

RELATIONSHIP FACTORS AND AMERICAN INDIAN MEN'S
CONDOM USE INTENTIONS

by

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April 2009

TABLE OF CONTENTS

1. INTRODUCTION	1
Introduction to the Study	1
Research Questions and Corresponding Hypotheses.....	6
Definitions.....	13
Assumptions.....	18
Limitations	19
Significance.....	20
2. LITERATURE REVIEW	23
Theoretical Framework.....	23
Theory of Planned Behavior	23
Interdependence Theory.....	26
Conceptual Model.....	27
Background Variables.....	30
Age.....	30
Educational Attainment	30
Relationship Type	31
Interdependence Theory Variables	32
Relationship Duration	32
Relationship Commitment	33
Condom Use Communication.....	35
Condom Use Decision Making.....	36
Theory of Planned Behavior Variables.....	37
Control of Condom Use.....	37
Negative Partner Reaction to Condom Use	37
Condom Use Intentions.....	38
3. METHODS	39
Design	39
Sample.....	43
Instrumentation	47
Reliability and Validity.....	47
Measures	49
Dependent Variables.....	49
Independent Variables	50
Background Variables.....	50
Interdependence Theory Variables	51
Theory of Planned Behavior Variables.....	53

TABLE OF CONTENTS – CONTINUED

Data Collection	53
Data Analysis	55
4. RESULTS	58
Sample Characteristics.....	58
Background Variables.....	58
Relationship Variables.....	58
Dependent Variables.....	60
Bivariate Analysis.....	63
Condom Use Intention for STD Prevention.....	63
Condom Use Intention for HIV Prevention.....	65
Mediating Variables.....	65
Summary of Bivariate Results	69
Multivariate Analysis.....	72
Preparatory Actions	72
Multinomial Logistic Regression.....	73
Dependent Variables.....	73
Independent Variables	74
Multivariate Results	75
Model 1	75
Model 2	75
Models 1 and 2.....	76
Summary of Results.....	79
5. DISCUSSION.....	80
Descriptive Results	80
Bivariate Results	82
Multivariate Results	87
Study Limitations.....	89
Implications for Prevention Programming.....	92
Significance of the Study	94
REFERENCES CITED.....	97

TABLE OF CONTENTS – CONTINUED

APPENDICES	107
APPENDIX A: Request for Permission to Use Data	108
APPENDIX B: Approval from Fort Peck Tribal Executive Board.....	110
APPENDIX C: Presentation of Results to Fort Peck Tribal Executive Board	112
APPENDIX D: Recruitment Flier for Fort Peck Men’s Sexual Health Study.....	114
APPENDIX E: Fort Peck Men’s Sexual Health Study Interview Guide	116
APPENDIX F: Human Subjects Training Certificate for Rebecca Dick.....	131
APPENDIX G: Fort Peck Men’s Sexual Health Study Data Safeguarding Plan.....	133
APPENDIX H: Fort Peck Men’s Sexual Health Study Consent Form.....	138

LIST OF TABLES

Table	Page
1. Descriptive Statistics for Background, Relationship, and Outcome Variables.....	61
2. Distribution of Responses to Items in the Relationship Commitment Scale.....	62
3. Bivariate Associations Between Background and Relationship Characteristics and Condom Use Intention for STD Prevention.....	64
4. Bivariate Associations Between Background and Relationship Characteristics and Condom Use Intention for HIV Prevention.....	66
5. Bivariate Associations Between Independent Variables and Mediating Variables.....	68
6. Estimated Odds Ratios (OR) and 95 Percent Confidence Intervals (95% CI) for Variables Associated with Condom Use Intention for STD Prevention (Model 1) and with Condom Use Intention for HIV Prevention (Model 2).....	78
7. Summary of Results from Hypothesis Testing.....	79

LIST OF FIGURES

Figure	Page
1. Montana Rates of Chlamydial Infection by County for the Year 2005.....	5
2. A Conceptual Model of the Relationship Factors Hypothesized to Influence Male Participants' Condom Use Intentions.....	28
3. Paradigm for Community Based Participatory Research (CBPR).....	40
4. Paradigm for Conventional Research	40
5. A Map of Indian Reservations in Montana.....	44
6. A Map of the Fort Peck Indian Reservation	44
7. 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	70
8. Conceptual Model with Results from Bivariate Analysis Used to Test Hypothesized Associations Among Relationship Factors and Between Relationship Factors and Condom Use Intention for HIV Prevention.....	71

ABSTRACT

Sexually transmitted infections (STIs) pose a major threat to the public health of the United States. American Indians are disproportionately affected by STIs, including chlamydia and human immunodeficiency virus (HIV). Roosevelt County, which lies within the Fort Peck Indian Reservation in northeastern Montana, has consistently reported chlamydia rates two to five times higher than national rates. Community leaders from the Fort Peck Indian Reservation partnered with researchers from Montana State University to address the reservation's sexual and reproductive health needs. The purpose of this study was to investigate the heterosexual relationship factors that were associated with condom use intentions for STD and HIV prevention in a purposive sample of American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation. A community based participatory research (CBPR) approach was used for this study. A non-probability sample of American Indian men (n=122) were recruiting using consecutive and snowball sampling techniques. Study hypotheses were tested using Pearson's chi-squared and one way analysis of variance (ANOVA) analysis for bivariate associations and multinomial logistic regression for multivariate associations. Variables examined for their association with condom use intentions included age, educational attainment, relationship type, relationship duration, relationship commitment, condom use communication, condom use decision making, control of condom use, and negative partner reaction to condom use. Results indicated that American Indian men were less likely to use condoms for disease prevention as their age and their relationship commitment increased. Factors resulting in an increased likelihood of future condom use included high participation in the condom use decision making process and female control over condom use. Culturally relevant sexual risk prevention programs that work towards changing the perception of condoms in committed relationships and that engage men in sexual health decision making could help reduce the disproportionate burden of sexually transmitted disease carried by young American Indians living on the Fort Peck Indian Reservation.

CHAPTER 1

INTRODUCTION

Introduction to the Study

Sexually transmitted infections (STIs) are a major challenge to the public health of the United States. Approximately 19 million new infections occur each year and nearly half of those infections affect people ages 15 to 24 (CDC, 2007). Chlamydia is both the most commonly reported infectious disease and the most commonly reported STI in the United States with an infection rate of 347.8 cases per 100,000 population in 2006 (CDC, 2007). Gonorrhea is the second most commonly reported infectious disease in the United States with an infection rate of 120.9 cases per 100,000 population in 2006 (CDC, 2007).

Sexually transmitted infections disproportionately affect certain racial and ethnic groups, including American Indians and Alaska Natives (AI/AN). In a joint effort by the Centers for Disease Control and Prevention (CDC) and the Indian Health Service (IHS), an epidemiological profile of sexually transmitted infection morbidity among AI/AN was compiled using national and IHS specific disease surveillance data (Wong, Swint, Paisano, & Cheek, 2006). Wong et al. (2006) found that reported rates of chlamydia, gonorrhea, and primary and secondary syphilis for American Indians/Alaska Natives were two to six times higher than comparable rates for Whites. The national AI/AN rate

of chlamydia in 2004 was 705.8 cases per 100,000 population and was 2.2 times higher than the U.S. rate in 2004 (319.6 cases per 100,000 population) (Wong et al., 2006). For gonorrhea, the rate of infection amongst AI/AN in 2004 was slightly higher than the U.S. rate (117.7 and 113.5 cases per 100,000 population, respectively) (Wong et al., 2006). However, the 2004 AI/AN gonorrhea infection rate represents a 15% increase from the rate seen the previous year (Wong et al., 2006) whereas gonorrhea rates for the overall U.S. population are decreasing (Kaufman et al., 2007). While the rate of acquired immunodeficiency syndrome (AIDS) among AI/AN in 2000 was lower than that for the overall U.S. population, it was higher than the AIDS rate for Whites (11.9 and 7.3 cases per 100,000 population, respectively) (McNaghten, Neal, Li, & Fleming, 2005).

Chlamydia and gonorrhea are the main causes of pelvic inflammatory disease (PID) which can lead to infertility and ectopic pregnancy in women (Barry & Klausner, 2006). In men, complications from chlamydia and gonorrhea include epididymitis and urethritis which result in acute health effects such as pain, fever, and swelling, as well as long term consequences such as sterility and prostate cancer (Barry & Klausner, 2006; CDC, 2007; Dennis, Lynch, & Torner, 2002; Forrest, 2001; Goldstraw, Fitzpatrick, & Kirby, 2007; Sutcliffe & Platz, 2007). Additionally, the STI epidemic is closely linked to the HIV/AIDS epidemic as they both are mainly transmitted from unprotected sexual intercourse and STI infection is a risk factor for HIV infection (Barry & Klausner, 2006; Brady, 2003). Indeed, STI infection increases the likelihood of sexually acquired HIV infection 3 to 5 times (Fleming & Wasserheit, 1999).

Individual and interpersonal behaviors can reduce a person's risk of acquiring a sexually transmitted infection and, subsequently, can lower their risk of experiencing the negative health effects of these infections. There are three behavioral strategies for reducing risk of STI infection: abstinence, mutual monogamy between uninfected partners, and condom use (Gillmore, Stielstra, Huang, Baker, Beadnell, & Morrison, 2003). While abstinence is the most effective way to prevent STI infection, for individuals who are sexually active, condoms are the most effective method of preventing against HIV when they are used consistently and correctly (Stone, Timyan, & Thomas, 1999). Additionally, population-based epidemiological studies have found that increased rates of condom use result in lower rates of sexually transmitted infections (CDC, 2003).

Despite the known efficacy of condom use for STI prevention, little data is available regarding the condom use behaviors of American Indians. In a comprehensive review of the literature, Kaufman et al. (2006) found only one national report on the sexual risk-taking behaviors, including condom use, of American Indian youth. That report from Everett-Jones, Shaughnessy, and Branum (2001) surveyed American Indian high school students and found that 56% of sexually active students used a condom during their most recent sexual intercourse.

Condom use has been classified as an interdependent behavior since more than one person is involved in this activity (Harvey et al., 2006). In heterosexual relationships, both men and women play a role in determining if and when condoms are used. As such, interpersonal dynamics between men and women in sexual relationships may influence condom use behaviors. Given the interdependent nature of condom use,

research aimed at understanding factors influencing condom use behaviors should extend beyond individual-level determinants so as to capture the relationship context that is likely to influence condom use. General relationship factors such as type, duration, and commitment as well as condom specific relationship factors such as condom use communication, condom use decision making, and partner reaction to condoms have been shown to influence condom use behaviors amongst heterosexual couples (Harvey & Henderson, 2006).

Despite a growing recognition of the role relationship factors play in condom use, most research on condom use for STI prevention has focused on the female partner. This tendency to overlook the male perspective on condom use in heterosexual relationships has been attributed to the belief that power imbalances and communication skills are thought to primarily influence women's ability to negotiate condom use with their male partners (Harvey & Henderson, 2006). This assumption of gender imbalance may be misguided and it may over-simplify the dynamics involved in heterosexual relationships. Additionally, in minority populations there is the potential that gender relations are dictated by different cultural norms from those found in majority populations. The unique cultural characteristics of American Indian communities may influence heterosexual relationships and the role each gender plays in condom use behavior. Due to the dearth of research on how relationship factors influence condom use for men and in light of the potential for cultural factors to shape the interaction between men and women regarding condom use, there is a need to investigate the association between relationship factors and condom use in a male American Indian population.

Montana is a rural state with seven Indian reservations and eleven federally recognized Indian tribes. Counties in Montana that report STI rates substantially higher than national STI rates are counties that contain reservations (Figure 1). Roosevelt County in northeastern Montana makes up a large proportion of the Fort Peck Indian Reservation and has consistently reported chlamydia rates two to five times higher than national rates (*Sexually Transmitted Infections: Montana, 2001-2005*). Roosevelt County's chlamydial infection rate in 2005 was 855 cases per 100,000 population which represents a rate approximately two and a half times that of the national rate in 2005.

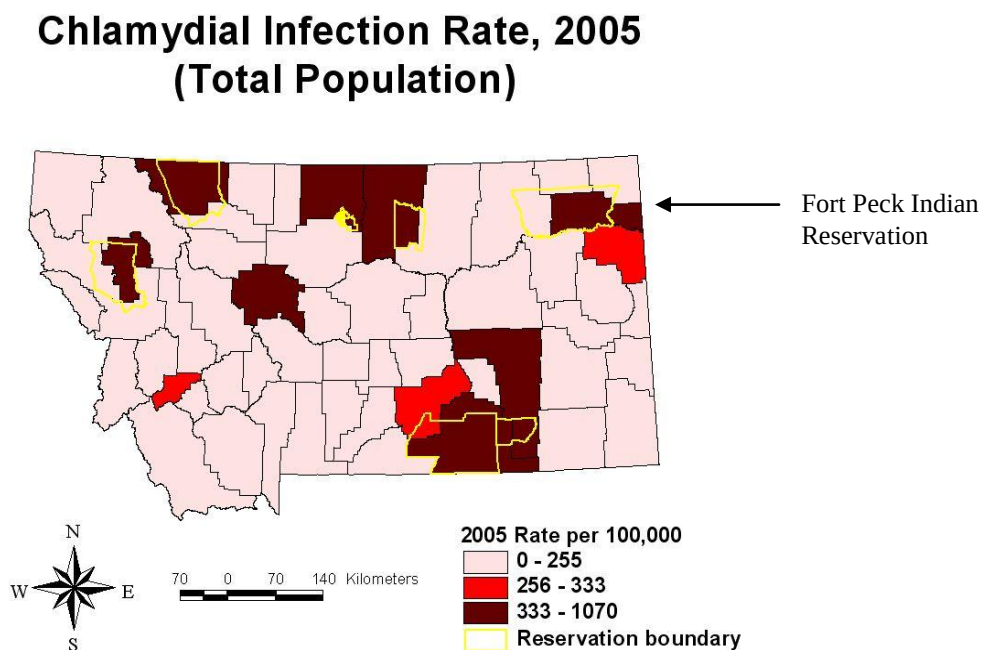


Figure 1: Montana rates of chlamydial infection by county for the year 2005. Counties colored pink report rates below the state rate, counties colored red report rates above the state rate but below the national rate, and counties colored dark red report rates higher than the national rate of infection. Rates are based on cases reported to the Montana Department of Public Health and Human Services.

In 2006, members of the Fort Peck Tribal Executive Board (the governing body of the reservation) and Fort Peck Tribal Health approached researchers from Montana State University regarding the possibility of initiating a research project to address their community's sexual and reproductive health needs. The Fort Peck Men's Sexual Health Study began in 2007 with funding from the U.S. Office of Population Affairs (RO3 PAR-05-185; Rink, PI). The purpose of the Fort Peck Men's Sexual Health Study was to elucidate the individual, social, and environmental factors that appear to have the greatest influence on American Indian men's sexual and reproductive health. This investigation of the relationship factors associated with condom use intentions amongst American Indian men living on the Fort Peck Indian Reservation comprises a subset of the overall Fort Peck Men's Sexual Health Study.

The primary purpose of this study was to investigate the heterosexual relationship factors that were associated with condom use intention for STD and HIV prevention in a purposive sample of American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation. The secondary purpose of this study was to provide recommendations for designing an appropriate and effective intervention to increase condom use amongst American Indian men living on the Fort Peck Indian Reservation and, ultimately, to decrease rates of sexually transmitted infections in this population.

Research Questions and Corresponding Hypotheses

The research questions (RQ) and corresponding null (H_o), and alternative (H_a) hypotheses for this study are:

- RQ1 Is there an association between relationship duration and condom use communication amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation?
- H₀1: There is not a statistically significant association between relationship duration and condom use communication amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.
- H_a1: There is a statistically significant association between relationship duration and condom use communication amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.
- RQ2 Is there an association between relationship commitment and condom use communication amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation?
- H₀2: There is not a statistically significant association between relationship commitment and condom use communication amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.
- H_a2: There is a statistically significant association between relationship commitment and condom use communication amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.
- RQ3 Is there an association between negative partner reaction to condom use and condom use communication amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation?

- H₀3: There is not a statistically significant association between negative partner reaction to condom use and condom use communication amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.
- H_a3: There is a statistically significant association between negative partner reaction to condom use and condom use communication American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.
- RQ4 Is there an association between relationship duration and condom use decision making amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation?
- H₀4: There is not a statistically significant association between relationship duration and condom use decision making amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.
- H_a4: There is a statistically significant association between relationship duration and condom use decision making American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.
- RQ5 Is there an association between relationship commitment and condom use decision making amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation?
- H₀5: There is not a statistically significant association between relationship commitment and condom use decision making amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.

