psychological distress and condomless intercourse, multiple sexual partners, use of alcohol/drugs prior to sexual encounters, and sexually transmitted infections (STIs) (e.g., 11). A recent meta-analysis demonstrated that behavioral HIV interventions

targeting women only reduced sexual risk behaviors when depressive symptoms also decreased over time. (12)

The current study investigated whether psychological distress moderates the association between intentions to have multiple sexual partners and subsequent sexual partner concurrency. Concurrency is a critically important risk behavior because of its strong association with STI transmission. (13) Concurrency has been hypothesized to explain elevated rates of HIV among vulnerable populations, including low-SES African-Americans. (14) We hypothesized that (a) individuals who are psychologically distressed would report intentions for multiple sexual partners that are equivalent to non-distressed peers but (b) intentions would be less likely to predict subsequent behavior. Exploratory analyses were also run on a smaller subset of the sample to test whether these hypotheses would also apply to a second sexual behavior, namely, condom use with non-steady partners.

Methods

Participants and Procedures

Data for this study are from a randomized controlled trial that evaluated a sexual risk reduction intervention (15–16). Participants were patients at a STI clinic who were at least 16 years old and who had engaged in recent risk behavior (e.g., sexual intercourse with 1 person or with a person who had other sexual partners and reported inconsistent condom use). Patients were excluded if they were HIV-infected, cognitively impaired, or currently receiving inpatient substance abuse treatment. The current study analyzed data from 397 participants (59% men, 72% Black) who completed a sexual risk behavior questionnaire at baseline and at a 3-month follow-up. Participants were between 16 and 65 years of age ($M = 30$, $SD = 10$), reported a household income of \$15,000 (56%), and reported receiving a high school education or less (63%). Participants mostly identified as heterosexual (88%). Sexual partner concurrency was reported by 47% ($N = 187$) and 34% ($N = 136$) of participants at baseline and 3-month follow-up, respectively.

Measures

Demographics—All covariates (sex, income, race/ethnicity) were selected because they were associated with one or both of the outcomes of interest (intentions and/or behavior). Participants reported their sex (men/women), race/ethnicity, and income level. Participants' race/ethnicity was stratified into four categories: (1) Latino/Latina/Hispanic, (2) Black/African-American, (3) White/Caucasian, and (4) Other (American Indian/Alaska Native, Asian, Native Hawaiian, or other Pacific Islander, and mixed or multiracial). Income level was assessed as follows: "What is your annual family income?" (less than \$15,000, \$15,000–30,000, \$30,000–45,000, and more than \$45,000).

Behavioral intentions—At baseline, participants responded to a single item measuring intentions for multiple partners ("During the next 3 months, I plan to have more than one sex partner") and intentions for condom use with non-steady partners ("During the next 3 months, if/when I have sex with (non-steady) partners, I will use condoms every time"). Response options ranged from 1 (definitely will not do) to 4 (definitely will do).

Psychological distress—At baseline, participants completed the Patient Health Questionnaire (PHQ-4), a reliable and valid screener for depression and anxiety in the general population. Participants were asked about the frequency of experiencing four symptoms (i.e., nervousness, worrying, sadness, anhedonia) over the past two weeks. Response options ranged from 1 (not at all) to 4 (nearly every day). High internal consistency on the PHQ-4 was found in this sample ($\alpha = .88$).

Sexual partner concurrency—At baseline and follow-up, participants were asked “In the past 3 months, how many men and women have you had sex with?” If a participant reported 1 partner, s/he was asked: “You said you had sex with (x) people in the past 3 months. Over the past 3 months, did any of your sexual relationships overlap? That is, were you involved in more than one sexual relationship at a time?” Response options were: “No, these relationships did NOT overlap in time. I ended each relationship before having sex in a new relationship,” or “Yes, these relationships did overlap in time.” Participants who reported multiple partners that overlapped were coded as 1 (concurrency); otherwise, they were coded as 0 (no concurrency).

Condom use with non-steady partners—At baseline and follow-up participants who reported having any non-steady partners (defined as “any partners who you do not consider to be your primary partner, boyfriend or girlfriend, husband or wife”) were asked how many times they had sex with these partners in the past 3 months as well as on how many of those occasions they had used a condom. A percentage was calculated and participants were coded as 0 (less than 100% condom use with non-steady partners) or 1 (100% condom use with non-steady partners).

Results

Main Analyses

In the larger trial, intervention condition was not associated with sexual health outcomes (citations removed for blind review) and these analyses were unchanged after control for intervention condition. Analyses were conducted using the full PHQ-4 scale as well as individual subscales but, because results did not differ, we report results from the full scale (additional analyses available from the first author upon request). Intentions at baseline and behavior at 3-month follow-up were correlated, $r = .24$, $p < .001$. Psychological distress at baseline was not correlated with sexual partner concurrency at follow-up, $r = .04$, $p = .47$.

