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Abstract

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Keywords

American Indian men; relationship type; condom use intention; sexually transmitted infections

Cover Page Footnote

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ABSTRACT

The purpose of this study was to investigate the heterosexual relationship factors that were associated with condom use intention for STI prevention in a purposive sample of American Indian men. The sample was drawn from the Fort Peck Reservations in northeastern Montana. The sample size included 122 American Indian men ages 18 to 24. The theory of planned behavior and interdependence theory provided the theoretical basis for the study. Seventy- seven percent of the young men reported being in a steady relationship with 60.3% agreeing that they were committed to maintaining their relationship with their current partner. Relationship duration and type and control of condom use were significantly associated with condom use intention for STI prevention. In addition control of condom use and relationship commitment was significantly associated with condom use communication. Regression results suggest that relationship duration, moderate or high participation in condom use decision making and female control of condom use are positively associated with moderately or extremely likely use of condoms in the future. The results from this study suggest that American Indian men are in need of culturally relevant sexual risk prevention efforts that address relationship factors to help reduce STIs in this population.

Keywords: Native American men, relationship type, condom use intention, relationship commitment, sexually transmitted infections

INTRODUCTION

American Indians are disproportionately affected by sexually transmitted infections in the United States (CDC 2008a). In American Indian populations rates of chlamydia, gonorrhea, and primary and secondary syphilis are two to six times higher than for Whites (Wong et al. 2006). Condoms are the most effective method for preventing STIs (Stone et al. 1999). Unfortunately little data is available regarding the condom use behaviors among American Indians. In a comprehensive review of the literature, Kaufman et al. (2006) found only one national report that addressed condom use among American Indians. Furthermore, there is a tendency to overlook the male perspective on condom use in heterosexual relationships (Harvey and Henderson 2006). Topics related to American Indian men and STI prevention have primarily focused on gay, bisexual and/or two-spirit men (Burks et al. 2011). Therefore, the purpose of this study was to investigate the heterosexual relationship factors associated with condom use intention for STI prevention among American Indian men, ages 18 to 24.

The specific research questions examined in this exploratory cross-sectional study of American Indian men were: 1) What is the association between age and educational level and condom use intentions?; 2) What is the association between relationship type, relationship duration and relationship commitment and condom use intentions?; 3) What is the association between condom use communication and condom use decision making and condom use intentions?; and 4) What is the association between negative partner reaction to condom use and condom use intentions?

Theoretical Framework

Two theoretical frameworks were used in this study, the Theory of Planned Behavior (TPB) and Interdependence Theory (IT). First, TPB is an individual-level model of health behavior with theoretical constructs that explain the likelihood of an individual performing a specific behavior (Ajzen 1991). TB assumes the most direct determinant of behavior is behavioral intention (Montaño and Kasprzyk 2002). This predictive relationship has been verified in numerous studies with the behavior of condom use (Albarracín et al. 2004; Baker et al. 1996; Montaño et al. 2001; Sheeran et al. 1999). Since the TPB has been tested using prospective study designs and the theoretical relationships between constructs have held up for the behavior of condom use, the TPB can be used to guide exploratory cross-sectional studies whose objectives are outside the scope of theoretical framework verification. Moreover, since behavioral intentions have been shown to be predictors of behavior, condom use intention can be used as a proxy measure for condom use behavior.

The second theoretical framework used for this investigation of condom use intentions with American Indian men was the interdependence theory (IT; Kelley and Thibaut 1978). IT is a dyad-level social-psychological theory that espouses examining behavior in terms of each individual in the dyad's needs, thoughts, and motives and within the context of the relationship and situation in which the behavior transpires (Rusbult and Van Lange 2003). Two people are interdependent (and thus the IT applies) when they interact in situations with high reciprocal partner control, joint control, or both (Rusbult and Van Lange 2003). For instance, a man and a woman in a heterosexual relationship are interdependent when they decide whether or not to use a condom because they both have some degree of control over the interaction required for condom use. IT assumes that both the man and the woman have their own needs, thoughts, and motives associated with condom use and that these factors influence their condom use behavior.

IT also assumes that the behavior of condom use is a function of the relationship and situational context in which the behavior occurs. Thus, relationship characteristics, such as duration and commitment, and situational characteristics, such as communication and decision-making, will influence condom use behavior.