- H_a5: There is a statistically significant association between relationship commitment and condom use decision making amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.
- RQ6 Is there an association between perceived behavioral control of condom use and condom use decision making amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation?
- H_o6: There is not a statistically significant association between perceived behavioral control of condom use and condom use decision making amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.
- H_a6: There is a statistically significant association between perceived behavioral control of condom use and condom use decision making amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.
- RQ7 Is there an association between age and condom use intentions amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation?
- H_o7: There is not a statistically significant association between age and condom use intentions amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.
- H_a7: There is a statistically significant association between age and condom use intentions amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.

RQ8 Is there an association between educational attainment and condom use intentions amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation?

H₀8: There is not a statistically significant association between educational attainment and condom use intentions amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.

H_a8: There is a statistically significant association between educational attainment and condom use intentions amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.

RQ9 Is there an association between relationship type and condom use intentions amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation?

H₀9: There is not a statistically significant association between relationship type and condom use intentions amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.

H_a9: There is a statistically significant association between relationship type and condom use intentions amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.

RQ10 Is there an association between relationship duration and condom use intentions amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation?

- H₀10: There is not a statistically significant association between relationship duration and condom use intentions amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.
- H_a10: There is a statistically significant association between relationship duration and condom use intentions amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.
- RQ11 Is there an association between relationship commitment and condom use intentions amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation?
- H₀11: There is not a statistically significant association between relationship commitment and condom use intentions amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.
- H_a11: There is a statistically significant association between relationship commitment and condom use intentions amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.
- RQ12 Is there an association between condom use communication and condom use intentions amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation?
- H₀12: There is not a statistically significant association between condom use communication and condom use intentions amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.

- H_a12: There is a statistically significant association between condom use communication and condom use intentions amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.
- RQ13 Is there an association between condom use decision making and condom use intentions amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation?
- H_o13: There is not a statistically significant association between condom use decision making and condom use intentions amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.
- H_a13: There is a statistically significant association between condom use decision making and condom use intentions amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.
- RQ14 Is there an association between perceived behavioral control of condom use and condom use intentions amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation?
- H_o14: There is not a statistically significant association between perceived behavioral control of condom use and condom use intentions amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.
- H_a14: There is a statistically significant association between perceived behavioral control of condom use and condom use intentions amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.

RQ15 Is there an association between negative partner reaction to condom use and condom use intentions amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation?

H₀15: There is not a statistically significant association between negative partner reaction to condom use and condom use intentions amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.

H_a15: There is a statistically significant association between negative partner reaction to condom use and condom use intentions amongst American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.

Definitions

For the purpose of this study, relevant terms used throughout this narrative are conceptually defined as follows:

Condom use intentions was defined as a general term to refer to male participant's intentions to use condoms in the future for disease prevention purposes. This study measured condom use intentions with two separate variables: 1) condom use intention for STD prevention; and 2) condom use intention for HIV prevention.

Condom use intention for STD prevention was defined as the likelihood a participant will use a condom with their sexual partner to prevent getting a sexually transmitted infection other than HIV. Participants were asked to report condom use intention for the three months following the completion of the interview.

Condom use intention for HIV prevention was defined as the likelihood a participant will use a condom with their sexual partner to prevent getting HIV. Participants were asked to report condom use intention for the three months following the completion of the interview.

Sexual partner refers to the female whom a participant chose to refer to when completing the interview. Participants were asked to choose one sexual partner to think about when answering the interview questions. Participants were asked to choose a partner with whom they had engaged in sexual intercourse within the three months prior to completing the interview.

Relationship factors (variables) are characteristics in heterosexual relationships or are measures of relationship dynamics between men and women in heterosexual relationships that may influence condom use intentions and behavior. The relationship factors (variables) included in this study were: 1) relationship duration; 2) relationship commitment; 3) condom use communication; 4) condom use decision making; 5) perceived behavioral control of condom use; and 6) negative partner reaction to condom use.

Relationship duration was defined as the length of time a participant had been with their sexual partner. Relationship duration was reported in months.

Relationship commitment refers to a participant's assessment of his commitment to his sexual partner. Relationship commitment was measuring using Rusbult, Martz, and Agnew's Investment Model Scale (1998).

Condom use communication was defined as whether or not a participant had ever talked to his sexual partner about using a condom. Condom use communication was also defined as a mediating variable.

Condom use decision making was defined as the extent to which a participant took part in deciding whether or not to use a condom with his sexual partner. Condom use decision making was also defined as a mediating variable.

Perceived behavioral control of condom use was defined as who a participant thought made the decision regarding whether or not to use a condom. For the sake of parsimony, perceived behavioral control of condom use was shortened to control of condom use.

Negative partner reaction to condom use was defined as whether or not a participant was ever afraid of his sexual partner's reaction if he asked her to use a condom.

Background factors (variables) are characteristics of the male participants that were believed to influence their intentions to use condoms in the future for disease prevention purposes. The background factors (variables) included in this study were: 1) age; 2) educational attainment; and 3) relationship type.

Age was defined as how old a participant was in years at the time of the study.

Educational attainment was defined as the highest degree or level of school a participant had completed at the time of the study.

Relationship type was defined as the category participants felt best described the relationship they had with their sexual partner.

Mediating factor (variable) was defined as a variable that was presumed to influence the association between a predictor variable and an outcome variable (Baron & Kenny, 1986). There were two mediating variables in this study: 1) condom use communication; and 2) condom use decision making.

Predictor variable was defined as a variable that was presumed to influence an outcome variable (Portney & Watkins, 2009). There were nine predictor variables in this study: 1) age; 2) educational attainment; 3) relationship type; 4) relationship duration; 5) relationship commitment; 6) condom use communication; 7) condom use decision making; 8) control of condom use; and 9) negative partner reaction to condom use. The terms predictor variable and independent variable are interchangeable.

Outcome variable was defined as a variable that was presumed to depend on or be caused by another variable (Portney & Watkins, 2009). There were two outcome variables in this study: 1) condom use intention for STD prevention; and 2) condom use intention for HIV prevention. The terms outcome variable and dependent variable are interchangeable.

Sexually transmitted infection was defined as an infection that can be spread from one person to another through sexual contact (CDC, 2007). Chlamydia, gonorrhea, syphilis, HIV/AIDS, genital herpes, and genital warts are all examples of sexually transmitted infections. Sexually transmitted infection is abbreviated as STI. The terms sexually transmitted infection (STI) and sexually transmitted disease (STD) are interchangeable.

American Indian race can be defined in many different ways. For example, American Indian race can refer to a person who is a member of a federally recognized tribe; it can refer to a person who is a member of a tribe that is not federally recognized; and it can refer to a person who self-identifies as being of American Indian race. For this study, American Indian race was self-defined by tribal enrollment (either federally recognized or not). The terms American Indian and Native American are interchangeable.

Theory of planned behavior was defined as one of the two theoretical frameworks used to understand relationship factors associated with condom use. The theory of planned behavior is an individual-level model of health behavior in which attitudes, norms, and perceived behavioral control predict behavioral intentions, which in turn predict behavior (Ajzen, 1991). Theory of planned behavior is abbreviated as TPB.

Interdependence theory was defined as one of the two theoretical frameworks used to understand relationship factors associated with condom use. The interdependence theory 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 in the context of the relationship and situation in which the behavior transpires (Kelley & Thibaut, 1978). Interdependence theory is abbreviated as IT.

Community based participatory research was defined as a collaborative approach to research that involves community members, community organization members,

and researchers as equal partners in all aspects of the research process (Cargo & Mercer, 2008).

Assumptions

The underlying theoretical frameworks and the conceptual model used in this investigation have been validated with White, Hispanic, and African American populations but not American Indian populations. The applicability of the theory of planned behavior and the interdependence theory to the male American Indian population living on the Fort Peck Indian Reservation was assumed but not verified. Potentially, the cultural characteristics and historical experiences of American Indians in general, and the Fort Peck Tribes (Assiniboine and Sioux) in specific, may render the theories and the conceptual model used unsuitable for understanding the relationship factors that influence this sample of men's intended use of condoms. Specifically, the operationalization of concepts in the theoretical frameworks, the hypothesized associations between variables as outlined in the conceptual model, and the assumption that intention is the most important predictor of behavior drew on knowledge gained from previous studies with non-Indian populations. Therefore, the theoretical frameworks and the conceptual model may or may not accurately portray the associations between relationship variables and condom use for American Indian men living on the Fort Peck Indian Reservation.

Limitations

The American Indian population in the United States is highly heterogeneous. More than 1,000 tribes exist in North American (562 of them are federally recognized) and there are approximately 300 indigenous languages (Department of the Interior, 2002; Warne, 2006). There is also great heterogeneity within American Indians living on the Fort Peck Indian Reservation. Religious affiliation, familial composition, educational experiences, socioeconomic status, and amount of exposure to traditional teachings are all sources of heterogeneity within the Fort Peck community. This degree of diversity limits the generalizability of study findings to American Indians in general and Fort Peck American Indians in specific. Although this conceptual limitation is important, the community based participatory research framework used for this study helps to mitigate this limitation by assuring that study results and implications will be placed within the context of the Fort Peck community.

This study has several methodological limitations. The study design called for non-probability sampling methods due to the exploratory nature of the research and the sensitivity of the subject matter under investigation. This potential for sampling bias requires that caution be taken when generalizing the research findings from this sample to the target population as a whole. Additionally, because data was not collected on non-participants, (American Indian men who were approached, determined eligible but refused to participate) the extent to which the sample represents the overall target population or a just a select subgroup is indeterminable.

The instrumentation used in this study is another source of methodological limitations. The data collection instrument relied on self-report variables as indirect measures of behaviors. Self-report variables are subject to recall bias and social desirability bias (Portney & Watkins, 2009). In particular, the variables negative partner reaction to condom use and condom use communication could be subject to recall bias and the variables condom use intention for STD prevention, condom use intention for HIV prevention, condom use decision making, and control of condom use could be subject to social desirability bias.

Another limitation stems from the cross-sectional research design. Cross-sectional studies measure variables during a single period of observation (Portney & Watkins, 2009). Therefore, a cross-sectional study cannot measure the temporal ordering of study variables or any cause and effect relationships between variables (Friis & Sellers, 2004).

Significance

Though limited in scope, research literature specific to American Indians shows there to be several risk factors and protective factors associated with the sexual behaviors and the sexual and reproductive health of Indian communities. In particular, research with American Indians has found that familial and social factors can protect against engaging in risky sexual behavior and that sexual assault and other forms of physical abuse use are associated with sexual risk behaviors. In a study with American Indian adolescents, Chewning et al. (2001) found that participants with greater family support and participants who perceived their peers to be sexually abstinent were more likely to

practice abstinence or to use contraception (including condoms). Other research has identified having adult role models (Oman et al., 2006) and discussing HIV/AIDS with family (Marsiglia, Nieri, & Stiffman, 2006) as factors that are protective against sexual risk behavior for adolescent American Indian populations. For older American Indians, it appears that the occurrence of traumatic events is an important risk factor for sexual behavior. In research with urban American Indian women, Walters and Simoni (1999) and later Evans-Campbell, Lindhorst, Huang, and Walters (2006) identified having experienced sexual assault and physical violence as predictors of risky sexual behaviors.

Despite evidence that interpersonal factors influence the sexual behaviors of American Indians, little is known about the sexual relationship factors that influence condom use behaviors in this population. This research will add to the scarce body of knowledge regarding condom use in American Indian communities and appears to be the first investigation to highlight the relationship factors influencing male American Indians' intended use of condoms. By analyzing the hypothesized associations between the theory of planned behavior and independence theory variables, this research will also contribute to the extant literature on the appropriateness of these theories for American Indian populations.

From a practical standpoint, this research could benefit the Fort Peck community as a whole by underscoring the factors that relate to men's use of condoms with their female partners. Equipped with this knowledge, leaders from the Fort Peck community could develop an intervention that promotes condom use within heterosexual relationships. With the implementation of an effective and culturally appropriate condom

use intervention, the Fort Peck Indian Reservation could see their rates of sexually transmitted infections decrease over time.

CHAPTER 2

LITERATURE REVIEW

Theoretical Framework

Theory of Planned Behavior

The theory of planned behavior (TPB; Ajzen, 1991) is an individual-level model of health behavior with theoretical constructs that explain the likelihood of an individual performing a specific behavior. The theory of planned behavior is an extension of the theory of reasoned action (TRA; Fishbein, 1967) so the theoretical constructs and theoretical relationship between constructs that are a part of the TRA are also a part of the TPB. A key feature of the theory of reasoned action is that it recognizes that there is a difference between one's attitude toward an object and one's attitude toward a behavior that is associated with that object (Montaño & Kasprzyk, 2002). Furthermore, the theory posits that attitude toward a behavior is a much better predictor of that behavior than is attitude toward an object involved in the behavior (Fishbein, 1967). Numerous studies on diverse subject matters have verified the positive association between attitude towards a behavior and behavioral performance and intentions (Montaño & Kasprzyk, 2002). In the context of condom use behavior, the TRA presumes that attitude toward the object of condoms is a poor predictor of condom use whereas attitude toward using condoms is a good predictor of that behavior.

In the theory of reasoned action, attitude towards a behavior is a function of two other theoretical constructs: behavioral beliefs and outcome evaluation (Montaño & Kasprzyk, 2002). Behavioral beliefs can be thought of as outcome expectations as they are beliefs that performing a behavior will result in certain outcomes (Montaño & Kasprzyk, 2002). The outcome evaluation construct is simply the value attached to the expected outcome (Montaño & Kasprzyk, 2002). For example, with condom use behavior, a potential outcome expectation for males is that proposed condom use will cause their partners to react negatively. The outcome evaluation is determined by assessing if a male thinks that negative partner reaction is a good outcome or a bad outcome of condom use. As combined into a direct measure of attitude towards behavior, the behavioral beliefs and outcome evaluations are assumed to be determinants of behavioral intentions and ultimately behavioral performance (Montaño & Kasprzyk, 2002). However, this theoretical framework may not adequately explain the likelihood of an individual performing a specific behavior if that behavior is not under an individual's complete control (i.e. if the behavior is interdependent).

In 1991, Ajzen developed the theory of planned behavior to account for behaviors over which a person has incomplete volitional control. The construct perceived behavioral control was included into this theoretical framework to assess one's ability or power to exercise the behavior under investigation. For the behavior of condom use, the perceived behavioral control construct should predict condom use intentions and behaviors with an increase in perceived behavioral control resulting in an increase in condom use intentions and condom use behaviors.

The theories of planned behavior and reasoned action assume that the most direct determinant of behavior is behavioral intention (Montaño & Kasprzyk, 2002). This predictive relationship has been verified in numerous studies with the behavior of condom use (Albarracín, Kumkale, & Johnson, 2004; Baker, Morrison, Carter, & Verdon, 1996; Montaño, Kasprzyk, von Haeften, & Fishbein, 2001; Sheeran, Orbell, & Abraham, 1999). Since the TPB/TRA 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 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.

This cross-sectional research study of condom use intention for STD and HIV prevention with American Indian men, ages 15-24, living on the Fort Peck Indian Reservation uses the theory of planned behavior as a theoretical framework and thus assumes there is a causal relationship between condom use intention and condom use behavior in the target population. The theory of planned behavior supports the utility of this research on condom use intentions for informing interventions aimed at inciting a change in condom use intentions and, ultimately, a change in condom use behavior which can reduce risk for sexually transmitted infections. However, due to the interactive and interdependent nature of condom use, an investigation of the determinants of condom use behaviors and intentions needs to include variables other than those based off of individual-level models of health behaviors.

Interdependence Theory

The second theoretical framework used for this investigation of condom use intentions with American Indian men was the interdependence theory (IT; Kelley & Thibaut, 1978). The interdependence theory 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 & 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 & 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. The interdependence theory 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. The interdependence theory 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. The interdependence theory suggests that interdependent partners should be included in interventions that usually target individuals (Lewis, DeVellis, & Sleath, 2002) and, as such, this theoretical framework will guide

recommendations for interventions aimed at increasing condom use amongst American Indian men living on the Fort Peck Indian Reservation.

Conceptual Model

The theory of planned behavior constructs used in this investigation of relationship factors and condom use amongst American Indian men living on the Fort Peck Indian Reservation 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 interdependence theory 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.

