Social Science & Medicine 143 (2015) 179–184

Contents lists available at ScienceDirect

Social Science & Medicine

journal homepage: www.elsevier.com/locate/socscimed

The development of a new condom use expectancy scale for at-risk adults

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ARTICLE INFO

Article history:
Received 20 February 2015
Received in revised form
27 August 2015
Accepted 31 August 2015
Available online 5 September 2015

Keywords:
HIV
Condom use
Drug use
Expectancies

ABSTRACT

Rationale: Engaging in risky sexual behavior increases transmission of HIV.
Objective: The present study used previously elicited salient outcomes of condom use to examine the factor structure and test the predictive utility of a condom use expectancy scale.
Methods: Participants were drug offenders from court ordered drug diversion programs in Southern California. The condom use expectancy scale consisted of three factors: positive condom outcome items, negative condom outcome items, and safe sex items.
Results: The factor analysis confirmed the three-factor structure. Positive condom use expectancies were a significant predictor of both condom use and intentions to use condoms, and negative condom use expectancies predicted non-use of condoms.
Conclusion: Understanding conditions of condom use can aid public health researchers and practitioners to better identify those in need of HIV prevention and how to target those needs.

1. Introduction

Engaging in risky sexual behavior continues to be one of the chief routes for the transmission of HIV, especially among non-injection drug users (NIDUs; Khan et al., 2013; Mitchell and Latimer, 2009; Semple et al., 2004a,b; Strathdee and Sherman, 2003). Substance use increases the chance of engaging in unprotected sex and having multiple sex partners, thus increasing the likelihood of contracting HIV or other sexually transmitted diseases (STDs; Trenz et al., 2013). Inconsistent condom use has been associated with other risky sexual practices including NIDUs engaging in sex with injection drug users (Molitor et al., 1998), sex work (Molitor et al., 1998; Semple et al., 2004a,b), and having multiple sexual partners (Khan et al., 2013; Molitor et al., 1998; Semple et al., 2004a,b). Studies examining an association between alcohol and condom use in discrete-sexual encounters revealed an association with inconsistent condom use at first intercourse (Cooper, 2002; Leigh, 2002). The failure to use condoms increases one's risk of HIV and other STDs. It is especially important to advance the understanding of inconsistent condom use in populations that are particularly at risk for HIV and other STDs, such as drug users (Mitchell and Latimer, 2009; Molitor et al., 1998; Nydegger et al., 2014). Increasing our understanding of the perceived outcomes of condom use and related beliefs may help explain variation in this preventable behavior and contribute to the effectiveness of HIV prevention interventions.

1.1. Perceived outcomes of condom use

Perceived anticipated or expected outcomes of a behavior (both positive and negative) are integral aspects of many theories of health behavior. These outcomes are often studied in the context of theories of beliefs or expectancies. Numerous studies have found outcome expectancies to be correlated with alcohol (Brown et al., 1998; Brown et al., 1987; Leigh and Stacy, 1993) and other drug use (Schafer and Browna, 1991; Sussman et al., 1996). A few studies have found linkages between sex-related alcohol expectancies and social and sexual situations (Brown et al., 1987; D'Amico et al., 1999; Dermen and Cooper, 1994; Tubman et al., 2012).

Several researchers have evaluated condom use expectancies, across various populations, as predictors of risky sexual behavior (Albarracín et al., 2000; Bowen et al., 2001; DiFranceisco et al., 1998; DiIorio et al., 1997). For example, Hogben et al. (2006) investigated adolescent girls' condom use expectancies with scale items categorized as perceived pleasure or perceived obligation.

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http://dx.doi.org/10.1016/j.socscimed.2015.08.053
0277-9536/

Perceived pleasure and perceived obligation condom use expectancies were found to be positively associated with intentions to use condoms, and intentions were positively associated with condom use consistency. Newby et al. (2013) reviewed research that elicited condom use expectancies and combined the most commonly elicited items into a scale to evaluate college students' condom use intentions. They found that those who had negative condom use expectancies had low intentions to use condoms (Newby et al., 2013). The present study evaluated the factor structure and predictive utility of a condom use expectancy scale in the prediction of risky sexual behavior among drug users. This scale focused specifically on casual, non-main sexual partners.

2. Methods

2.1. Population

Participants were 440 individuals (32% females; $n = 140$) in drug diversion programs throughout the Los Angeles metropolitan area. Of those responding to a question regarding ethnicity, 44% ($n = 193$) were non-Hispanic whites, 44.47% ($n = 195$) were Hispanic, 2.35% ($n = 10$) were Black, 2.35% were Native American ($n = 10$), 3.0% were Asian ($n = 13$), and 3.77% ($n = 16$) were other minorities.

2.2. Procedures

Participants completed anonymous paper questionnaires in groups. Potential participants were informed that their participation was voluntary and they could withdraw at any time without prejudice. The University of California Los Angeles Institutional Review Board approved all of the procedures used in this study.