Conceptual Model

The TPB constructs used in this investigation of relationship factors and condom use amongst American Indian men included behavioral beliefs and perceived behavioral control. These constructs were included for their relationship significance. That is, despite being an individual model of health behavior, these TPB constructs can be partner specific and thus can measure the male participants' assessment of the relationship dynamics that may influence condom use intentions. The IT constructs used in this investigation included relationship duration, relationship commitment, condom use communication, and condom use decision-making. These constructs were included for their potential to capture the interaction between sexual partners regarding condom use and the relationship context that interaction occurs in. The conceptual model in this study to investigate condom use intentions for STI prevention among American Indian men is based on the work of Harvey and colleagues (Harvey et al. 2006; Harvey and Henderson 2006). Findings from their research supports the use of TPB and IT to examine the association between condom use communication and condom use intentions and the association between condom use decision-making and condom use intentions (Harvey and Henderson 2006).

METHODS

Sample

The sample for this study was drawn from the Fort Peck Reservation in northeastern Montana. There are approximately 12,000 enrolled members of the Fort Peck Tribes (Assiniboine and Sioux). Approximately 427 of the men living on the Fort Peck Reservation are between the ages of 18 and 24 years (Census 2000). For this investigation a sample size of 122 American Indian men representing approximately 30% of the target population were recruited to participate in in-depth interviews. This sample size, estimated for the finite, age-specific population size of the Fort Peck Reservation provides an estimated 10% prevalence with 95% confidence intervals and 5% precision (Devore and Peck 2005). The participants were recruited with non-probability sampling methods including consecutive and snowball sampling. The overall response rate for this study was approximately 80%. The following eligibility criteria were used: 1) male who self identified as heterosexual; 2) between the ages of 18 and 24 at the time of the interview; 3) an enrolled member of a federally recognized tribe; 4) living on the Fort Peck Reservation; and 5) sexually active with a female within the three months prior to the time of the interview.

Data Collection

Trained interviewers using an interview guide conducted the in-depth interviews. The interview guide consisted of 93 questions and was a mix of closed ended and opened questions. Topics addressed in the interview guide were: 1) psychosocial factors included sociodemographic and reproductive history, perceived risk of and motivation to avoid pregnancy, HIV, and other STIs, contraceptive and condom use self efficacy, attitudes towards contraceptive methods, sexual risk taking factors, attitudes towards abstinence, monogamy, and

pregnancy, contraceptive use behavior and intention, sexual behavior and condom use, and spirituality, culture, and religion; 2) emotional factors included historic trauma and loss, depression, and alcohol use; and 3) relationship characteristics included characteristics of the sexual partnership, relationship commitment, sexual decision making in the relationship, communication about HIV/STIs and pregnancy prevention, and partner motivation, support and attitudes. For the purpose of this particular analysis 10 questions from the interview guide were used. These included condom use intention as the dependent variable; and independent variables included age educational attainment, relationship type, control of condom use, relationship duration, relationship commitment, partner's attitude towards condoms, condom use communication, and condom use decision-making.

The interviews lasted anywhere from 45 minutes to 1.5 hours and were conducted in a private setting on the Fort Peck Reservation. Responses to closed ended questions were recorded directly on the interview guide. Responses to the opened ended questions were also noted. To ensure accuracy of responses all interviews were tape-recorded and transcribed and later cross checked with the paper responses. For the purposes of answering the interview questions, the men were asked to choose one sexual partner to talk about. The men were told that a partner could mean a girlfriend, wife, or lover who they had sex with in the last 3 months. If the men had more than one sexual partner in the past three months, they were asked to choose one person who they would like to talk about in the interview.

The research protocols for this study received human subjects ethical approval from Montana State University Institutional Review Board, Indian Health Services – Billings and the Fort Peck Tribal Council.

Measures

The measures used in this investigation are described below.

Dependent Variable

Condom Use Intention. Condom use intention for STI prevention was measured as, "In the next 3 months, how likely is it that you will use a condom when having sex with [name of sexual partner] to prevent from getting a sexually transmitted disease other than HIV?". Response categories were on a five-point Likert scale (1 = not at all likely and 5 = extremely likely). Due to low cell counts in the "a little likely", "moderately likely", and "very likely" response categories, this item was collapsed into three categories (1 = not at all likely, 2 = moderately likely, and 3 = extremely likely).

Independent Variables

Age. Age was measured as a continuous variable ranging from 18 to 24 years.