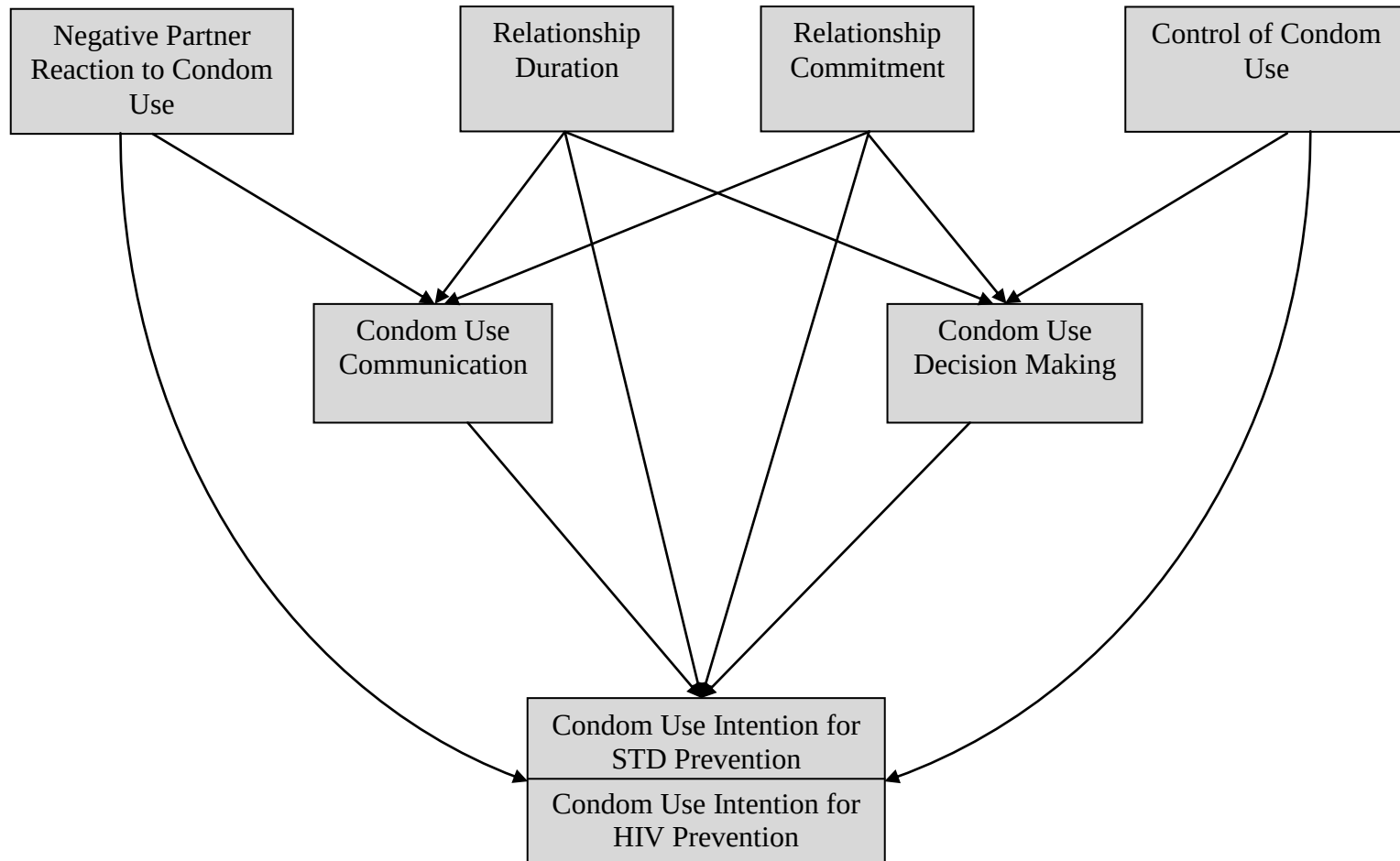


Figure 2: A conceptual model of the relationship factors hypothesized to influence male participants' condom use intentions. The theory of planned behavior measures included negative partner reaction to condom use and control of condom use. The interdependence theory measures included relationship duration, relationship commitment, condom use communication, and condom use decision making. Condom use communication and condom use decision making were hypothesized to be mediating variables.

The conceptual model (Figure 2) guiding the hypothesized associations between TPB and IT constructs and condom use intentions (for STD and HIV prevention) is based off the work of Harvey and colleagues (Harvey et al., 2006; Harvey & Henderson; 2006). Harvey et al. (2006) first used a conceptual model similar to the one used in this investigation for a study involving women who were recruited into a couple-based STI and unintended pregnancy intervention. Findings from their structural equation modeling statistical analysis support several of the proposed linkages found in our conceptual model, including: 1) the association between relationship commitment and condom use intentions; 2) the association between relationship commitment and condom use decision making; and 3) the association between condom use decision making and condom use intentions (Harvey et al., 2006). Then, in 2006, Harvey and Henderson expanded the scope (by adding a communication construct) and application (by conducting research with Latino men) of their original conceptual model. Findings from their logistic regression analysis support several of the proposed linkages used in Figure 2, including the association between condom use communication and condom use intentions and the association between condom use decision making and condom use intentions (Harvey & Henderson, 2006). Justification for the remaining hypothesized associations can be found in the following review of extant literature for study variables, beginning with background variables.

Background Variables

Age. Research suggests that age is associated with condom use intention and behaviors. Sheeran et al. (1999) found that across 121 published research studies, younger aged participants were more likely to report condom use than older participants ($r = -0.10$). In a seven year cohort study of men, Dariotis and colleagues (2008) found that the proportion of unprotected sex acts (condom non-use) steadily increased over time. It has been suggested that age is a factor in condom use because the types and characteristics of relationships change over time (Bauman & Berman, 2005). Adams, Laursen, and Wilder (2001) found that adolescent relationships were characterized by physical attraction and emotional intensity while relationships later in life were characterized by commitment, caring, support, and interdependence. These relationship characteristics may translate into a higher perceived risk of STDs and higher condom use in adolescents and a lower perceived risk of STDs and lower condom use as age increases. While it is unknown whether such relationship differences, and subsequent impacts on condom use, can be manifested in age differences of six years (18-24), this investigation will test a hypothesized association between age and condom use intentions.

Educational Attainment. A review of the extant literature on the condom use intentions and behaviors of men finds conflicting evidence for educational attainment as a significant factor in condom use. Education level and condom use during most recent sex were positively correlated in studies with heterosexual Latino men (Juarez & Castro Martín, 2006; Knipper et al., 2007) yet other studies with Latino men found education

level to be an insignificant factor in condom use intentions and behaviors (Harvey & Henderson, 2006) and in consistent condom use (Caballero-Hoyos et al., 2008). Despite an inconclusive relationship between educational attainment and condom use in published literature, this variable will be included in the statistical analysis examining the factors associated with condom use intentions among American Indian men.

Relationship Type. Extensive research with men and women of various races and ages shows that condoms are used more often or more consistently with casual partners than with steady partners (Caballero-Hoyos et al., 2008; Crosby et al., 2000; Friedman et al., 2001; Juarez & Castro Martín, 2006; Ku, Sonenstein, & Pleck, 1994; Lescano et al., 2006). This association between relationship type and condom use has been attributed to the level of perceived risk for sexually transmitted infections (de Visser & Smith, 2001). Sexual intercourse with a casual sex partner is perceived to carry an increased risk for STI and HIV transmission and so casual relationships are more likely than steady relationships to be associated with condom use (Lescano et al., 2006; Noar, Zimmerman, & Atwood, 2004). The negative association between steady partner relationship type and condom use has also been attributed to the role that trust (Bauman & Berman, 2005), closeness (Friedman et al., 2001), and intimacy (Sanderson & Jemmott, 1996) play in relationships.

Relationship type can also be treated as a control variable between relationship factors and intended condom use since predictors of condom use differ depending on the relationship between the partners (de Visser & Smith, 2001; Lescano et al., 2006). For example, Posner, Pulley, Artz, Cabral, and Macaluso (2001) did an analysis of the theory

of planned behavior (TPB) variables associated with condom use, stratified by partner type, and found that the TPB variables that were significantly associated with condom use for main partners were entirely different from the TPB variables significantly associated with condom use for other (casual) partners. Chatterjee, Hosain, and Williams (2006) found the same pattern when examining the sociodemographic and sex behavior variables associated with consistent condom use for steady and casual partners. Based on these findings, it appears that using a condom with a steady partner is an entirely different behavior than using a condom with a casual partner. Therefore, in this investigation of relationship factors associated with condom use intention for STD and HIV prevention, the variable relationship type was controlled for in multivariate statistical analysis.

Interdependence Theory Variables

Relationship Duration. An examination of extant literature on relationship duration as a factor influencing condom use revealed that duration is negatively associated with condom use. Fortenberry, Tu, Harezlak, Katz, and Orr (2002) in a study of young women found that as relationship duration increased, condom protected sex acts decreased. When comparing the condom use patterns of women in new relationships verses those of women in established relationships, Fortenberry and colleagues (2002) used Kaplan-Meier survival curves to show that by 21 days duration the condom use behaviors of these two relationships were identical. This suggests that a relationship duration of approximately three weeks encompasses enough time for the unspecified individual, relationship, situational, and environmental determinates of condom use to

change such that sexual partners discontinue condom use. A recent study using a nationally representative sample of adolescent males showed that increased relationship duration for their most recent sexual partner was associated with lower odds of condom use consistency with that partner (Manlove, Ikramullah, & Terry-Humen, 2008). Studies with minority women (African American; Bralock & Koniak-Griffin, 2007), men (Latino; Harvey & Henderson, 2006) and with both male and female college students (Civic, 1999) have shown negative associations relationship between relationship duration and condom use, although with different measures and different statistical methods.

Relationship Commitment. Research on relationship commitment and condom use has defined and operationalized relationship commitment in several different ways. For quantitative research, relationship commitment variables are typically measured using scales. Castañeda (2000) created a four item relationship commitment scale that was validated with a sample of Mexican Americans and found to have adequate internal consistency (Cronbach's $\alpha = 0.72$). This scale has subsequently been validated in research with homeless and low-income housed women (Cronbach's $\alpha = 0.70 - 0.83$; Tucker, Elliott, Wenzel, & Hambarsoomian, 2007). Another relationship commitment scale that has been utilized for condom use investigations is the commitment component of Sternberg's (1997) Triangle Love Scale (Cronbach's $\alpha = 0.93$). The original 12 item scale has been shorten to a five item scale due to multicollinearity and used for research with Latino men (Harvey & Henderson, 2006) and at risk women (for STIs; Harvey et al., 2006). A third relationship commitment scale is the Investment Model Scale which was

developed by Rusbult, Martz, and Agnew (1998). The subset of this scale measuring the relationship commitment construct has eight items and this scale has been used to successfully predict condom use intentions for male and female college students (Cronbach's $\alpha = 0.94$; Umphrey & Sherblom, 2007). This investigation of relationship factors and condom use intention for STD and HIV prevention amongst American Indian men living on the Fort Peck Indian Reservation uses the Investment Model Scale to measure relationship commitment (Cronbach's $\alpha = 0.94$).

The extant literature on relationship commitment and condom use intentions and behaviors demonstrates a strong and direct linkage between these factors. Umphrey and Sherblom (2007) found a negative association between commitment and condom use intentions; individuals in relationships characterized by lower commitment were more likely to intend to use condoms in the future. The research conducted by Harvey and colleagues (2006) also found a significant negative correlation between relationship commitment and condom use intentions. When using unprotected sex (condom non-use) as the outcome variable, Tucker et al. (2007) found that an increase in relationship commitment by one standard deviation resulted in a 50% increase in the amount of unprotected sex. However, when relationship commitment and condom use intentions and behaviors were studied in a strictly male population, relationship commitment was not significantly associated with either past condom use behavior or future condom use intentions (Harvey & Henderson, 2006).

Condom Use Communication. In a meta-analysis of safe sex communication and condom use, Noar, Carlyle, and Cole (2006) posit that communication is an important component of the interpersonal dynamics surrounding condom use. Research literature supports that argument with multiple studies finding a positive correlation between communication measures and condom use measures (summarized in Noar et al., 2006). However, investigations of the determinants of condom use behaviors and intentions have measured the communication construct with both general and domain specific variables. For instance, DiIorio, Dudley, Lehr, and Soet (2000) used a general communication measure (safer sex communication) while de Visser and Smith (2001) used a domain specific communication measure (condom use communication). Both studies were conducted with samples of heterosexual male and female college students. DiIorio et al. (2000) only found a weak association between safer sex communication and condom use ($r = 0.07$) while de Visser and Smith (2001) found a significant and strong increased likelihood of condom use when condom use communication occurred (regular partner OR = 2.34; casual partner OR = 4.77). The meta-analysis of 53 published articles with a cumulative sample size of 18,529 performed by Noar et al. (2006) found that of the different operational definitions of communication, condom use communication had the strongest correlation to condom use ($r = 0.25$) while safer sex communication had the weakest correlation ($r = 0.18$).

It is not clear that condom use communication has the same degree of impact on condom use for both men and women. Sheeran et al. (1999) conducted a meta-analysis of condom use determinants stemming from multiple theoretical frameworks. One of

their study findings was that condom use communication was more strongly associated with condom use for women than for men ($r = 0.47$ and 0.38 , respectively; Sheeran et al., 1999). Despite this potential gender discrepancy, male specific condom use investigations have found significant correlations between communication and condom use (Harvey & Henderson, 2006).

Condom Use Decision Making. Decision making has been shown to be a significant factor in condom use intentions and condom use behaviors, however, the supporting evidence for this variable comes almost exclusively from research involving women (Bowleg, Belgrave, & Reisen, 2000; Cabral, Pulley, Artz, Brill, & Macaluso, 1998; Harvey, Bird, De Rosa, Montgomery, & Rohrbach, 2003; Harvey, Bird, Galavotti, Duncan, & Greenberg, 2002; Soler et al., 2000). An examination of the existing literature on condom use decision making revealed only one published article (Harvey & Henderson, 2006) with men as the target population. The relationship factors of decision making and power are closely intertwined in theoretical constructs and in conducted research. While theoretical constructs do not posit gender imbalances, a review of the research literature finds that it has been assumed that because men are more likely to carry out condom use behavior, power imbalances and diminished decision making involvement will only affect women. This assumption contradicts the research findings of Harvey and Henderson (2006) in which high participation in condom use decision making was significantly associated with condom use intentions ($OR = 3.25$) and past condom use behaviors ($OR = 2.45$).

Theory of Planned Behavior Variables

Control of Condom Use. The control of condom use variable is a measure of the TPB construct perceived behavioral control and is similar to constructs in other behavioral and psychosocial theories (i.e. self-efficacy in the health belief model and power in the social exchange theory). In a study of male and female college students, Gagnon and Godin (2000) found that perceived behavioral control was a significant predictor of condom use intentions; persons who had high perceived behavioral control over condom use reported greater intentions to use condoms with a new sex partner. Other researchers have found a similar importance and directional association between perceived behavioral control (or self-efficacy) and condom use (Bakker, Buunk, & Manstead, 1997; Beadnell et al., 2008; Broaddus & Bryan, 2008; Gómez & Martín, 1996).

Negative Partner Reaction To Condom Use. Studies with men (Harvey & Henderson, 2006), women (Ehrhardt et al., 2002; Gómez & Martín, 1996; Posner et al., 2001), and both men and women (DiIorio et al., 2001) have found an inverse association between anticipated negative partner reaction to condom use and condom use behavior. When using reported condom use as the outcome variable, Harvey and Henderson (2006) found that an increase in expected negative reactions from partners by one standard deviation resulted in a 70% decrease in the odds of condom use. As a construct, partner reaction to condom use is an important predictor of condom use intentions because in sexual relationships, the proposed use of condoms may be interpreted as an admission or

accusation of infidelity (Juarez & Castro Martín, 2006; Kirkman, Rosenthal, & Smith, 1998). Men who anticipate a negative reaction from their sexual partner to condom use may be less likely to intend to use condoms so as to avoid undermining relationship trust and stability.

Condom Use Intentions. An individual's intentions to use condoms are assumed to be highly predictive of an individual's actual use of condoms. This causal relationship has been verified in numerous studies with the behavior of condom use (Albarracín et al., 1996; Baker et al., 1996; Montaña et al., 2001; Sheeran et al., 1999). Sheeran et al. (1999) in a meta-analysis of 121 published research studies found condom use intentions to be highly correlated with condom use ($r = 0.46$). A comprehensive search of the literature revealed no studies documenting the predictive nature of condom use intentions on condom use behavior amongst American-Indians.

CHAPTER 3

METHODS

Design

A cross-sectional design approach using Pearson's chi-squared (χ^2) and one way analysis of variance (ANOVA) analysis to statistically test bivariate associations and multinomial logistic regression to statistically test multivariate associations between study variables relationships was used for this research. An in-depth interview method of data collection was implemented and select quantitative data was used to investigate the relationship factors associated with condom use intention for STD and HIV prevention in a non-probability sample of American Indian men.

A community based participatory research (CBPR) approach was used for both the overall Fort Peck Men's Sexual Health Study and for this investigation of relationship factors and condom use intentions. CBPR is a collaborative approach to research that involves community members, community organization members, and researchers as equal partners in all aspects of the research process (Cargo & Mercer, 2008). As such, CBPR offers an alternative research paradigm (Figure 3) from that of conventional research (Figure 4) where the collaboration is between the researchers and the funding agency and communities are engaged only to the extent that they offer the locale from which data is obtained (Warne, 2006). CBPR has proven an effective research strategy when working with minority populations and other disenfranchised groups because of its

emphasis on community-academic partnerships that build mutual ownership of the research project and because of its ability to empower communities to address their health disparities in a culturally appropriate manner (Christopher, Watts, McCormick, & Young, 2008; Holkup, Tripp-Reimer, Salois, & Weinert, 2004; Mail, Conner, & Conner, 2006). Additionally, the systematic involvement of community members in a research project can add validity to the research instrumentation, improve data collection procedures, and enhance the interpretation of research results.