2.3. Measures

Condom use expectancy scale. The condom use expectancy scale was developed from eliciting salient outcomes of condom use during casual sex among a similar population. The 18-item questionnaire consisted of three factors: positive outcomes, negative outcomes, and safe sex outcomes. First, participants were provided a definition of casual partner. Participants were instructed as follows: "Here is a list of some things that some people might experience when using a condom with a casual partner. How likely is it that these things happen to you when you use a condom with a casual partner? Please check the box that best describes how using a condom would affect you. If you do not use condoms at all, you can still fill this out: just answer it according to what *you think would happen to you if you did use a condom*." Response options ranged from 1 = *no chance*, 2 = *very unlikely*, 3 = *unlikely*, 4 = *likely*, 5 = *very likely* and 6 = *certainly*. Participants were instructed to check the box that applies when prompted with the following: "When I use a condom with a casual partner …" Example of items used include, "Sex is good or it feels good." and "There is less feeling or a lack of sensation." For the complete scale, see Appendix A.

Condom use. Participants were asked, "In the last 12 months, how often did you (or your partners) use condoms when you had sex?" Response options included, 1) *I have not had sex in the last 12 months*; 2) *never used condoms*, 3) *rarely*, 4) *less than half the time*, 5) *about half the time*, 6) *more than half the time*, 7) *almost always*, 8) *used condoms every time*.

Intentions to use condoms. Participants were asked "How likely is it that you would use a condom (or get the other person to use one) in each of these situations 1) with someone you have never had sex with before; 2) with someone you have known only for a few weeks or less; 3) with someone you know had other sexual partners; 4) with someone you have dated for a long time; 5) with someone you have already had sex with?" (Cronbach's alpha = 0.87). Participants were asked to check one box for each item. Response options were *definitely yes, probably yes, probably not* and *definitely not* (Albarracín et al., 2001; Morrison et al., 1998; Stacy et al., 2006).

Intention to have multiple sex partners. Participants were asked, "Within the next year, do you think you will: 1) have sex with more than one sexual partner; 2) have sex with at least several new sexual partners; 3) have sex with a casual partner?; 4) have sex with a new partner the same day you first meet him or her?" (Cronbach's alpha = 0.93). Participants were asked to check one box for each item. Response options were *definitely yes, probably yes, probably not* and *definitely not* (Stacy et al., 2006).

Self-reported alcohol use and alcohol use before sex. Participants were asked how frequently they consumed alcohol in the last 12 months. The 9-item response options ranged from *not in the last 12 months* to *every day* (Graham et al., 1984). Additionally, participants were instructed to think about the most recent time they had sex with a casual partner and were asked "Did you drink alcohol (beer, wine, liquor) before or during sex?" Response options were *yes* and *no* (Leigh et al., 2008).

2.4. Analyses

Primary data analyses initially consisted of a confirmatory factor analysis (CFA) to verify whether the hypothesized indicators adequately reflected the proposed three-factor structure of the condom use expectancy scale based on condom use expectancies elicited beforehand. The CFA was evaluated with the EQS 6.0 program and recommended model modification procedures (Bentler, 1995). Multiple regression procedures (e.g., Aiken and West, 1991) conducted using SAS® software (SAS Institute., 2013) were then used to evaluate whether the three factors independently predicted condom use, intentions to use condoms, and intentions to have multiple sex partners. Simultaneous regression models were used since there were no specific hypotheses regarding positive, negative, or safe sex outcomes and other covariate predictive effects on condom use or intentions to have multiple partners or use condoms.

3. Results

3.1. Factor structure of the condom use expectancy scale

An initial CFA model was evaluated to determine whether the hypothesized indicators adequately reflected the proposed latent scale factors. Although the initial intent was to create a scale with positive and negative outcomes, many participants mentioned safe sex, specifically. During CFA analyses, the original model did not fit the data well, $\chi^2(132, N = 407) = 705.090$, $p < 0.0001$, NNFI = 0.832, CFI = 0.855, RSMEA = 0.103, (90% CI: 0.096, 0.111). Further, the safe sex items did not load sufficiently on the positive outcome factor, and four negative outcome items did not load adequately on the negative outcome factor according to modification indexes. On the basis of these findings, four of nine negative outcome items were removed the model, and a third factor of safe sex was created. With these modifications, the CFA model fit the data better, confirming a 3-factor structure with the following factors: positive condom outcome items, negative condom outcome items, and safe sex outcome items (see Tables 1 and 2). The final condom use expectancy scale factor loadings are presented in Tables 1 and 2. All factor loadings were significant ($p < 0.001$). The fit of this final model did not reach statistical non-significance but fit the data reasonably well, $\chi^2(74, N = 407) = 250.003$, $p < 0.0001$, NNFI = 0.940, CFI = 0.951, RMSEA = 0.077 (90% CI: 0.066, 0.087). The means, standard deviations, and range for the factor constructs are as follows: a) positive outcome expectancies: $M(SD) = 26.37$ (7.35),