Educational Attainment. Educational attainment was measured as, "What is the highest degree or level of school you have completed?" Response options were "grades 1-8", "grades 9-12", "grade 12 or GED", "college 1 year to 4 years", "associate degree", "college degree", and "graduate degree". Due to low cell counts in the "grades 1-8"," college 1 year to 4 years", "associate degree", "college degree", and "graduate degree"
categories, this item was collapsed into three categories (1 = less than high school diploma or GED, 2 = high school diploma or GED, 3 = some college but no degree).

Relationship Type. Relationship type was assessed by asking participants to "please tell me which category best describes your relationship with [name of sexual partner]". Response options included: (1) just friends; (2) dating her only; (3) dating her and other people also; (4)

just a 'one night stand' or 'a fling'; (5) engaged; (6) married; and (7) other. Responses were dichotomized and coded 0 = steady and 1 = casual. The "just friends", "dating her and other people also", and "just a 'one night stand' or 'fling'" responses were categorized as a "casual" relationship. The "dating her only", "engaged", "married", and "other" responses were categorized as a "steady" relationship. The "other" category was categorized as a "steady" relationship because both of the two participants who indicated their relationship type was "other" had just recently ended long term, dating exclusively relationships.

Control of Condom Use. Control of condom use was measured as, "In thinking about your relationship with [name of sexual partner], who do you think makes decisions about whether or not you use a condom?". Response options were "me", "my partner", and "we both do". Response categories were coded as 1 = male control, 2 = female control, and 3 = shared control.

Negative Partner Reaction to Condom Use. Negative partner reaction to condom use was measured as, "Are you ever afraid of [name of sexual partner]'s reaction, what she might do or think of you, if you asked her to use a condom?" The response categories were coded 0 = no and 1 = yes.

Relationship Duration. Relationship duration was assessed by asking participants, "How long have you been together with [name of sexual partner]?" For the purpose of this study, the relationship duration variable was a continuous variable reported in months.

Relationship Commitment. Relationship commitment was measured using Rusbult, Martz, and Agnew's eight-item Investment Model Scale (1998) (Cronbach's $\alpha = 0.94$). Items included questions such as, "I want our relationship to last a very long time," "I would not feel very upset if our relationship were to end in the near future," "It is likely that I will date someone other than my partner within the next year", "I want our relationship to last forever", and "I intend to stay in this relationship". Response categories were coded on a five-point Likert scale (1 = strongly disagree and 5 = strongly agree). Relationship commitment scale responses were reverse-coded as necessary so that a higher score indicated greater relationship commitment. A relationship commitment scale score was created by summing across responses to the eight items and then averaging that value. This created a continuous relationship commitment variable that ranged from one to five with one representing the lowest possible relationship commitment and five representing the highest possible relationship commitment.

Condom Use Communication. Condom use communication was measured as, "Have you ever talked to [name of sexual partner] about using a condom?" and responses were coded as 0 = no and 1 = yes.

Condom Use Decision Making. Condom use decision making was measured using an existing validated single item: "How much do you take part in deciding whether or not to use a condom with [name of sexual partner]?" Response categories were on a five-point Likert scale from 1 = not at all to 5 = a great deal. Due to low cell counts in the "not at all "and "somewhat" categories, this item was collapsed into three categories. The "not at all" and "somewhat" categories were combined into one category and coded as 1 = low participation in condom use decision making. The "moderate amount" category was retained and coded as 2 = moderate participation in condom use decision making. The "a lot" and "a great deal" categories were combined and coded as 3 = high participation in condom use decision-making.

Data Analysis

The descriptive statistics were reported for all continuous and categorical variables. To test bivariate associations of condom use intentions to background and relationship variables, the Pearson's chi-squared (χ^2) test was used for categorical variables and the one-way analysis of variance (ANOVA) test was used for continuous variables. Significance levels were set at $p < 0.05$, $p < 0.01$ and $p < 0.001$.

An additional bivariate analysis was included to test the hypothesized associations among relationship characteristics. Two relationship variables (condom use communication and condom use decision making) were mediator variables as they were presumed to mediate the association between independent variables and the dependent variable. Bivariate statistics (Pearson's χ^2 and ANOVA) were used to test for mediation using a four-step process outlined by Baron & Kenny (1986).