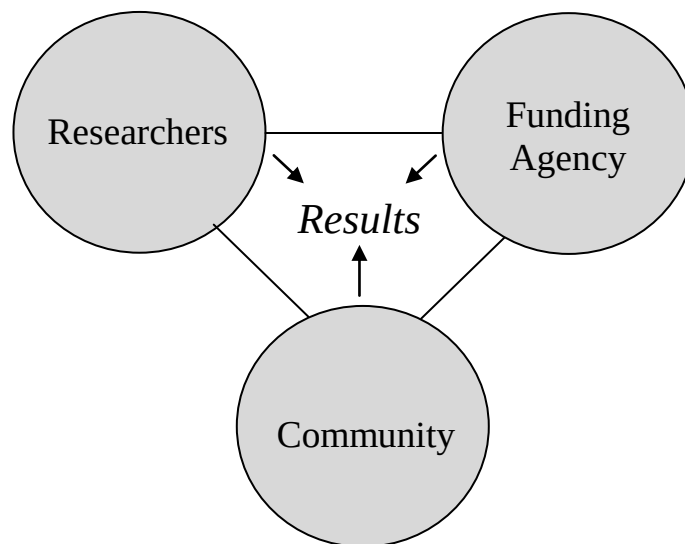


Figure 3: Paradigm for Community Based Participatory Research (CBPR). (Warne, 2006)

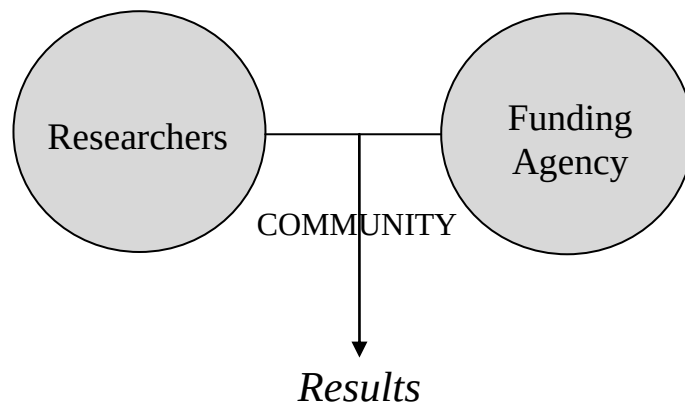


Figure 4: Paradigm for conventional research. (Warne, 2006)

The Fort Peck Men's Sexual Health Study exemplifies a CBPR approach in several ways, beginning with its inception. The Fort Peck Indian Reservation government and members of the Fort Peck community recognized the sexual and reproductive health disparities found in their community and approached researchers from Montana State University about the prospect of collaborating to address those health disparities. In February of 2007, a resolution to begin a partnership between the Fort Peck Indian Reservation and Montana State University addressing sexual and reproductive health was passed by the Fort Peck Tribal Executive Board. In April of 2007, a Community Advisory Board (CAB) was established and consists of community members with diverse professional and personal interests. The seven member CAB consists of a high school counselor, a nurse practitioner, a community organizer, an administrator at Fort Peck Community College, a substance abuse counselor, a tribal elder, and a community member. Four of the CAB members are female and six of the members are American Indian. The entire CAB meets every two to three months and the researchers meet individually with CAB members on a monthly basis. The CAB provides guidance for all aspects of the Fort Peck Men's Sexual Health Study.

In 2007 Montana State University researchers and Fort Peck Tribal Health professionals collaborated to create a data sharing agreement establishing guidelines for the use and ownership of any data and materials generated by the study. The data sharing agreement works off the premise that data collected from enrolled members of the Fort Peck Tribes belongs to the Fort Peck community as a whole, whose voices are represented through the elected members of the Fort Peck Tribal Executive Board. A

resolution passed by the Fort Peck Tribal Executive Board instituted the data sharing agreement in December 2007.

The Fort Peck Tribal Executive Board is updated quarterly on the progress of the Fort Peck Men's Sexual Health Study. Preliminary results of the study are regularly disseminated to the Fort Peck community at large through newspaper articles and published Tribal Executive Board meeting minutes. All final study results will be disseminated to the Fort Peck community in a manner to be determined by the Community Advisory Board (CAB) and all potential scholarly publications must first be approved by the CAB and the Fort Peck Tribal Executive Board.

The investigation that is the subject of this thesis also instituted a community based participatory research approach. Before starting the investigation, the researcher first consulted with the Fort Peck Tribal Executive Board. Permission was requested for both the use of the Fort Peck Men's Sexual Health Study data and for the proposed topic to be investigated (APPENDIX A). Tribal Executive Board approval was received on October 16, 2008 (APPENDIX B). The Fort Peck Tribal Executive Board received quarterly updates on all progress specific to this investigation and was informed of study findings before they were disseminated to either a professional audience or a Fort Peck community audience (APPENDIX C).

The Fort Peck Men's Sexual Health Study's CAB was involved in all phases of this investigation including the study design, data analysis and interpretation, write-up, and dissemination processes. The CAB helped the researcher choose which variables would best capture the relationship factors influencing men's condom use behaviors and

intentions and interpret the results of statistical analyses. Discussions surrounding the write-up of this study centered on the choice of whether or not to name the American Indian tribe engaged in the research. A consensus was reached that since the Tribe was proactive in addressing the sexual and reproductive health disparities found amongst their people, it was appropriate to share with a broader audience how that process unfolded. Finally, the Community Advisory Board (CAB) advised the researcher on how best to disseminate the study findings to the Fort Peck community, primarily focusing on reaching out to late adolescent and early adult males and their female sexual partners.

Sample

The Fort Peck Indian Reservation is located in northeastern Montana (Figure 5) and is home to the Assiniboiné and Sioux tribes. Fort Peck Indian Reservation encompasses four Montana Counties and 2.1 million acres. The majority of Roosevelt County is located within the Fort Peck Indian Reservation. There are approximately 12,000 enrolled members of the Fort Peck Tribes (Assiniboiné and Sioux). Most of the tribal members live along the southern border of the reservation and the two main population centers are the towns of Wolf Point and Poplar (Figure 6).

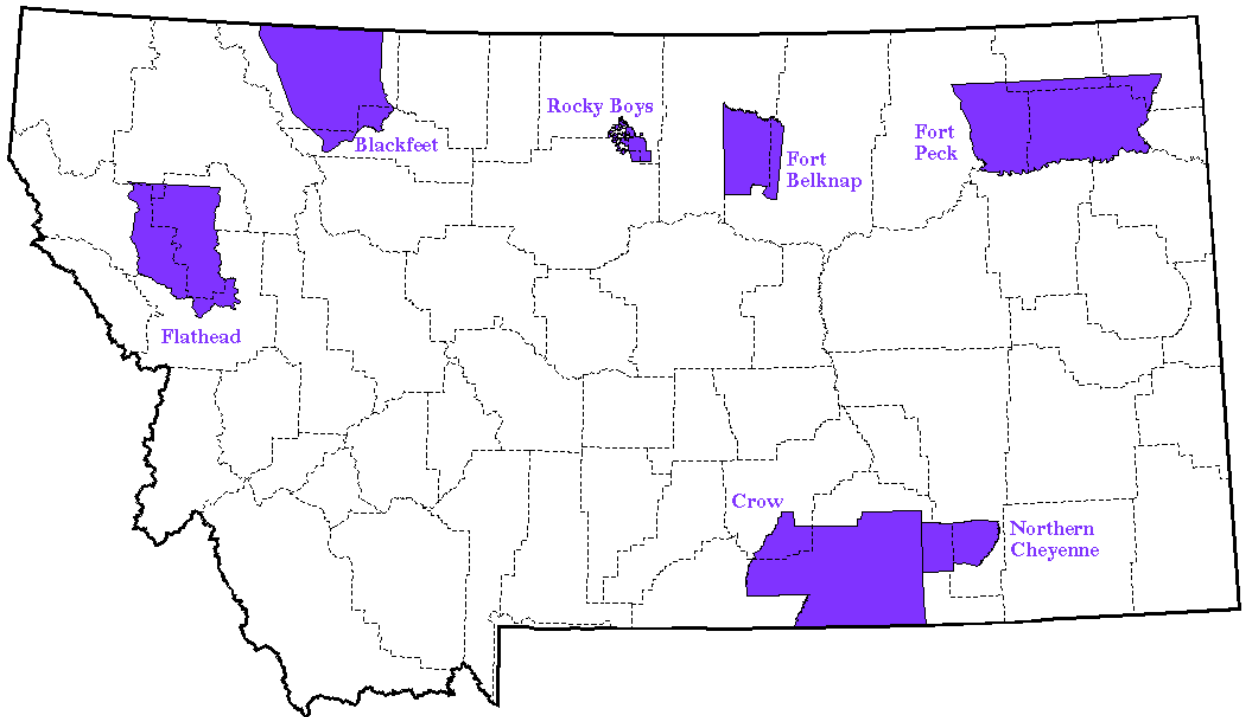


Figure 5: A map of Indian reservations in Montana. Fort Peck Indian Reservation is located in northeastern Montana.



Figure 6: A map of the Fort Peck Indian Reservation. The two largest towns are Wolf Point (population = 2,663) and Poplar (population = 911) (Census, 2000).

Sexually transmitted infections predominantly affect young people (ages 15 to 24) and the disease pattern for the Fort Peck Indian Reservation follows that trend. For Roosevelt County, 80% of reported chlamydia cases were under 24 years of age (*Sexually Transmitted Infections: Montana, 2001-2005*). Both nationally and on the Fort Peck Indian Reservation, the number of reported STI cases are higher for females than for males. For Roosevelt County, 78% of reported chlamydia cases in 2005 were females (*Sexually Transmitted Infections: Montana, 2001-2005*). However, this probably reflects the fact that females are far more likely to be screened for chlamydia than males (CDC, 2007). Additionally, 69% of the reported cases of chlamydia infection were American Indian. To date 64% of the HIV cases in Roosevelt County are among American Indians between the ages of 13 to 40 with men carrying the burden of HIV infection (82%) (MT DPHHS, 2008). Given the disparate rates of sexually transmitted infections seen in Roosevelt County and the age range and gender of those bearing the burden of disease, there is a need to investigate factors influencing condom use for American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.

Approximately 427 of the men living on the Fort Peck Indian Reservation are between the ages of 18 and 24 years (Census, 2000). For the Fort Peck Men's Sexual Health Study in general and this investigation in specific, a sample size of 122 American Indian men represented approximately 30% of the target population. This sample size, estimated for the finite, age-specific population size of the Fort Peck Indian Reservation will provide an estimated 10% prevalence with 95% confidence intervals and 5% precision (Devore & Peck, 2005). The 122 participants were recruited with non-

probability sampling methods including consecutive and snowball sampling.

Consecutive sampling is an appropriate sampling method when the research study is limited in scope and exploratory in nature; a snowball sampling method is most useful when studying sensitive subjects (Portney & Watkins, 2009; Singleton & Straits, 1999).

Recruitment procedures were developed following the recommendations of the Community Advisory Board (CAB). Partnerships formed with local community organizations, such as the Fort Peck Community College, Indian Health Service, and Job Corps raised awareness within the target population about the study and facilitated participant recruitment. The study also recruited participants via flyers, posters, newspaper advertisements, public bulletins, and word-of-mouth (APPENDIX D). Once participant recruitment from the previously mentioned strategies waned, snowball sampling techniques were employed in order to increase the representation of hard to reach males. The overall response rate for this study was approximately 80% with some recruitment techniques yielding a lower response rate (i.e. face-to-face recruitment at pow wows) and some recruitment techniques yielding a higher response rate (i.e. snowball sampling). Upon completing the interview, participants were asked to refer other eligible American Indian men to participate in the study. Consecutive and snowball sampling methods were employed until a sample size of 122 was reached.

The following eligibility criteria were used: 1) male gender; 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 Indian Reservation; and 5) sexually active with a female within the three months prior to the time of the interview. The research protocol for the

Fort Peck Men's Sexual Health Study was approved by Montana State University's Institutional Review Board (IRB), the IRB for Indian Health Service – Billings, and the Fort Peck Tribal Executive Board.

Instrumentation

For the Fort Peck Men's Sexual Health Study, in-depth interviews were conducted with 122 American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation. The purpose of the data collection instrument was to gain knowledge about how American Indian men's attitudes, perceptions, and beliefs influenced their health, health behaviors, and STI and family planning health care use. Individual, social, and environmental level factors were assessed. The interviews were conducted by trained interviewers using an interview guide (APPENDIX E). A mixed-methods data collection approach was taken for the Fort Peck Men's Sexual Health Study so both open and closed ended questions were included in the instrument. For this investigation on relationship factors and condom use intentions only a small portion of the data collected via in-depth interviews was used (11 questions out of a total 93).

Reliability and Validity

To minimize measurement error stemming from the person administering the instrument, all interviewers underwent a standardized training session. This ensured that all interviewers understood the structure of the instrument and the importance of asking all participants the same questions, in the same order, and with the same choices for

responses (Portney & Watkins, 2009). To maximize interviewer reliability, interviews were audio recorded (with the consent of participants) and study investigators reviewed and corrected any sources of potential measurement error stemming from interviewers.

The types of measurement validity supporting this instrument's ability to measure what it is intended to measure include content validity and construct validity. An instrument possesses content validity if it covers all parts of the entire range of content that defines the variables being measured (Portney & Watkins, 2009). For the Fort Peck Men's Sexual Health Study, the process of achieving content validity for the in-depth interview instrument involved the participation of two types of experts: those knowledgeable about the Fort Peck community and those knowledgeable about the theoretical frameworks of the study. The Community Advisory Board (CAB) guided instrument development by making sure that the range of content included in the measures was applicable to the local community. Dr. Suzanne Christopher and Dr. Marie Harvey served as peer mentors for the Fort Peck Men's Sexual Health Study. Dr. Christopher is a Professor of Community Health Education at Montana State University and Co-Director of the Center for Native Health Partnerships, a National Institutes of Health (NIH) funded Center whose goal is to improve the health of Native Americans in Montana through community-based health projects. Dr. Harvey is the Chair and Professor of the Department of Public Health, Oregon State University whose focus is on the social, psychological, and cultural aspects of sexual and reproductive health. Dr. Christopher and Dr. Harvey informed instrument development by making sure that the range of content included in the measures was grounded in the appropriate theory.

Construct validity reflects an instrument's ability to measure an abstract concept, or construct (Portney & Watkins, 2009). Several variables in this investigation are indirect measures of concepts. For instance, relationship commitment is a concept that is impossible to directly measure and difficult to define in words. The construct validity of this variable as operationalized in the in-depth interview instrument is supported because it has been validated by hypothesis testing in prior research (Bryssee, 1998; Rusbult et al., 1998; Umphrey & Sherblom, 2007).

Measures

The measures used in this investigation are described below and are organized as dependent and independent variables. As indicated below, the response categories of several variables were collapsed because their distributions were skewed.

Dependent Variables

There were two dependent variables in this research. Condom use intention for STD 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).

Condom use intention for HIV 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 HIV?”. Response categories were on a five-point Likert scale (1 = not at all likely and 5 = extremely likely). This variable was collapsed into three categories (1 = not at all likely, 2 = moderately likely, and 3 = extremely likely) due to low cell counts in the “a little likely”, “moderately likely”, and “very likely” response categories.

Independent Variables

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

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 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.

Interdependence Theory Variables. Relationship duration was assessed by asking participants, “How long have you been together with [name of sexual partner]?”. Participants could report relationship duration in weeks, months, and years. For the purpose of this study, the relationship duration variable was a continuous variable reported in months.

Relationship commitment was measured using Rusbult, Martz, and Agnew’s eight item Investment Model Scale (1998). Response categories were coded on a five-point Likert scale (1 = strongly disagree and 5 = strongly agree). Items included: (1) I want our relationship to last a very long time; (2) I am committed to maintaining my relationship with [name of sexual partner]; (3) I would not feel very upset if our relationship were to end in the near future; (4) It is likely that I will date someone other than my partner within the next year; (5) I feel very attached to our relationship – very strongly linked to my partner; (6) I want our relationship to last forever; (7) I am oriented toward the long-term future of my relationship with [name of sexual partner] (for example, I imagine being with my partner several years from now); and (8) I intend to stay in this

relationship. Relationship commitment scale responses were reverse-coded as necessary so that a higher score indicated greater relationship commitment. A Cronbach alpha test was performed to determine the internal consistency of this scale. For this sample of 122 American Indian men, the internal consistency of the relationship commitment scale was high with a Cronbach alpha value of 0.94.

To facilitate interpretation of this variable, 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 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 was measured using an existing validated single item from Harvey et al. (2006) and read: “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.

Theory of Planned Behavior Variables. 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” and interpreted as representing perceived self behavioral control, perceived partner behavioral control, and perceived shared behavioral control of condom use. Response categories were coded as 1 = male control, 2 = female control, and 3 = shared control.