An ordinary least squares regression model (including demographic covariates) was run in which baseline psychological distress was entered as a predictor of baseline intentions for multiple sexual partners. Consistent with prediction, psychological distress was not associated with baseline intention for multiple sexual partners, $B = .04$, 95% CI $(-.07, .14)$, $SE = .05$, $\beta = .03$, $p = .51$.

Finally, a binary logistic regression model (including demographic covariates and baseline partner concurrency) was run in which baseline intentions, psychological distress, and the intention $\times$ psychological distress interaction were entered as predictors of follow-up partner concurrency. As hypothesized, psychological distress significantly moderated the association

between intentions and behavior, $B = -.44$, $SE = .14$, $OR = .65$, 95% CI (.50, .84), $p < .001$. To further analyze the moderation effect, simple slopes testing for the effect of intentions at one standard deviation above and below the mean of psychological distress revealed that intentions predicted subsequent partner concurrency for individuals low in distress ($B = .62$, $SE = .18$, $OR = 1.86$, 95% CI (1.31, 2.64), $p = .001$) but intentions were not associated with behavior for individuals high in distress ($B = -.10$, $SE = .17$, $OR = .91$, 95% CI (.65, 1.27), $p = .57$; see Figure 1).

Exploratory Analyses

Parallel logistic regression analyses were run on a small subset of the sample ($n = 193$) who reported sexual relations with one or more non-steady partners. Controlling the same variables as main analyses, psychological distress did not moderate the association between intentions and behavior for condom use with non-steady partners ($B = .11$, $SE = .40$, $OR = 1.12$, 95% CI (.51, 2.45), $p = .79$). These analyses were run because condom use is the most common sexual risk measure used in the literature and because we had the variables to assess this question in a smaller subset of the sample; however, the analyses were intentionally exploratory because condom use reflects a dyadic decision-making process relative to partner concurrency. In other words, condom use is not under a participant's control to the same extent as partner concurrency, particularly for women; therefore, a weaker association between intentions and behavior would be expected for condom use.

Discussion

Consistent with prior research, a positive correlation between baseline intentions and follow-up sexual risk behavior (concurrency) was documented, and the association between the two variables left considerable unexplained variance (i.e., a gap between intentions and behavior). Consistent with study hypotheses, psychologically distressed and non-distressed individuals did not differ in the strength of their intentions for multiple sexual partners, but they did differ in the strength of the association between intentions and concurrency behavior. Intentions were equivalent across levels of distress, but intentions only predicted subsequent concurrency for those reporting low distress.

The idea that intentions would fail to predict behavior among individuals experiencing psychological distress is consistent with other findings in health psychology. Distressed individuals engage in fewer health-promoting behaviors and report greater health-compromising behaviors than less distressed individuals. (17) The current study suggests that this may not be due to decreased motivation for health behaviors but to barriers that prevent engagement in these behaviors regardless of intentions. Barriers to enacting healthy intentions likely include depressive features such as anhedonia (e.g., lack of interest/pleasure in usual activities), fatigue, low energy, memory and concentration problems, self-blame, and hopelessness, as well as anxiety symptoms, including nervousness and worry.

These results should be interpreted mindful of study limitations. First, although we found that psychological distress disrupts the intention-behavior link for partner concurrency, we did not find this same effect in exploratory analyses testing condom use intentions and behavior in a smaller subset of the sample. Future studies should determine whether this

effect is unique to sexual partner concurrency or whether it applies more generally to other risk behaviors. Second, in studying variables that moderate intentions-behavior, it is possible that the stability of intentions may account for the effects documented. For example, if depressed and anxious individuals waver in the strength of their intentions over the 3 months between assessments, the finding may be attributable to this instability. There is mixed evidence for this hypothesis as it relates to other moderators, such as SES. (6) Third, the validated measures used in this study were created for a larger trial and, as a result, are brief and rely on self-report. Furthermore, our measure of intentions (“plan to have more than one sex partner”) was not identical to the outcome (i.e., overlapping sexual partners). Finally, the sample selected for this larger study was a relatively high-risk group recruited from an STI clinic. Associations between distress, sexual health intentions, and risk behavior are important to study in this group; however, this sample may not be representative of the general population. Generalization of these findings to other health behaviors or populations should be mindful of all study limitations.

Despite these limitations, this study used prospective data from a low-SES, predominantly ethnic minority, high-risk sample to examine distress as a moderator of the association between intentions and behavior. In order for health behavior theories to be comprehensive and for interventions based on these theories to be optimally effective, it may be important to consider the role of psychological distress. Interventions that primarily target the hypothesized cognitive determinants of sexual behavior (e.g., intentions) may be less effective at altering health behaviors among distressed populations. Addressing depression and anxiety in comprehensive sexual risk-reduction programs may enhance intervention outcomes.

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Behavioral Intentions for Multiple Sexual Partners

Figure 1.

Probability of having concurrent sexual partners at follow-up as a function of behavioral intentions for multiple sexual partners at baseline and psychological distress at baseline (low graphed at 1 standard deviation below the mean, high graphed at 1 standard deviation above the mean).