Multivariate analysis was performed with a multinomial logistic regression model. A logistic regression model explored the multivariate associations of background and relationship variables on condom use intention for STI prevention (Model 1). In this model, the dependent variable was classified into three categories: not at all likely, moderately likely, and extremely likely, with not at all likely selected as the reference category. All independent variables were entered into the models regardless of their significance in bivariate analysis. The categorical independent variables were entered into the multinomial logistic regression equations as a series of dummy variables with the lowest unit of analysis set as the reference category. All variables were entered into the multinomial logistic regression models simultaneously. Results from the multinomial logistic regression were reported in odds ratios (OR) and 95 percent confidence intervals (95% CI). STATA Version 10.0 (College Station, TX) was used to perform the statistical analysis.

RESULTS

Descriptive Analysis

Table 1 presents the results from the descriptive analysis. Participants average age was 21.1 years (SD = 2.0). Sixty-nine percent of the participants had at least a high school (HS) diploma or a GED. The most frequently reported relationship category was "dating her only" (55.7%) followed by "engaged" (12.3%) and "just friends" (9.8%). Relationship type was dichotomized with 77.1% of men reporting being in "steady" relationships.

The mean relationship duration was 26.0 months with a range from zero months to 144 months. Most items in the relationship commitment index indicated greater commitment. For instance, 60.3% of participants reported they strongly agreed with the statement: "I am committed to maintaining my relationship with [NAME]" while only 4.9% of participants reported they strongly disagreed with that statement. In comparison 46% of male participants strongly agreed with the statement "I want our relationship to last forever", 14% of participants were neutral, and 12% of participants strongly disagreed that they wanted their current relationship to last forever. Overall, men reported that they were committed to their partner with an average score of 3.9 (SD = 1.1).

Table 1. Descriptive statistics for background, relationship, and outcome variables.

Variables	N	%	Range	M	SD
Background Variables					
Age (years)	122		18-24	21.1	2.0
Educational Attainment					
Less than high school diploma or GED	38	31.1			
High school diploma or GED	59	48.4			
Some college but no degree	25	20.5			
Relationship Type					
Steady	94	77.1			
Casual	28	22.9			
Relationship Variables					
Relationship Duration (months)	122		0-144	26.0	28.2
Relationship Commitment (1=*low* to 5=*high*)	121		1-5	3.9	1.1
Condom Use Communication					
No	18	14.9			
Yes	103	85.1			
Condom Use Decision Making					
Low participation	21	17.7			
Moderate participation	17	14.3			
High participation	81	68.0			
Control of Condom Use					
Male control	50	41.7			
Female control	13	10.8			
Shared control	57	47.5			
Negative Partner Reaction to Condom Use					
No	97	82.9			
Yes	20	17.1			
Outcome Variables					
Condom Use Intention for STD Prevention					
Not at all likely	36	30.0			
Moderately likely	32	26.7			
Extremely likely	52	43.3			

Almost all participants (85%) had communicated with their sexual partner about using condoms. Nearly 20% of the participants reported low participation in condom use decision making, 14% of participants reported moderate participation, and 68% of participants reported high participation in the condom use decision-making process. In addition 48% of the male participants reported that they shared the control of condom use with his female sexual partner

and 11% of participants reported that their female sexual partner had exclusive control of their condom use behavior. The majority of participants (83%) did not expect their female sexual partner to have a negative reaction to condom use. Finally, forty-three percent of participants were extremely likely to use condoms in the future for the purpose of preventing STIs.

Bivariate Analysis

Table 2 presents the bivariate analysis of condom use intention for STI prevention. For the condom use intention for STI prevention, statistically significant differences were found between the mean age of men who reported they were not at all likely to use condoms verses men who were moderately likely to use condoms verses men who were extremely likely to use condoms ($p < 0.001$). Men who were extremely likely to use condoms for STI prevention were younger than men who were not at all likely to use condoms for STI prevention (M = 20.6 and 21.9, respectively). Relationship duration was also significantly associated with condom use intention for STI prevention ($p < 0.05$). Men who reported being extremely likely to use condoms had lower mean relationship duration than men who reported being moderately or not at all likely to use condoms in the future for STI prevention. Statistically significant differences also existed between the mean relationship commitment scores of men falling in each of the three condom use intention categories. As condom use intention for STI prevention moved from "not at all likely" to "moderately likely" to "extremely likely" response categories, male participant's mean relationship commitment decreased (M = 4.4, 3.8, and 3.6, respectively).

Other variables significantly associated with condom use intention for STI prevention were relationship type ($p < 0.01$) and control of condom use ($p < 0.01$). Being in a casual relationship was associated with being extremely likely to use condoms for STI prevention. Having either exclusive control of condom use or having shared control of condom use was associated with condom use intentions.

Table 2. Distribution of responses to items in the relationship commitment scale (Cronbach α = 0.94).