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?”. This item was initially an open-ended question on the in-depth interview guide and was subsequently converted into a quantitative item for the purpose of this investigation. The vast majority of male participants gave a yes or no response to this item (117 of 122 participants; 96%) and response categories were coded 0 = no and 1 = yes.

Data Collection

Data was collected for the American Indian male in-depth interview component of the Fort Peck Men’s Sexual Health Study from January 2008 to December 2008. Interviewer training began in December 2007 and recurred several times as it was necessary to replace interviewers that could no longer work for the Fort Peck Men’s Sexual Health Study due to personal and schedule conflicts. Interviewer training lasted five hours and included both general information relating to human subjects protection,

confidentiality, and research protocols and information specific to the study such as men's sexual and reproductive health, recruitment, interviewing, data collection, and data management. All trained interviewers were members of the Fort Peck community and most were students at the local community college. In total, 6 interviewers were trained; 5 were male and 1 was female. The principle investigators of the Fort Peck Men's Sexual Health Study and the researcher of this thesis investigation also completed a total of 9 interviews. The human subjects training certificate for the researcher can be found in APPENDIX F.

Several steps were taken to protect the human subjects' rights of the study's male participants. All interviewers were trained on confidentiality and procedures for data safeguarding. Participants were assigned a unique study identification number and all study materials that included identifying information on participants were marked using those numbers. Study materials with identifying information were stored in a locked file cabinet in a locked office at Fort Peck Tribal Health until they could be transferred to Montana State University for data entry. Materials were also stored in a locked file cabinet in a locked office at Montana State University and data was entered into a password protected computer in a locked office. A formalized data safeguarding plan for reacting to and addressing any disclosures of participants' identifying information was established and distributed amongst the study staff (APPENDIX G). All potential participants were notified of the study procedures and of their rights as participants during the informed consent process and gave written informed consent (APPENDIX H) before beginning the interview.

Participants were recruited using purposive and snowball sampling methods and a person's eligibility for the study was established either before the interview began or at the very beginning of the interview. Gender eligibility was established by the interviewers before the interview began; age eligibility was established by asking the participants, "How old are you?"; American Indian racial eligibility was established by asking, "Are you enrolled in a tribe?"; and Fort Peck residence was assessed by asking, "Where do you currently live?". Sexual activity eligibility was indirectly established through a dialogue between the interviewer and the participant. Participants were asked to think about one female sexual partner with whom they'd had sexual intercourse within the last three months. If participants indicated they did not have a recent female sexual partner, they were thanked for their time and the interview ended.

The in-depth interviews lasted anywhere from 45 minutes to 2.5 hours. As a compensation for their time, participants were given a \$25 gift card redeemable at two local gas stations/convenience stores. Additionally, participants who recruited three males who subsequently completed the in-depth interview were thanked for their efforts with a \$25 gift card redeemable at two local gas stations/convenience stores.

Data Analysis

The descriptive statistics mean (M), range, and standard deviation (SD) were reported for all continuous variables and frequency distributions were reported for all categorical variables. Frequency distributions of the eight items included in the

relationship commitment scale were also reported. Data from continuous variables was checked for normality and data from categorical variables was checked for collinearity.

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 $p < 0.05$. If a variable was statistically significant at $p < 0.05$, it was also tested for significance at $p < 0.01$ and $p < 0.001$.

An additional bivariate analysis was included to test the hypothesized associations among relationship characteristics, as put forth in the conceptual model (Figure 2). 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 dependent variables. 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 two multinomial logistic regression models. One logistic regression model explored the multivariate associations of background and relationship variables on condom use intention for STD 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. The other logistic regression model explored the multivariate associations of background and relationship variables on condom use intention for HIV prevention (Model 2). In model 2, 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 models were reported in odds ratios (OR) and 95 percent confidence intervals (95% CI). Odds ratios larger than one indicated a probability of intended condom use greater than that of the reference category and odds ratios smaller than one indicated a probability of intended condom use lower than that of the reference category. STATA Version 10.0 (College Station, TX) was used to perform the statistical analysis.

CHAPTER 4

RESULTS

Sample Characteristics

Background Variables

Participants ranged in age from 18 to 24 years with an average age of 21.1 years (SD = 2.0) (Table 1). The majority of the male participants (69.0%) had at least a high school (HS) diploma or a GED, however; none of the participants had received an associate's or bachelor's degree. When asked to categorize their relationship with their sexual partner, participants could choose amongst seven categories; the most frequently reported category was "dating her only" (55.7%) followed by "engaged" (12.3%) and "just friends" (9.8%) (results not shown). For the purpose of this study, relationship type was dichotomized and the majority of men reported being in relationships classified as "steady" (77.1%).

Relationship Variables

American Indian men in this study varied greatly with respect to the duration of their relationship with their female sexual partner. The mean relationship duration was 26.0 months (just over two years) with a range from zero months to 144 months (12 years). Three observations (duration = 144, 120, 108 months) were determined to be outliers and were dropped from subsequent analyses.

Relationship commitment was assessed with an index consisting of eight items. Frequency distributions for these items are found in Table 2. The distribution of responses for most items in this index was skewed towards the response that 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. The relationship commitment item with widest distribution in frequency was “I want our relationship to last forever”. Forty-six percent of male participants strongly agreed, 14% of participants were neutral, and 12% of participants strongly disagreed that they wanted their current relationship to last forever.

To facilitate understanding of the relationship commitment measure, a continuous variable was created by summing across responses to the eight items and then averaging that value. This produced a single number used to represent relationship commitment with values ranging from one (low commitment) to 5 (high commitment). Overall, men reported that they were committed to their partner with an average score of 3.9 ($SD = 1.1$) (Table 1). The continuous variable format of relationship commitment was used in all subsequent statistical analyses.

Almost all participants (85%) in this sample of American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation had communicated with their sexual partner about using condoms. However, the extent of their participation in the decision whether or not to use condoms varied. Nearly twenty percent 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.

Male participants were asked to assess the dynamics regarding condom use in their relationship and indicate who they believed made the decision whether or not to use a condom. The most frequent response to this question was that the male participant shared the control of condom use with his female sexual partner (48%). Notably, only 11% of participants reported that their female sexual partner had exclusive control of their condom use behavior.

The negative partner reaction to condom use variable measured the outcome expectation American Indian men had for proposed condom use with their female sexual partner. The item read, “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 majority of participants (83%) did not expect their female sexual partner to have a negative reaction to condom use.

Dependent Variables.

Condom use intentions were assessed with two items to allow men to differentiate between two motives for condom use: STD prevention and HIV prevention. Forty-three percent of participants were extremely likely to use condoms in the future for the purpose of preventing STDs. Thirty-eight percent of participants were extremely likely to use condoms in the future for the purpose of preventing HIV.

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= <i>low</i> to 5= <i>high</i>)	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			
Condom Use Intention for HIV Prevention					
Not at all likely	38	31.7			
Moderately likely	37	30.8			
Extremely likely	45	37.5			

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

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 Analysis

Bivariate analysis results are presented in Table 3, Table 4, and Table 5 and summarized in Figure 7 and Figure 8.

Condom Use Intention for STD Prevention

For the condom use intention for STD prevention dependent variable, 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 ($p < 0.001$) (Table 3). Men who were extremely likely to use condoms for STD prevention were younger than men who were not at all likely to use condoms for STD prevention ($M = 20.6$ and 21.9 , respectively). Relationship duration was also significantly associated with condom use intention for STD 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 STD 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 STD 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 STD 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 STD prevention. Having either exclusive control of condom use or having shared control of condom use was associated with condom use intentions. For example, 23% of men who shared condom use control were extremely likely to use condoms in the future for STD prevention and 18% of men with complete control of condom use were extremely likely to use condoms in the future for STD prevention.

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

Characteristics	Condom Use Intention for STD Prevention		
	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

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

Condom Use Intention for HIV Prevention

The variables age, relationship type, and relationship commitment were significantly associated with condom use intention for HIV prevention in bivariate analysis (significance levels = $p < 0.01$, $p < 0.01$, and $p < 0.001$, respectively) (Table 4). As condom use intention for HIV prevention moved from “not at all likely” to “moderately likely” to “extremely likely” response categories, male participants’ mean age decreased. Men who were extremely likely to use condoms for HIV prevention were less committed to their female partners than men who were not at all likely to use condoms for HIV prevention ($M = 3.4$ and 4.3 , respectively). For the variable relationship type, men who were in casual relationships reported a higher condom use intention for HIV prevention than would be expected if the two variables were not associated. Notably, the variables relationship duration and control of condom use showed a statistically significant association with condom use intention for STD prevention but not with condom use intention for HIV prevention.

Mediating Variables

The conceptual model (Figure 2) and 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 two dependent variables. 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 two dependent variables.

Table 4. Bivariate associations between background and relationship characteristics and condom use intention for HIV prevention.

Characteristics	Condom Use Intention for HIV Prevention		
	Not at all likely (n=38)	Moderately likely (n=37)	Extremely likely (n=45)
Mean age (range, 18-24)**	21.9	21.0	20.4
Educational attainment			
% Less than HS diploma or GED	7.5	10.0	13.3
% HS diploma or GED	18.3	14.2	15.8
% Some college but no degree	5.8	6.7	8.3
Relationship type**			
% Steady	27.2	26.7	23.3
% Casual	2.5	4.2	14.2
Mean relationship duration, months (range, 0-96)	29.2	24.7	17.7
Mean relationship commitment*** (range, 1-5)	4.3	4.0	3.4
Condom use communication			
% No	4.2	5.0	5.8
% Yes	27.5	25.8	31.7
Condom use decision making			
% Low participation	7.5	6.7	2.5
% Moderate participation	3.3	5.8	5.0
% High participation	20.8	18.3	30.0
Control of condom use			
% Male	11.7	15.0	13.3
% Female	2.5	5.8	2.5
% Shared	17.5	10.0	21.7
Negative partner reaction to condom use			
% No	27.5	25.8	30.0
% Yes	4.2	5.0	7.5

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

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 and Kenny (1986) state that a variable is a mediator if it meets the following three conditions: 1) the independent variable is significantly associated with the mediator variable; 2) the mediator variable is significantly associated with the dependent variable; and 3) the multivariate analysis incorporating both the independent variable and the mediator variable is shown to alter the previously significant relationship between the independent variable and the dependent variable (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 5). Relationship commitment was significantly associated with condom use communication with men who had communicated with their partners 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.

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 variables (significance level = $p < 0.05$). Results from statistical analyses used to evaluate the

second condition for mediation can be found in Tables 3 and 4. Neither condom use communication nor condom use decision making was determined to be significantly associated with either of the two dependent variables. It was therefore unnecessary to proceed with step three as the conditions for mediation were not met.

Table 5. 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).

Characteristics	Condom Use Communication	
	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

Characteristics	Condom Use Decision Making		
	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

* $p < 0.05$

Summary of Bivariate Results

The results from bivariate analysis involving relationship factors, mediating factors, and condom use intentions are summarized in visual format in Figures 7 and 8. If the hypothesized associations between study variables were supported in bivariate analysis, the line connecting the variables is solid. Dashed lines indicate that the hypothesized associations between study variables were not supported in bivariate analysis.

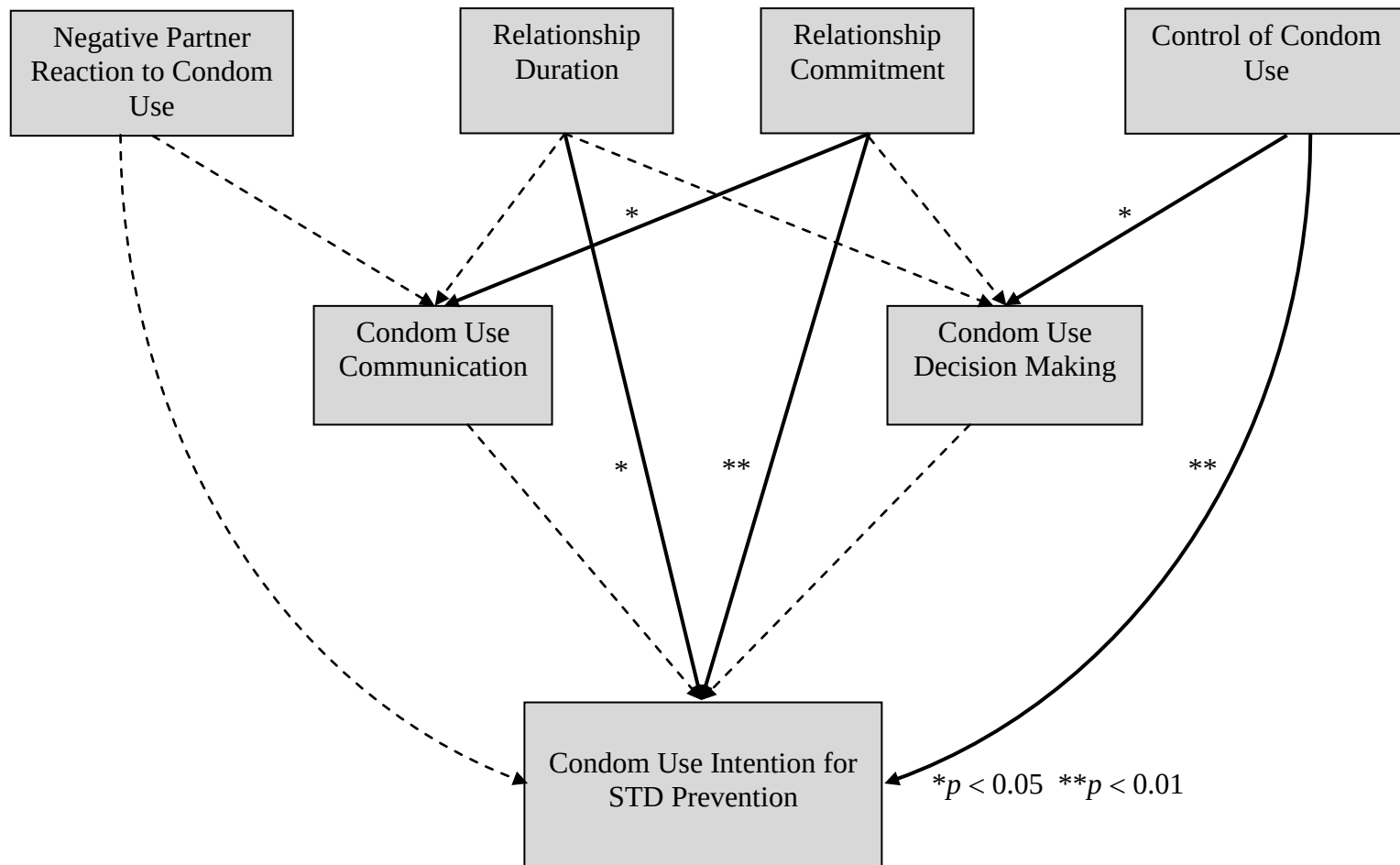


Figure 7. Conceptual model with results from bivariate analysis used to test hypothesized associations among relationship factors and between relationship factors and condom use intention for STD prevention. Solid lines indicate that the hypothesized associations between study variables were supported in bivariate analysis. Dashed lines indicate that the hypothesized associations between study variables were not supported in bivariate analysis.