Items	Strongly Agree (%)	Somewhat Agree (%)	Neither Agree or Disagree (%)	Somewhat Disagree (%)	Strongly Disagree (%)
"I want our relationship to last a very long time."	63.6	17.4	6.6	7.4	4.9
"I am committed to maintaining my relationship with [NAME]." [a]	60.3	19.0	8.3	7.4	4.9
"I would not feel very upset if our relationship were to end in the near future."	11.6	26.5	19.0	14.1	28.9
"It is likely that I will date someone other than my partner within the next year."	27.3	10.7	14.1	11.6	36.4
"I feel very attached to our relationship – very strongly linked to my partner."	57.9	19.0	6.6	9.1	7.4
"I want our relationship to last forever."	45.5	19.8	14.1	9.1	11.6
"I am oriented toward the long-term future of my relationship with [NAME]." [a]	51.2	15.7	15.7	9.9	7.4
"I intend to stay in this relationship."	57.0	18.2	10.7	8.3	5.8

[a] [NAME] refers to the first name of the female sexual partner whom a participant chose to refer to when completing the interview.

Bivariate and Mediating Analysis

The theoretical frameworks used to guide this investigation of condom use intentions proposed the existence of relationship factors that not only influenced condom use intentions but that also mediated the association between other relationship factors and condom use intentions. The hypothesized mediating variables in this study were condom use communication and condom use decision-making. Condom use communication was hypothesized to mediate the association between three relationship factors (relationship duration, relationship commitment, and negative partner reaction to condom use) and the dependent variable. Condom use decision making was

hypothesized to mediate the association between three relationship factors (relationship duration, relationship commitment, and control of condom use) and the dependent variable.

A step-wise approach was utilized to support or reject the role of condom use communication and condom use decision making as mediating variables (Baron & Kenny, 1986). Step one was to determine if the first condition for mediation was met. Bivariate statistical tests (Pearson's χ^2 and one-way ANOVA) were used to conduct step one. Only two of the six associations were significant at $p < 0.05$ (Table 3). Relationship commitment was significantly associated with condom use communication exhibiting a higher level of relationship commitment. Control of condom use was significantly associated with condom use decision-making as men with high participation in condom use decision making were more likely to share control of condom use with their partners. Conversely, men with low participation in condom use decision-making were more likely to state that their female partner had control over whether or not they used condoms.

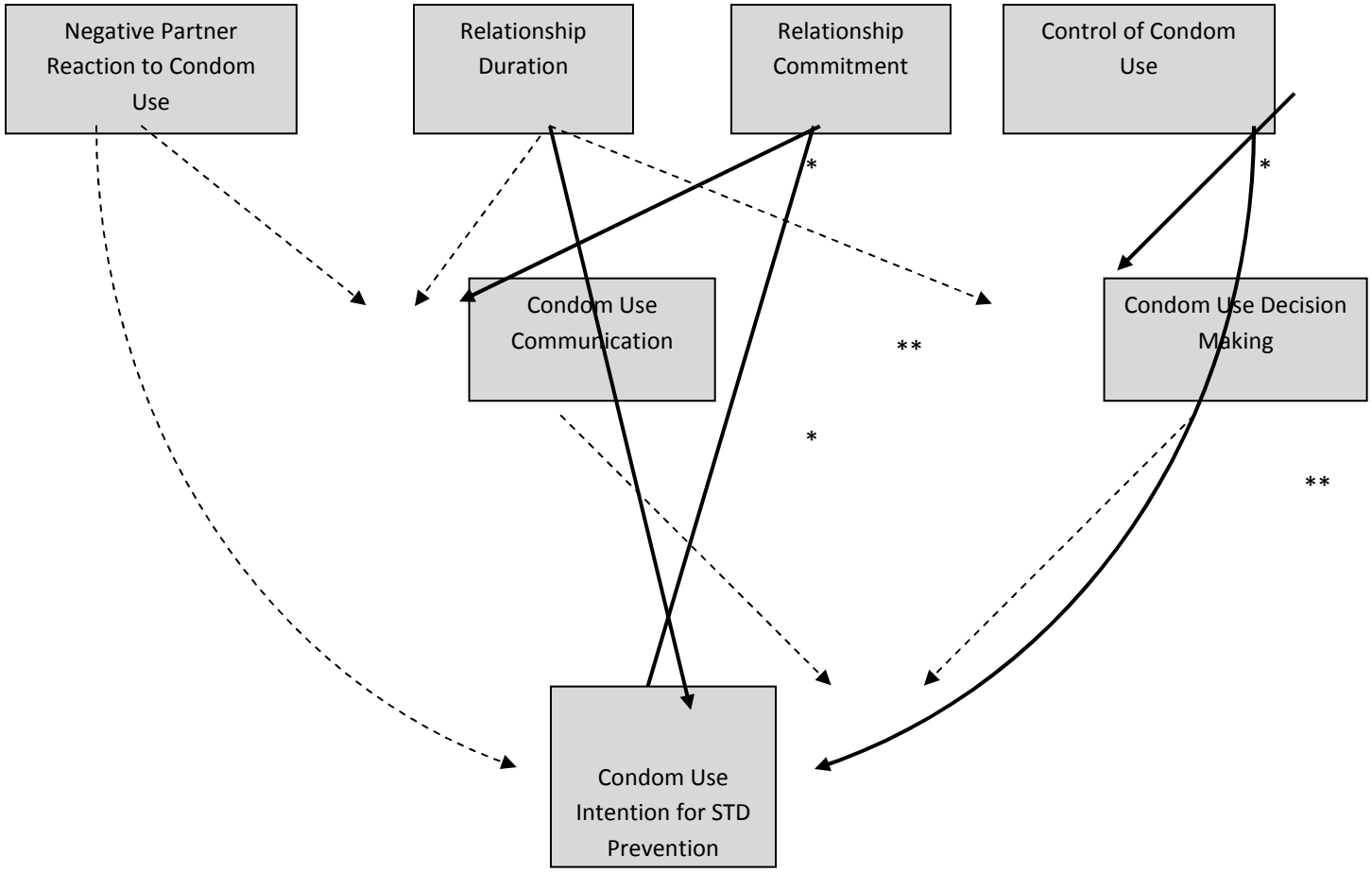
Table 3. Bivariate associations between background and relationship characteristics and condom use intention for STD prevention.

	Condom Use Intention for STD Prevention		
Characteristics	Not at all likely (n=36)	Moderately likely (n=32)	Extremely likely (n=52)
Mean age (range, 18-24)***	21.9	20.9	20.6
Educational attainment			
% Less than HS diploma or GED	7.5	9.2	14.2
% HS diploma or GED	16.7	13.3	18.3
% Some college but no degree	5.8	4.2	10.8
Relationship type**			
% Steady	29.2	20.8	29.2
% Casual	0.8	5.8	14.2
Mean relationship duration, months* (range, 0-96)	31.0	24.2	17.8
Mean relationship commitment** (range, 1-5)	4.4	3.8	3.6
Condom use communication			
% No	2.5	5.8	6.7
% Yes	27.5	20.8	36.7
Condom use decision making			
% Low participation	7.5	5.8	3.3
% Moderate participation	4.2	5.8	4.2
% High participation	18.3	15.0	35.8
Control of condom use**			
% Male	12.5	9.2	18.3
% Female	0.8	7.5	2.5
% Shared	16.7	10.0	22.5
Negative partner reaction to condom use			
% No	26.7	20.8	35.8
% Yes	3.3	5.8	7.5

*$p < 0.05$ **$p < 0.01$ ***$p < 0.001$

Step two was to determine if the second condition for mediation was met. Bivariate statistical tests (Pearson's χ^2 and one-way ANOVA) were used to determine if the mediator variables were significantly associated with the dependent variable (significance level = $p < 0.05$). Neither condom use communication nor condom use decision making was determined to be significantly associated with either of the dependent variable (Figure 1). It was therefore unnecessary to proceed with step three as the conditions for mediation were not met.

Figure 1. Conceptual model with results from bivariate analysis used to test hypothesized associations among relationship factors and between relationship factors and condom use intention for STD prevention. Solid lines indicate that the hypothesized associations between study variables were supported in bivariate analysis. Dashed lines indicate that the hypothesized associations between study variables were not supported in bivariate analysis.



Multinomial Logistic Regression

Results from the multinomial logistic regression model are reported in Table 4. In Model 1 analysis of condom use intention for STI prevention, age was negatively associated with being extremely likely to use condoms (OR = 0.58, 95% CI = 0.42, 0.81, $p < 0.01$). The condom use decision making construct was also significantly associated with being extremely likely to use condoms for STI prevention ($p < 0.05$). Male participants who reported high participation in the condom use decision making process were 7.9 times more likely to be extremely likely to use condoms for STI prevention as compared to participants who reported low participation in the condom use decision making process. Additionally, female control of condom use resulted in much higher odds of being moderately likely to use condoms verses being not at all likely to use condoms (OR = 13.37, 95% CI = 1.22, 10.52).