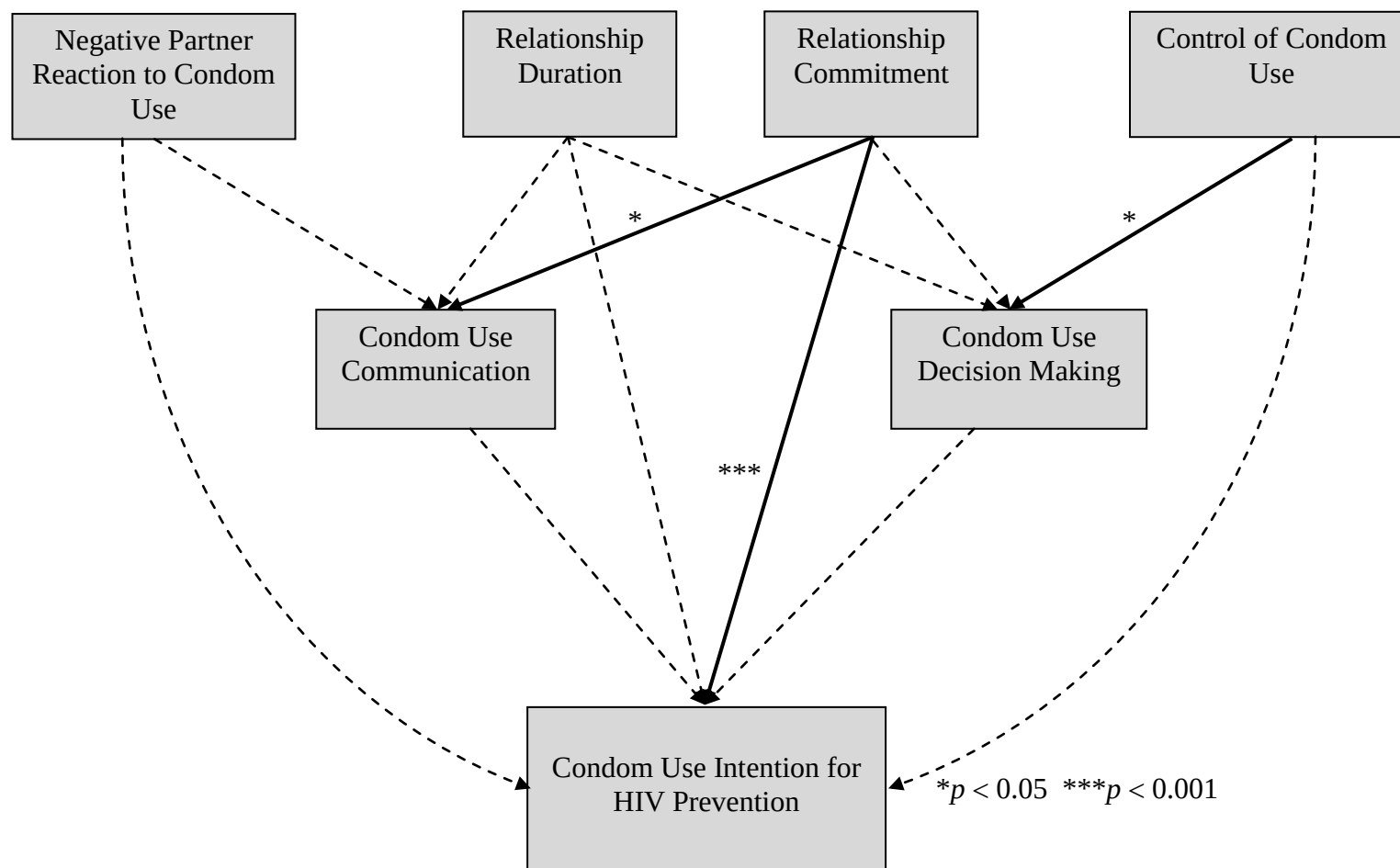


Figure 8. Conceptual model with results from bivariate analysis used to test hypothesized associations among relationship factors and between relationship factors and condom use intention for HIV prevention. Solid lines indicate that the hypothesized associations between study variables were supported in bivariate analysis. Dashed lines indicate that the hypothesized associations between study variables were not supported in bivariate analysis.

Multivariate Analysis

Preparatory Actions

Several analytical preparatory steps were completed before the main multivariate analysis was conducted. First, there was data missing from some variables due to participants declining to answer questions, interviewers accidentally skipping questions, and, in the case of the negative partner reaction to condom use variable, the quantifying of open-ended responses. The variables with missing observations included relationship commitment ($n=1$), condom use communication ($n=1$), condom use decision making ($n=2$), control of condom use ($n=3$), and negative partner reaction to condom use ($n=5$). Since missing observations were rare and the pattern of missing data was completely random missing data did not pose a problem in this analysis (Tabachnick & Fidell, 1996). The approach to handling missing data used in this investigation was imputation; missing values were replaced with either the mean (for continuous variables) or mode (for categorical variables) value.

Secondly, due to the bivariate association between the variables control of condom use and condom use decision making in the Pearson's chi-squared analysis and the similarities between these constructs, a bivariate correlation analysis was performed to check for a high correlation between independent variables that can lead to multicollinearity. The resulting correlation coefficient was small ($r = 0.18$) and although there is no strict criteria regarding what is an acceptable level of correlation between two variables and what is not, a coefficient value less than 0.25 is generally interpreted as

showing little to no association between two variables (Portney & Watkins, 2009). It was concluded that the variables control of condom use and condom use decision making would not lead to multicollinearity and both variables were included in subsequent multinomial logistic regression models.

Finally, in a review of the extant literature on relationship factors and their influence on condom use intentions, it appeared that the background and relationship factors dictating condom use behaviors in steady sexual relationships were completely different than the background and relationship factors dictating condom use behaviors in casual sexual relationships. Therefore, relationship type was to serve as a control variable in multivariate analysis. After reviewing the data, it was determined that the cell counts in the casual relationship type category were low and did not reach the number necessary to have the statistical power to perform separate multinomial logistic regressions on participants in steady relationships versus those in casual relationships.

Multinomial Logistic Regression

Dependent Variables. Two multinomial logistic regression models were organized according to the guidelines outlined by Hosmer and Lemeshow (2000) and run in Stata software according to the procedures outline by Long and Freese (2006). The two models are subsequently referred to as Model 1 and Model 2. The dependent variable for Model 1 was condom use intention for STD prevention. This variable had three response categories (not at all likely, moderately likely, and extremely likely). The not at all likely category was selected as the reference category for the regression

equation, meaning that the odds ratios reported correspond with the probability of being moderately likely (and extremely likely) versus not at all likely to intend to use condoms. The dependent variable for Model 2 was condom use intention for HIV prevention. The not at all likely response category was also used as the reference category for this regression equation.

Independent Variables. A total of nine independent variables were included in the multinomial logistic regression and were the same for Model 1 and Model 2. The independent variables included in the regression were both discrete and continuous. For the discrete dichotomous independent variables, the response category representing the lowest unit of analysis was selected as the reference category. For the discrete variables with more than two levels, a series of dummy variables were created when performing the regression and the lowest unit of analysis was set as the reference category. Continuous independent variables required no adjustments before they were entered into the multinomial logistic regression equation. Therefore, odds ratios and 95 percent confidence intervals were reported for the following: 1) Age; 2) Educational attainment = high school diploma or GED; 3) Educational attainment = Some college but no degree; 4) Relationship type = casual; 5) Relationship duration; 6) Relationship commitment; 7) Condom use communication = yes; 8) Condom use decision making = moderate; 9) Condom use decision making = high; 10) Control of use = female; 11) Control of condom use = shared; and 12) Negative partner reaction to condom use = yes.

Multivariate Results

Model 1. Results from the two multinomial logistic regression models are reported in Table 6. In Model 1 analysis of condom use intention for STD prevention, age was negatively associated with being extremely likely to use condoms ($p < 0.01$). With each one year increase in male participants' age, the odds of being extremely likely to use condoms for STD prevention decreased by approximately half (OR = 0.58, 95% CI = 0.42, 0.81). The condom use decision making construct was also significantly associated with being extremely likely to use condoms for STD prevention ($p < 0.05$). Male participants who reported high participation in the condom use decision making process were 7.90 times more likely to be extremely likely to use condoms for STD 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).

Model 2. The variables age, relationship commitment and condom use decision making all exhibited a statistically significant association with condom use intention for HIV prevention at some level (Table 6). For Model 2, the odds of being moderately likely to use condoms relative to being not at all likely to use condoms are lowered by a factor of 0.69 for each 1 year increase in participant's age. A similar trend was found between age and the odds of being extremely likely to use condoms compared to being not at all likely to use condoms (OR = 0.55, 95% CI = 0.39, 0.77). The continuous

variable measuring the relationship commitment was negatively associated with condom use intentions in Model 2. For each one unit increase in a participant's commitment level toward their relationship, the odds of being extremely likely to use condoms, relative to being not at all likely to use condoms, decreased by 0.41 (95% CI = 0.20, 0.83)

In Model 2, both condom use decision making categories (moderate and high participation) were significantly associated with being extremely likely to use condoms, with reported moderate or high participation resulting in increased odds of condom use intentions ($p < 0.05$). Males who reported high involvement in the condom use decision making process had 8% higher odds of being extremely likely to use condoms in the future compared to males who reported low involvement in condom use decision making.

Models 1 and 2. Notably, two of the three background variables were not significantly associated with condom use intentions for either STD or HIV prevention in multivariate analysis. For this sample of American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation, 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 STD or HIV prevention.

The relationship duration variable (measured in months) was nearly statistically significant in all four outcomes examined in the logistic regression models. With odds ratios at or greater than one, the trend for this variable was that as relationship duration increased by one unit (one month), the probability of intending to use condoms was marginally increased.

In summary, the factors negatively associated with being moderately or extremely likely to use condoms in the future included age and relationship commitment. The factors positively associated with being moderately or extremely likely to use condoms in the future included relationship duration, moderate or high participation in condom use decision making, and female control of condom use.

Table 6. Estimated odds ratios (OR) and 95 percent confidence intervals (CI) for variables associated with condom use intention for STD prevention (Model 1) and with condom use intention for HIV prevention (Model 2).

Independent Variables	MODEL 1				MODEL 2			
	Moderately Likely vs. Not At All Likely		Extremely Likely vs. Not At All Likely		Moderately Likely vs. Not At All Likely		Extremely Likely vs. Not At All Likely	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Age ^a	0.71*	0.51, 0.99	0.58**	0.42, 0.81	0.69*	0.51, 0.93	0.55**	0.39, 0.77
Educational attainment								
(Less than HS diploma or GED)	1.00		1.00		1.00		1.00	
High school diploma or GED	0.72	0.19, 2.70	0.61	0.17, 2.21	0.61	0.18, 2.08	0.40	0.11, 1.48
Some college but no degree	1.68	0.30, 9.26	3.83	0.81, 18.22	2.13	0.44, 10.30	2.88	0.56, 14.73
Relationship type								
(Steady)	1.00		1.00		1.00		1.00	
Casual	4.40	0.36, 54.51	10.37	1.00, 116.5	1.34	0.19, 9.26	3.82	0.60, 24.38
Relationship duration ^a	1.01	1.01, 1.04	1.00	1.00, 1.03	1.01	0.99, 1.04	1.01	1.01, 1.05
Relationship commitment ^a	0.49	0.24, 1.02	0.55	0.27, 1.11	0.54	0.27, 1.09	0.41*	0.20, 0.83
Condom use communication								
(No)	1.00		1.00		1.00		1.00	
Yes	0.66	0.12, 4.01	1.22	0.17, 8.46	1.48	0.31, 7.09	2.33	0.36, 14.85
Condom use decision making								
(Low participation)	1.00		1.00		1.00		1.00	
Moderate participation	4.84	0.65, 35.9	8.83	0.95, 82.07	5.55	0.82, 37.40	22.23*	1.97, 228.3
High participation	2.00	0.42, 9.39	7.90*	1.42, 43.85	1.69	0.43, 6.73	7.77*	1.19, 50.49
Control of condom use								
(Male)	1.00		1.00		1.00		1.00	
Female	13.37*	1.22, 146.4	2.72	0.20, 37.13	2.56	0.43, 15.40	1.49	0.15, 13.92
Shared	0.74	0.21, 2.55	0.48	0.15, 1.55	0.33	0.10, 1.08	0.65	0.19, 2.24
Negative partner reaction to condom use								
(No)	1.00		1.00		1.00		1.00	
Yes	2.21	0.46, 10.52	2.13	0.46, 9.97	1.40	0.33, 5.89	2.07	0.45, 9.44

Note: Reference categories are in parentheses.

^a Odds ratios are for a 1-unit increase in the independent variable.

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

Summary of Results

The hypotheses first presented in the Introduction are restated, along with hypotheses test outcomes, in Table 7.

Table 7. Summary of results from hypothesis testing. Hypotheses were tested amongst a non-probability sample of American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.

Null Hypotheses		Results	
1	There is not a statistically significant association between relationship duration and condom use communication.	Fail to reject	
2	There is not a statistically significant association between relationship commitment and condom use communication.	Reject	
3	There is not a statistically significant association between negative partner reaction to condom use and condom use communication.	Fail to reject	
4	There is not a statistically significant association between relationship duration and condom use decision making.	Fail to reject	
5	There is not a statistically significant association between relationship commitment and condom use decision making.	Fail to reject	
6	There is not a statistically significant association between control of condom use and condom use decision making.	Reject	
Null Hypotheses		Results for STD Prevention	Results for HIV Prevention
7	There is not a statistically significant association between age and condom use intentions.	Reject	Reject
8	There is not a statistically significant association between educational attainment and condom use intentions.	Fail to Reject	Fail to Reject
9	There is not a statistically significant association between relationship type and condom use intentions.	Reject*	Reject*
10	There is not a statistically significant association between relationship duration and condom use intentions.	Reject*	Fail to Reject
11	There is not a statistically significant association between relationship commitment and condom use.	Reject*	Reject
12	There is not a statistically significant association between condom use communication and condom use intentions.	Fail to Reject	Fail to Reject
13	There is not a statistically significant association between condom use decision making and condom use intentions.	Reject	Reject
14	There is not a statistically significant association between perceived behavioral control of condom use and condom use intentions.	Reject	Fail to Reject
15	There is not a statistically significant association between negative partner reaction to condom use and condom use intentions.	Fail to Reject	Fail to Reject

* The variable was significantly associated with condom use intentions in bivariate analysis but not in multivariate analysis.

CHAPTER 5

DISCUSSION

Given the high rates of sexually transmitted infections seen on the Fort Peck Indian Reservation and the general lack of research attention given to how relationship factors influence men's condom use, an urgent need exists to engage the Fort Peck community in understanding American Indian men's intentions to use condoms for STD and HIV prevention. This study provided information about the demographic and relationship factors related to condom use intentions using the theories of planned behavior and interdependence as a framework for understanding. Following is a discussion of the descriptive, bivariate, and multivariate results of this study.

Descriptive Results

Less than half of the American Indian men who participated in this study expressed a high likelihood of using condoms for disease prevention in the future. Approximately one third of participants were not at all likely to use condoms in the future for disease prevention. These numbers are less than ideal given the sexual health disparities that exist within the population of American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation.

Condom use intention for the purpose of preventing sexually transmitted diseases (STDs) in general was assessed separately from condom use intention for the purpose of preventing human immunodeficiency virus (HIV). Although the two variables were

significantly associated to one another ($p < 0.001$; results not shown), differences existed between men's condom use intentions for STD prevention and men's condom use intentions for HIV prevention. In particular, men were more likely to intend to use condoms for STD prevention than they were for HIV prevention (43% extremely likely for STD prevention, 38% extremely likely for HIV prevention). This may reflect a difference in men's perceived risk of HIV compared to STDs in general. While HIV infection rates on the Fort Peck Indian Reservation are low compared to national rates, teen- and young adult-aged men who live in the Fort Peck community are still at risk for HIV due to the highly synergistic relationship between STDs, like chlamydia, and HIV (Fleming & Wasserheit, 1999). Given that communities with high rates of chlamydial infection are at high risk for HIV transmission (Wasserheit, 1992), men ages 18 to 24 should be equally concerned about preventing HIV as they are about preventing STDs in general.

This study used an outcome measure of condom use intentions rather than condom use behavior. When discussing study findings with respect to their implications on what American Indian men are or are not doing to prevent the transmission of sexually acquired infections, it is assumed that intentions predict behavior. The theory of planned behavior supports that assumption (Ajzen, 1991) as do numerous studies pertaining to condom use intentions and condom use behaviors (Albarracín et al., 2004; Baker et al., 1996; Montaña et al., 2001; Sheeran et al., 1999). However, a comprehensive review of the literature revealed no investigations supporting a causal association between intentions and behavior with an American Indian population. Furthermore, recent

qualitative work with minority populations (Filipina and Latino) has revealed that the cultural context of these minority populations influences their definitions of the behavioral intention theoretical construct which, in turn, may or may not invalidate the use of the theory of planned behavior in these populations (Pasick & Burke, 2008). It is unknown whether the cultural characteristics of American Indians in general, and the Fort Peck Tribes in specific, have the same effect on the theoretical constructs used in this investigation. Therefore, American Indian male participants in this investigation may use condoms for disease prevention more or less often than they reported under the condom use intention measures.

Bivariate Results

Using a conceptual model that incorporated elements of the theory of planned behavior (TPB) and the interdependence theory (IT), this study examined the bivariate associations between relationship factors and condom use intention for STD and HIV prevention. To date, research investigations on the sexual risk and protective behaviors of American Indians have focused on the influence of individual, familial, and community level factors (Chewning et al., 2000; Evans-Campbell et al., 2006; Marsiglia et al., 2006; Walters & Simoni, 1999). This study makes a unique contribution to the literature by focusing on the role of dyad level factors on the condom use intentions of American Indian men. Additionally, this study tested the hypothesized associations among relationship factors and between relationship factors and condom use intentions as conceptualized from research involving Latino men (Harvey & Henderson, 2006).

Results from this study can inform the appropriateness of focusing on dyad level factors on condom use intentions when working with American Indian populations and of using a conceptual model that incorporates elements of the TPB and IT when working with American Indian populations.

Background variables that had statistically significant bivariate associations with condom use intentions in this sample of American Indian men were age and relationship type. The mean age of men who reported a low likelihood of condom use intention for STD and HIV prevention was higher than the mean age of men who reported a high likelihood of condom use intention. This suggests that as Fort Peck American Indian men age, they are less likely to plan on using condoms for disease prevention. One factor contributing to this trend could be a shift in priorities away from disease prevention and towards pregnancy planning as men age. Alternatively, men may maintain a consistent level of disease prevention priority over time yet their methods for disease prevention may shift from condom use to mutual monogamy as they age. In either case, the outcome would be a lower likelihood of intended condom use for STD and HIV prevention.