Table 4. Bivariate associations between independent variables (relationship duration, relationship commitment, negative partner reaction to condom use, and control of condom use) and mediating variables (condom use communication and condom use decision making).

	Condom Use Communication	
Characteristics	No (n=18)	Yes (n=103)
Mean relationship duration, months (range, 0-144)	26.5	25.9
Mean relationship commitment* (range, 1-5)	3.4	3.9
Negative partner reaction to condom use		
% No	11.1	3.4
% Yes	71.8	13.7

	Condom Use Decision Making		
Characteristics	Low Participation (n=21)	Moderate Participation (n=17)	High Participation (n=81)
Mean relationship duration, months (range, 0-144)	37.8	23.0	23.9
Mean relationship commitment (range, 1-5)	4.2	4.1	3.7
Control of condom use*			
% Male	9.4	5.1	26.5
% Female	3.4	3.4	4.3
% Shared	4.3	6.0	37.6

*$p < 0.05$

Two of the three background variables were not significantly associated with condom use intentions for STI prevention in the multivariate analysis. Education level and relationship type did not influence their condom use intentions. Additionally, the two dichotomous variables condom use communication and negative partner reaction to condom use did not have an association with the male participants' condom use intentions for STI prevention.

DISCUSSION

Less than half of the American Indian men who participated in this study expressed a high likelihood of using condoms for STI prevention in the future. These numbers are less than ideal given the sexual health disparities that exist within the population of American Indian men. Background variables that had statistically significant bivariate associations with condom use

intentions to prevention STIs in this sample were age and relationship type. This suggests that as American Indian men age, they are less likely to plan on using condoms for STI prevention. In addition there was a statistically significant association with condom use intentions and relationship type. Of the men who were in casual relationships, 63% reported that they were "extremely likely" to use condoms for STI prevention. Conversely, only 38% of the participants who were in steady relationships reported they were "extremely likely" to use condoms for STI prevention. Thus, it appears that condom use takes on greater importance in the context of a relationship that is casual than in the context of a relationship that is steady.

From bivariate analysis, the relationship factors exhibiting a statistically significant association with condom use intentions included relationship commitment and control of condom use. In this sample relationship commitment was significantly associated with both condom use intention for STI prevention ($p < 0.01$). Participants reporting a greater likelihood of future condom use for STI prevention had a lower commitment level to the relationship they had with their female sexual partner. The direction of this association is consistent with extant literature from non-American Indian populations and may be attributable to parallel levels of intimacy and trust in relationships characterized by high commitment. Regardless of the rational, it is clear that relationship commitment was an important contextual variable that influenced men's intentions to use condoms for STI prevention.

While the results from this study suggest that relationship factors are important determinants of condom use intentions for American Indian men, it appears that the conceptual model used for this investigation of American Indian men's condom use intentions was not a good fit. Using condom use intention for STI prevention as the outcome measure, only five of the twelve hypothesized associations were statistically significant. Furthermore, neither the variable condom use communication nor the variable condom use decision making met the criteria set forth by Baron and Kenny (1986) for mediation. In summary, this study supports the use of individual relationship variables, drawn from the theories of planned behavior and interdependence, for understanding American Indian men's intentions to use condoms for STI prevention. Yet, a more appropriate conceptual model of these relationship variables as they relate to one another and to condom use intentions could perhaps be found for future investigations of this topic with American Indian populations.

The multivariate results indicated that two factors were negatively associated with future condom use; age and relationship commitment. The odds of being extremely likely or moderately likely to use condoms were decreased by more than half for each year increase in male participants' age. It is possible that with increased age, the types and characteristics of the sexual relationships that American Indian men form change in ways that lead to decreased condom use for the purpose of STI prevention. However, the risk for STI transmission may or may not decrease in conjunction with these relationship changes. Future efforts to decrease the incidence of STIs by increasing condom use amongst American Indian men should address the negative association between age and condom use intentions by helping men accurately gauge their STI risk level.

This study's multivariate results demonstrated that relationship commitment influenced the study participants' condom use intentions for STI prevention. These findings are consistent with a previous study conducted with First Nations people in Canada in which lack of condom use was associated with inconsistent sex partners among First Nations men (Meyers et al. 1999).