The second background variable that exhibited a statistically significant association with condom use intentions was relationship type. Of the American Indian men in this study who were in casual relationships, 63% reported that they were “extremely likely” to use condoms for STD prevention. Conversely, only 38% of the participants who were in steady relationships reported they were “extremely likely” to use condoms for STD prevention. A similar pattern was found for participants’ condom use intentions for the purpose of HIV 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. This has implications for sexual risk prevention programming as relationship type could be used as starting point for understanding the educational and behavior change needs of young American Indian men.

It is important to note that this sample of American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation was comprised mostly of men who were in “steady” relationships. This could be representative of the types of relationships Fort Peck American Indian men in this age range are in or, on the other hand, it could result from the study’s instrumentation. The in-depth interview guide (APPENDIX E) instructed men to think about one female sexual partner when responding to the questions. Male participants who were in more than one sexual relationship had to choose one partner to consider. Those participants who had both a “steady” sexual partner and a “casual” sexual partner may have been more inclined to answer the questions with their steady partner in mind. Future investigations could examine American Indian men’s intention to use condoms with their steady sexual partner verses their casual sexual partner.

A review of the literature on the association between educational attainment and condom use found studies supporting the importance of educational attainment (Juarez & Castro Martín, 2006; Knipper et al., 2007) and studies rejecting the importance of this variable (Caballero-Hoyos et al., 2008; Harvey & Henderson, 2006). For this investigation on the background and relationship factors associated with condom use intentions for disease prevention amongst American Indian men, there was not a

statistically significant association between educational attainment and condom use intentions. However, the study sample did not include any men who had received an associate's degree or any higher level of educational attainment. While accurate data is not available on the percentage of men in the population of interest (American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation) who have attained an associate's degree or higher, tribal education officials expressed a belief that the number is very low (personal communication, April 2, 2009). Had there been more men in the population of interest and the subsequent study sample with college degrees, the results from this analysis may have differed.

From bivariate analysis, the relationship factors exhibiting a statistically significant association with condom use intentions included relationship commitment, an interdependence theory variable, and control of condom use, a theory of planned behavior variable. In this sample of 122 American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation, relationship commitment was significantly associated with both condom use intention for STD prevention and condom use intention for HIV prevention ($p < 0.01$ and $p < 0.001$, respectively). Participants reporting a greater likelihood of future condom use for disease 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 disease prevention.

Results from this study suggest that relationship factors are important determinants of condom use intentions for male American Indian populations; however, 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 STD prevention as the outcome measure, only five of the twelve hypothesized associations were statistically significant (Figure 7). Using condom use intention for HIV prevention as the outcome measure, only three of the twelve hypothesized associations were statistically significant (Figure 8). 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 STD and HIV 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.

Multivariate Results

The multivariate results from this study with American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation indicated that there were two factors negatively associated with future condom use; age and relationship commitment. Existing literature suggests rather consistently that age matters in relation to condom use. Research from studies with both females and males demonstrates that younger age is associated with higher condom usage (summarized in Sheeran et al., 1999). In this study, 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 male American Indians form change in ways that lead to decreased condom use for the purpose of disease prevention. However, the risk for STD and HIV transmission may or may not decrease in conjunction with these relationship changes. Future efforts to decrease the incidence of sexually transmitted infections by increasing condom use amongst American Indian men living on the Fort Peck Indian Reservation should address the negative association between age and condom use intentions by helping men accurately gauge their STD risk level.

Consistent with findings from published literature on relationship commitment and condom use in non-American Indian populations (Harvey et al., 2006; Tucker et al., 2007; Umphrey & Sherblom, 2007), this study's multivariate results demonstrated that relationship commitment influenced the study participants' condom use intentions for STD and HIV prevention. Those who reported greater commitment to their relationship

had lower odds of being moderately or extremely likely to use condoms in the future for either STD or HIV prevention. There may be two explanations for the importance of relationship commitment on condom use intentions. First, 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 STDs and/or HIV. Assuming that men desire to maintain their established level of relationship commitment, it is not surprising that a behavior that could undermine that commitment is less likely for men reported high relationship commitment levels. Second, it may be that in this population of American Indian men, the relationship commitment variable served as a proxy measure for their perceived risk of acquiring a sexually transmitted disease. If this is the case, it would follow that men reporting high commitment to their relationship would have lower odds of intending to use condoms for the purpose of disease prevention.

The relationship commitment study findings suggest that to impact the condom use behaviors of young American Indian men, STD prevention programs need to consider the influences of relationship commitment on condom use intentions. Specifically, the study findings have significant implications on the ability of Fort Peck American Indian men to achieve and/or maintain sexual health. 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. If there is the possibility that relationships might not last forever, there is a need for men to establish patterns of STD preventative

behaviors regardless of the characteristics of their current sexual relationship. Towards that end, future STD prevention programs initiated on the Fort Peck Indian Reservation should promote condom use as a means of maintaining lifelong sexual health, while still recognizing condom use may not be appropriate for everyone and other STD preventative behaviors should be used in lieu of condom use (i.e. mutual monogamy with regular screenings for sexually transmitted diseases).

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 disease 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. When considering condom use as an interdependent behavior, it is not surprising that the variables measuring the balance of control and power between men and women in heterosexual relationships would be significantly associated with men's condom use intentions.

Study Limitations

Some potential limitations with this study should be noted. First, the generalizability of this research is limited due in part to diversity within the population of interest and in part to the sampling method used. The American Indian population in the United States is highly heterogeneous and the results from this study conducted in

partnership with a Northern Plains tribe living on a remote Indian reservation should not be assumed to be applicable to all men of American Indian race. Furthermore, since a community based participatory research approach was taken, this study did not intend to produce generalizeable findings. The extent of which the study findings apply to all American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation is limited due to the sampling strategy used. Men who participated in this study did so because they responded to the recruitment strategies of their peers and of the Fort Peck Men's Sexual Health Study staff. This non-probability sample of men may be different from the men, ages 18 to 24, living on the Fort Peck Indian Reservation who did not participate in the study with respect to the study variables.

The findings from this investigation were derived from the male participant's responses to questions about their relationship with their female sexual partner and about their intentions to use condoms for STD and HIV prevention. Since these can be sensitive issues, the self-reported responses given in the in-depth interview may not actually represent the real behaviors and true intentions of the men, creating the potential for measurement error. The researchers strove to minimize this limitation by hiring interviewers from within the Fort Peck community and training them on the appropriate data collection techniques. The researchers also requested that interviewers completed a post-interview evaluation form to report if discomfort was detected from the participants as a result of the interview questions; interviewers reported that less than 8 percent of participants were uncomfortable with the questions.

The skewed distribution of some variables resulted in limited power for the multivariate analysis and wide confidence intervals for the resulting odds ratios. Specifically, the variable condom use decision making had low cell counts in the “low participation” and “moderate participation” categories and the variable control of condom use had low cell counts in the “female control” category. Therefore, further investigation is warranted to examine the influence of these variables on the condom use intentions of American Indian men. In addition, this study included a small number of men who reported on their relationship characteristics and condom use intentions with a casual partner in mind. This produced a casual relationship sample size that was not sufficient to allow for a multinomial logistic regression analysis stratified by relationship type.

In general, health behavior theories such as the theory of planned behavior and interdependence theory should be applicable to any population and its corresponding culture, including the American Indian population and culture (Glanz, Rimer, & Lewis, 2002). That being said, the measures used to capture a theoretical construct may have to be adopted to make them relevant to the target population (Glanz, Rimer, & Lewis, 2002). This investigation of the relationship factors associated with American Indian men’s condom use intentions used measures that had not been previously tested and verified with American Indian populations. This potential limitation was mitigated by the valuable contribution of the Fort Peck Men’s Sexual Health Study’s community advisory board (CAB) during the design phase of the study. The CAB modified and/or eliminated measures as necessary so as to facilitate their relevance for Fort Peck American Indians. However, it is possible that the views of the CAB do not adequately

reflect those of the target population. Future investigations with American Indian populations would benefit from formative research on theoretical constructs prior to their implementation.

Finally, the operationalization of theoretical constructs created a potential limitation to this study. Two of the relationship factors included in this study were measured by asking the male participants questions and limiting their response options to “yes” or “no”. This dichotomization of a concept or behavior simplifies its measurement and, in doing so, may inaccurately represent that concept or behavior. The Fort Peck Men’s Sexual Health Study also collected qualitative data on these relationship factors through open-ended questions. Future research investigations could explore this qualitative data for further insight into the relationship factors that influence men’s intentions to use condoms for disease prevention.

Implications for Prevention Programming

The results of this study have several implications for programs aimed at increasing the sexual health of young men and women living on the Fort Peck Indian Reservation. First, given that an increase in age resulted in lower odds of intended condom use, there is support for reaching out to men in their early twenties. Men at this age are many years removed from the sexual health education they may have received in high school and may lack awareness about the risk for sexually transmitted infections in their community. Any program aimed at educating early adult-aged men would need to engage the men in a setting where they feel comfortable. In Fort Peck, this could involve

a presence at basketball games, fitness centers, Job Corps, casinos, fire fighter training events, and Pow-Wows.

Secondly, the significance of relationship commitment in determining condom use intentions for both STD and HIV prevention provides an opportunity to change the image of condoms within steady, committed relationships. As it stands now in both popular culture and within the Fort Peck community, 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. A prevention program aimed at re-branding condom use for American Indian men could focus on how condoms are a sign of respect, both for one's self and for one's sexual partner.

Finally, the study findings that show an increased likelihood of condom use intentions for men that report moderate and high participation in condom use decision making illustrate the importance of promoting male involvement in sexual and reproductive health decisions. Often times the message from health care and health promotion professionals inadvertently assumes that in heterosexual relationships, females are responsible for pregnancy prevention and males are responsible for disease prevention (East, Jackson, O'Brien, & Peters, 2007). This can have a tremendous implication for men and women in relationships because as they progress from being concerned about disease prevention and into being focused on pregnancy planning, men are less and less engaged in sexual and reproductive health decisions. A program that welcomes men into settings where sexual and reproductive health decisions are made could have a meaningful impact of the level of male participation in those decisions and,

in turn, could increase STD and HIV prevention behaviors amongst American Indian men living on the Fort Peck Indian Reservation.

The Fort Peck Indian Reservation in northeastern Montana is in need of culturally relevant sexual risk prevention efforts to help reduce the disproportionate burden of sexually transmitted disease carried by young American Indians. This study takes an important first step to inform those prevention efforts by revealing the relationship factors influencing American Indian men's condom use intentions. Furthermore, the successful use of a community based participatory research (CBPR) approach to this study underscores the methodology necessary to ensure that any future prevention efforts on the Fort Peck Indian Reservation are culturally relevant.

Significance of the Study

Both the overall Fort Peck Men's Sexual Health Study and this investigation of condom use intentions in particular used a CBPR approach. From a research perspective, CBPR is an extremely valuable tool for enhancing the quality, use, relevance, and interpretation of a study (Rhodes et al., 2006). As a research study whose purpose was to investigate the factors influencing the sexual and reproductive health of American Indian men, ages 18 to 24, living on the Fort Peck Indian Reservation, the use of CBPR was beneficial. However, the value of CBPR extends beyond single research studies. So, as a project dedicated to laying a foundation for long term improvements in the sexual and reproductive health of Fort Peck American Indians and strengthening community-academic partnerships, CBPR was essential.

One significant and ongoing outcome of the Fort Peck Men's Sexual Health Study was the enhanced research capacity of the Reservation and the Tribe. For instance, six individuals from the community were trained as interviewers and gained knowledge about research methods, human subject's protection, and recruitment and interviewing strategies. Also, a data sharing agreement was drafted, approved by the Tribal Executive Board, and implemented; this data sharing agreement could provide a template for any future studies involving community-academic partnerships. Furthermore, through their involvement in the Fort Peck Men's Sexual Health Study, Fort Peck Tribal Health officials networked with other researchers at Montana State University and researchers nationwide during professional health research conferences.

The Fort Peck Men's Sexual Health Study, with its CBPR approach, helped to build the infrastructure from which a successful sexual and reproductive health enhancement program or intervention can emerge. Through the trial and error process that is inherent with CBPR, the partners in this study gained important knowledge about the community's strengths and challenges as they relate to research, program planning, and program implementation. Future initiatives on the Fort Peck Indian Reservation that address sexual and reproductive health, or any other health disparity, will benefit from the knowledge that emerged from this study.

Finally, the men that participated in the Fort Peck Men's Sexual Health Study exemplified the potential that exists on the Reservation for health improvements gained through community-academic research collaborations. With few exceptions, the male participants took the data collection process seriously, gave thoughtful answers, and

expressed hope that their contribution would be useful. The study also had a respectable response rate (approximately 80%) and, after completing the interview, men were willing to encourage their friends and acquaintances to also participate in the study. The results from and context of the Fort Peck Men's Sexual Health Study provides the foundation for programs that can make meaningful improvements in the sexual and reproductive health of Fort Peck American Indians.

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APPENDICES

APPENDIX A

REQUEST FOR PERMISSION TO USE DATA

Request for Permission to Use Data

Fort Peck Men's Sexual Health Study

October 16, 2008

Rebecca Dick

About me:

- research assistant for Elizabeth Rink at Montana State University, Bozeman
 - worked on the Fort Peck Men's Sexual Health Study for over a year
 - provide assistance to project coordinator, Kris Four Star
 - responsible for entering data from the Men's Sexual Health Study once it reaches MSU
- graduate student in Health and Human Development at MSU
 - a thesis is required to complete masters degree
 - have a thesis Advisory Committee whose members are Elizabeth Rink, Sara Young, and Suzanne Christopher
 - propose using a subset of the Fort Peck Men's Sexual Health Study's data for my thesis work

Proposed topic:

- What relationship characteristics are associated with condom use for men, ages 18-24, living on the Fort Peck Indian Reservation?
- Determine what relationship characteristics predict consistent condom use
- Relationship characteristics =
 - partner commitment
 - involvement in condom use decision making
 - communication about condom use
 - attitudes towards monogamy
- Focus the discussion and conclusions on the aspects of relationships that are associated with healthy and safe sexual activity, namely consistent condom use.
- Implications for interventions

Proposed writings produced:

1. summary of findings for Tribal Council and Fort Peck community
 - seek advice of Tribal Council and Community Advisory Board for how to best disseminate findings
2. thesis manuscript
 - approved by Tribal Council, the Men's Sexual Health Study's Community Advisory Board (CAB), and my thesis Advisory Committee
 - printed and archived at the MSU library
3. research conference abstract and poster
 - approved by Tribal Council, the Men's Sexual Health Study's Community Advisory Board (CAB), and my thesis Advisory Committee
 - abstract is submitted to research conference and a poster is produced that is viewed by other participants in the research conference

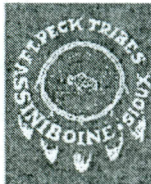
APPENDIX B

APPROVAL FROM FORT PECK TRIBAL EXECUTIVE BOARD

MONTANA STATE UNIVERSITY

Start: 1:38 - End: 1:45 p.m.

MEN'S SEXUAL HEALTH PROJECT – Rebecca Dick, a non-Indian graduate student from MSU wants permission to use data from the Men's Sexual Health Project. A variety of questions was asked by the TEB about the project.



MOTION by Floyd Azure seconded by Gene Culbertson to approve of MSU graduate student, Rebecca Dick, to use data from the Men's Sexual Health Project. VOTE: 5 for, 0 opp., MOTION CARRIED

The TEB did not make any decision about confidentiality of the men that participated in the project. Darryl Red Eagle asked that the Fort Peck Tribes receive a copy of Ms. Dick's thesis.