In our study American Indian men who reported greater commitment to their relationship had lower odds of being moderately or extremely likely to use condoms in the future for either STI prevention. This suggests that it may be that the introduction of condoms into a sexual relationship characterized by high relational commitment could pose a threat to that commitment, especially when condoms are used for the purpose of preventing STIs. Or it may be that the relationship commitment variable served as a proxy measure for their perceived risk of acquiring an STI.

The relationship commitment findings suggest that to impact the condom use behaviors of young American Indian men, STI prevention programs would benefit from consideration of the influences of relationship commitment on condom use intentions. The frequency distributions of responses to the items in the relationship commitment scale reflect men's perhaps realistic assessment that their relationship might not last forever, despite an overall commitment to that relationship. Research conducted by Gipson et al. (2013) among young people in the Philippines suggests that because of the urbanization and globalization of young people concepts of sex and sexual relationships are rapidly changing indicating and young people may not chose to be in long term formal relationships. Thus, future STI prevention programs could promote condom use as a means of maintaining lifelong sexual health, while still recognizing condom use may not be appropriate for everyone and other STI preventative behaviors should be used in lieu of condom use.

Two relationship factors associated with a greater probability of future condom use were condom use decision-making and control of condom use. Both of these factors relate to a man's level of engagement, relative to his female sexual partner, in the choice whether or not to use a condom for preventing STI transmission. The results from this study indicate that male involvement is important in that a higher level of involvement in or control of the choice to use condoms translates into a greater likelihood that condoms will be used in the future.

Limitations

Limitations with this study should be noted. The generalizability of this research is limited due in part to diversity within the population and in part to the non-probability sampling method used and should not be assumed to be applicable to all men of Native American. The male participant's responses are self-reported responses, which may not represent their real behaviors and true intentions. The measures used to capture a theoretical construct may have to be adopted to make them relevant to the target population (Glanz et al. 2002). Two of the relationship factors in this study were measured by "yes" or "no" responses. This dichotomization of a concept or behavior simplifies its measurement and, in doing so, may inaccurately represent that concept or behavior. The exploratory cross-sectional nature of the study does not allow for following the research participants over time in order to determine changes in condom use behavior. Finally even though the study examined condom use intention among American Indian men this does indicate the actual use of condoms to prevention STIs.

CONCLUSION

Due to the paucity of research that specifically addresses American Indian men and topics related to their sexual health this study provides insight into some of the factors influencing the high STI rates among American Indians. Based on our study findings future research aimed at improving the sexual health of American Indian men can be pursued. Given

that an increase in age resulted in lower odds of intended condom use, there is support for reaching out to American Indian men in their adolescence and early twenties. How to conduct outreach efforts with young American Indian men in order to provide them with the education and skills necessary to prevent STIs is warranted. Moreover a deeper understanding the complexity of sexual behaviors and sexual decision making among young American Indian men and the challenges they may face in understanding their own sexual health may assist in addressing their STI risk behavior (Meyers et al. 1999).

The significance of relationship commitment in determining condom use intentions for STI prevention provides an opportunity to change the image of condoms within steady, committed relationships. In popular culture condoms tend to be associated with sexual risk behavior or infidelity when they are introduced into a relationship between heterosexual couples. This does not need to be the case. Areas of future research could investigate how condom use for STI prevention can be conceptualized within a steady, committed relationship for American Indian men. Consideration of the HIV prevention research conducted in Africa among heterosexual couples may be a starting point for replication and adaptation among American Indian communities in the United States (Rispel et al. 2011).

The study findings show an increased likelihood of condom use intentions for men that report moderate and high participation in condom use decision-making. This illustrates the importance of further investigation of how to promote male involvement in condom use decision making among American Indian heterosexual couples particularly as young American Indian men age and there is the potential for them to move into steady committed relationships.

Overall while there has been much research on the social, cultural and behavioral factors associated with condom use among men in ethnically diverse populations studies that specifically address the sexual health needs of heterosexual American Indian men are minimal. Given that this study did not explicitly examine the association between cultural characteristics and condom use intention that are unique to Assiniboine and Sioux men future research efforts may include an in-depth analysis of the relationship between cultural factors and condom use that are tribe specific. In particular developing new theoretical models for understanding and conceptualizing sexual health that include American Indian cultural beliefs and attitudes is needed as this study demonstrated that current theoretical frameworks of examining topics related to sexual health may not be appropriate (Parker 2009).

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