APPENDIX C

PRESENTATION OF RESULTS TO FORT PECK TRIBAL EXECUTIVE BOARD



THE FORT PECK MEN'S SEXUAL HEALTH STUDY 

Demographic Variables

	Number	Percent
Age		
18 - 20	52	43%
21 - 24	70	57%
Education Level		
Less than HS diploma or GED	38	31%
HS diploma or GED	59	48%
Some college but no degree	25	21%



THE FORT PECK MEN'S SEXUAL HEALTH STUDY 

Relationship Variables

	Number	Percent
Relationship Type		
Steady Partner	94	77%
Casual Partner	28	23%
Relationship Length		
Less than 1 year	51	42%
1 to 3 years	30	25%
3 years or longer	41	33%
Relationship Commitment		
Low commitment	16	13%
Moderate commitment	27	23%
High commitment	78	64%



THE FORT PECK MEN'S SEXUAL HEALTH STUDY 

Condom Use Variables

	Number	Percent
Control of Condom Use		
Male control	50	41%
Female control	13	11%
Shared control	57	48%
Decision Making for Condom Use		
Low participation	21	18%
Moderate participation	17	14%
High participation	81	68%
Condom Use Communication		
No	18	15%
Yes	102	85%
Negative Partner Reaction		
No	93	83%
Yes	18	17%



THE FORT PECK MEN'S SEXUAL HEALTH STUDY 

Study Findings

	Number	Percent
Future Condom Use, STD Prevention		
Not at all likely	36	30%
Moderately likely	32	27%
Extremely likely	52	43%
Future Condom Use, HIV Prevention		
Not at all likely	38	32%
Moderately likely	37	31%
Extremely likely	45	37%



THE FORT PECK MEN'S SEXUAL HEALTH STUDY 

Study Findings

- Most men were in steady relationships (married, engaged, dating exclusively)
- 64% were highly committed to their female partner
 - but 52% “agree” or “neutral” that will date someone else within next year
- 85% have talked with their partner about using condoms
- 68% were highly involved in condom use decision making



THE FORT PECK MEN'S SEXUAL HEALTH STUDY 

Study Findings

Factors significantly associated with condom use intentions for STD prevention:

- Age
- Relationship commitment
- Control over condom use
- Participation in condom use decision making

Factors significantly associated with condom use intentions for HIV prevention:

- Age
- Relationship length
- Relationship commitment
- Participation in condom use decision making

APPENDIX D

RECRUITMENT FLIER FOR FORT PECK MEN'S SEXUAL HEALTH STUDY



Fort Peck Men's Health Study



Fort Peck Tribal Health is working in partnership with Montana State University-Bozeman to learn more about men's health.

Participants must be:

Male

Native American

18-24 years of age

Enrolled member of the Assiniboiné / Sioux Tribes or other federally recognized tribe.

If you are interested:

Tear off contact information provided below and contact the project coordinator Kris Four Star.

Participants will receive a \$25 gift certificate to Town Pump or Tribal Express.

Contact:

Kris Four Star
kfourstar@fpthan.com

Work: 768-
Cell: 650-

Contact:

Kris Four Star
kfourstar@fpthan.com

Work: 768-
Cell: 650-

Contact:

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Contact:

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Contact:

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Work: 768-
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APPENDIX E

FORT PECK MEN'S SEXUAL HEALTH STUDY INTERVIEW GUIDE

ID Sticker



Interviewer: _____

Date: _____

Location: _____

THE FORT PECK SEXUAL HEALTH PROJECT MALE INTERVIEWING GUIDE

I. DEMOGRAPHICS



Thank you for agreeing to talk with me today.

We are interested in learning more about you and what you think about pregnancy, birth control, sexually transmitted diseases, and health care services. We are also interested in learning about how you make decisions about birth control, having a baby and protecting yourself from sexually transmitted diseases and HIV/AIDS. By birth control, we mean using methods to prevent pregnancy so that you have children when you want to. But before we get to those questions, please tell me some things about yourself.

1. Where do you currently live? (Reservation name or town and county)

2. Where did you grow up?

Probe: *Do you consider _____ to be your home? Why or why not?*

3. Are you enrolled in a tribe?

1 YES

2 NO

4. How old are you? _____

5. What is the highest degree or level of school you have completed?

- 1 Grades 1-8 (Elementary)
- 2 Grades 9-12 (Some high school but no diploma)
- 3 Grade 12 or GED (High school graduate)
- 4 College 1 year to 4 years (Some college or technical school but no degree)
- 5 College 1 year to 4 years (Associate degree)
- 6 College 4 years (College degree: BA or BS)
- 7 Graduate degree (MA, MS, JD, MD, or PhD)

6. Do you have children?

- 1 YES Probe: *If yes, how many?* _____
- 2 NO

7. Who lives with you in your household?

- | | |
|--|--|
| ☐ Sisters | ☐ Step-sisters |
| ☐ Mother | ☐ Step-brothers |
| ☐ Grandmother | ☐ Step-mother |
| ☐ Great-grandmother | ☐ Step-father |
| ☐ Auntie | ☐ Cousins |
| ☐ Brothers | ☐ In-laws |
| ☐ Father | ☐ Your own children |
| ☐ Grandfather | ☐ Other family members' |
| children | |
| ☐ Great-grandfather | ☐ Other (please specify): |
| ☐ Uncle | |

II. RELATIONSHIPS/PERCIEVED PARTNER COMITTMENT



We would like to know more about your sexual relationships with women. In the next part of this interview, we would like to ask you questions about how you and your partner prevent pregnancy and protect yourselves from sexually transmitted diseases (STDs) and HIV/AIDS.

For the purposes of answering these questions, we would like you to choose one sexual partner to talk about. A partner could mean a girlfriend, wife, or lover. Please pick a partner with whom you've had sex with in the last 3 months. If you have had more than one sexual partner in the past three months, choose one person you would like to talk about. I want to clarify that by sex I mean vaginal intercourse. That is, when the man puts his penis in a woman's vagina.

Do you have someone in mind? Would you be willing to share her first name or a made up name with me? This will help make our conversation flow more easily.

8. I am going to read you a list of ways people describe their relationships. Can you please tell me which category best describes your relationship with [NAME]. Are you and [NAME]:

- 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
- 7 Other (please describe): _____

9. How long have you been together with [NAME]?

_____ Weeks

_____ Months

_____ Years

Probe: *If the relationship was a one night stand or fling, how long ago was that?*

10. Some people are in a relationship for a long time and other people are in a relationship with someone for a shorter time. How long do you think you and [NAME] will be together?

a. Probe: *What makes you think that?*

b. Probe: *Have you talked about it with her?*

11. In these next questions, I'd like you to think about what your relationship with [NAME] is like right now. I'd like you to tell me how much you agree or disagree with each statement about your relationship with [NAME].

[Show **CARD #1** with responses and read them.]

- 1 Strongly disagree
- 2 Somewhat disagree
- 3 Neither agree or disagree
- 4 Somewhat agree
- 5 Strongly agree

A. I want our relationship to last a very long time.

1 2 3 4 5

B. I am committed to maintaining my relationship with [NAME].

1 2 3 4 5

C. I would not feel very upset if our relationship were to end in the near future.

1 2 3 4 5

D. It is likely that I will date someone other than my partner within the next year.

1 2 3 4 5

E. I feel very attached to our relationship – very strongly linked to my partner.

1 2 3 4 5

F. I want our relationship to last forever.

1 2 3 4 5

G. I am oriented toward the long-term future of my relationship with [NAME] (for example, I imagine being with my partner several years from now).

1 2 3 4 5

H. I intend to stay in this relationship.

1 2 3 4 5

12. I'd like you to tell me how much you agree with each statement about your relationship with [NAME].

[Show **CARD #1** with responses and read them.]

- 1 Strongly disagree
- 2 Somewhat disagree
- 3 Neither agree or disagree
- 4 Somewhat agree
- 5 Strongly agree

A. My partner wants our relationship to last a very long time.

1 2 3 4 5

B. My partner is committed to maintaining our relationship.

1 2 3 4 5

C. My partner would not feel very upset if our relationship were to end in the near future.

1 2 3 4 5

D. My partner is likely to date someone other than me within the next year.

1 2 3 4 5

E. My partner feels very attached to our relationship – very strongly linked to me.

1 2 3 4 5

F. My partner wants our relationship to last forever.

1 2 3 4 5

G. My partner is oriented toward the long-term future of our relationship (for example, she imagines being with me several years from now).

1 2 3 4 5

H. My partner intends to stay in this relationship.

1 2 3 4 5

III. PREGNANCY PREVENTION



13. Some people do things to keep from getting pregnant, while others don't. Are you and [NAME] doing anything right now to prevent pregnancy?

- 1 YES
- 2 NO [SKIP TO QUESTION 15]

A. What are you using or doing to prevent pregnancy? [check all that apply]

- | | |
|---|---|
| ☐ Birth control pills
(vasectomy) | ☐ Male sterilization |
| ☐ Depo Provera (the shot)
tied) | ☐ Female sterilization (tubes) |
| ☐ Lunelle (monthly shot) | ☐ Withdraw |
| ☐ Norplant (the implant)
family | ☐ Rhythm method/ natural |
| ☐ Male condoms
awareness | planning/ fertility |
| ☐ Female condoms | method/ calendar |
| ☐ Spermicides (foam, jelly, film) | ☐ Abstinence |
| ☐ Diaphragm | ☐ Emergency contraception |
| ☐ Cervical cap | ☐ Patch |
| ☐ IUD | ☐ Vaginal ring |
| ☐ Other (please specify): _____ | |

B. Are you using more than one method together at the same time?

- 1 YES Probe: *If yes, which ones?*

- 2 NO

14. Why did you choose this (these) method(s)?

- a. Probe: *How did you make this decision?*
- b. Probe: *What does [NAME] say about it?*

- c. Probe: *What do you like about this method?*
- d. Probe: *What do you not like about this method?*

15. If you, or [NAME], are not using a method, why not?

16. What things might make it easier for you to use birth control methods to prevent pregnancy?

- 1 Cost
 - 2 Side effects
 - 3 Partner doesn't like method(s)
 - 4 Don't know where to get method(s)
 - 5 Your religious or spiritual beliefs
 - 6 Other (please describe):
-

17. What things make it difficult for you to use birth control methods to prevent pregnancy?

- 1 Cost
 - 2 Side effects
 - 3 Partner doesn't like method(s)
 - 4 Don't know where to get method(s)
 - 5 Your religious or spiritual beliefs
 - 6 Other (please describe):
-

18. Do religious or spiritual beliefs influence your use of birth control?

- 1 YES Probe: *If yes, how? In what ways?*
- 2 NO

19. There are many birth control methods that couples use when they have sexual intercourse. What things are important to you when you choose a birth

control method? (We mean things like how well they work as a birth control method or if the birth control method has side effects).

- a. Probe: *Do you consider how good a method is in preventing pregnancy or if it has side effects?*
- b. Probe: *Do you consider whether or not your partner likes or doesn't like a method?*

20. How important or unimportant is it to you to use a birth control method that you control? By 'control' I mean that you can choose to use a method independent of your partner.

Probe: *Why or why not?*

A. If you had to put your response on a scale, how unimportant or important would you say it is for you to use a birth control method you control?

[Show **CARD #2** with responses and read them.]

- 1 Not important
- 2 Slightly important
- 3 Moderately important
- 4 Very important
- 5 Extremely important

21. In thinking about your relationship with [NAME], who decides if you will use something to prevent pregnancy?

[Check answer as appropriate, but do not read responses to respondent]

- 1 Me
- 2 My partner
- 3 We both do

- a. Probe: *What role does your partner play in the decision?*
- b. Probe: *Has it always been this way?*
- c. Probe: *How do you feel about that?*

22. How important is it to you to keep from getting your partner pregnant right now?

Probe: *Why is that?*

A. If you had to put your response on a scale, how unimportant or important would you say it is for you to keep from getting someone pregnant?

[Show **CARD #2** with responses and read them.]

- 1 Not important
- 2 Slightly important
- 3 Moderately important
- 4 Very important
- 5 Extremely important

23. How important do you think it is to [NAME] that she keep from getting pregnant right now?

Probe: *Why is that?*

A. If you had to put your response on a scale, how unimportant or important would you say it is to [NAME] to keep from getting pregnant?

[Show **CARD #2** with responses and read them.]

- 1 Not important
- 2 Slightly important
- 3 Moderately important
- 4 Very important
- 5 Extremely important

24. Over the next year, how likely or unlikely is it that *you* will use some form of birth control to not get pregnant?

[Show **CARD #3** with responses and read them.]

- 1 Not at all likely

- 2 A little likely
- 3 Moderately likely
- 4 Very likely
- 5 Extremely likely

25. Over the next year, how likely or unlikely is it that *your partner* will use some form of birth control to not get pregnant?

[Show **CARD #3** with responses and read them.]

- 1 Not at all likely
- 2 A little likely
- 3 Moderately likely
- 4 Very likely
- 5 Extremely likely

IV. STD AND HIV/AIDS PREVENTION



26. People do different things to keep from getting STDs or HIV/AIDS. Are you and [NAME] doing anything right now to protect yourselves?

- 1 YES Probe: *If yes, what are you doing? Why?*
- 2 NO Probe: *If you are not doing anything, why not?*

Probe: *Would you like to be doing something more to protect yourself? Why or why not?*

27. What things make it hard for you to protect yourself from STDs or HIV/AIDS?

28. How likely is it that you could get HIV from having sex with [NAME] without using a condom?

[Show **CARD #3** with responses and read them.]

- 1 Not at all likely
- 2 A little likely
- 3 Moderately likely
- 4 Very likely

5 Extremely likely

29. How likely is it that you could get a sexually transmitted disease other than HIV from having sex with [NAME] without using a condom?

[Show **CARD #3** with responses and read them.]

- 1 Not at all likely
- 2 A little likely
- 3 Moderately likely
- 4 Very likely
- 5 Extremely likely

30. How important is it to you to use condoms when you have sex with [NAME]?

Probe: *Why is that?*

A. If you had to put your response on a scale, how unimportant or important would you say it is to [NAME] to keep from getting pregnant?

[Show **CARD #2** with responses and read them.]

- 1 Not important
- 2 Slightly important
- 3 Moderately important
- 4 Very important
- 5 Extremely important

31. In thinking about your relationship with [NAME], who do you think makes decisions about whether or not you use a condom?

[Check answer as appropriate, but do not read responses to respondent]

- 1 Me
- 2 My partner
- 3 We both do

a. Probe: *Why is that?*

b. Probe: *In your relationships with women has it always been this way? What is different now? When did this change?*

c. Probe: *How do you feel about this?*

32. During the last 3 months, have you and [NAME] used condoms at least once?

- 1 YES Probe: *What are some of the reasons why you used condoms?*
- 2 NO Probe: *What are some of the reasons why you didn't use condoms?*

33. In the next 3 months, how likely is it that you will use a condom when having sex with [NAME] to prevent getting HIV?

[Show **CARD #3** with responses and read them.]

- 1 Not at all likely
- 2 A little likely
- 3 Moderately likely
- 4 Very likely
- 5 Extremely likely

34. In the next 3 months, how likely is it that you will use a condom when having sex with [NAME] to prevent getting a sexually transmitted disease other than HIV?

[Show **CARD #3** with responses and read them.]

- 1 Not at all likely
- 2 A little likely
- 3 Moderately likely
- 4 Very likely
- 5 Extremely likely

35. Have you ever talked with [NAME] about using a condom?

- 1 YES Probe: *If yes, describe a conversation you have had.*

Probe: *What ways have you and [NAME] let each other know when you want to use condoms?*

2 NO Probe: *If no, why not?*

Probe: *Do you find it uncomfortable? Embarrassing?*

36. Are you ever afraid of [NAME]'s reaction, what she might do or think of you, if you asked her to use a condom?

Probe: *What might she say or do?*

37. What kinds of things make it easy or hard for you to talk to [NAME] about using condoms?

Probe: *What else?*

38. If you wanted to use a condom, what do you do to get [NAME] to use a condom?

V. DECISION MAKING IN RELATIONSHIPS



These next questions are about how couples make decisions. When answering these questions I want you to think about your relationship with [NAME] and how much responsibility you have when making each of these decisions.

39. How much do you take part in deciding whether or not to use something to keep [NAME] from getting pregnant?

[Show **CARD #4** with responses and read them.]

- 1 Not at all
- 2 Somewhat
- 3 A moderate amount
- 4 A lot
- 5 A great deal

40. How much does [NAME] take part in deciding whether or not to use something to prevent pregnancy?

[Show **CARD #4** with responses and read them.]

- 1 Not at all
- 2 Somewhat

- 3 A moderate amount
- 4 A lot
- 5 A great deal

41. How much do you take part in deciding whether or not to use a condom with [NAME]?

[Show **CARD #4** with responses and read them.]

- 1 Not at all
- 2 Somewhat
- 3 A moderate amount
- 4 A lot
- 5 A great deal

42. How much does [NAME] take part in deciding whether or not to use a condom with you?

[Show **CARD #4** with responses and read them.]

- 1 Not at all
- 2 Somewhat
- 3 A moderate amount
- 4 A lot
- 5 A great deal

NOTE:

THIS INTERVIEW GUIDE HAS BEEN SHORTENED. FOR ACCESS TO THE REMAINDER OF THE GUIDE, PLEASE CONTACT:

Elizabeth Rink, PhD, LCSW
406.994.3833
elizabeth.rink@montana.edu

APPENDIX F

HUMAN SUBJECTS TRAINING CERTIFICATE FOR REBECCA DICK



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Human Participant Protections Education for Research Teams

Completion Certificate

This is to certify that

Rebecca Hazard

has completed the **Human Participants Protection Education for Research Teams** online course, sponsored by the National Institutes of Health (NIH), on 03/02/2007.

This course included the following:

- key historical events and current issues that impact guidelines and legislation on human participant protection in research.
- ethical principles and guidelines that should assist in resolving the ethical issues inherent in the conduct of research with human participants.
- the use of key ethical principles and federal regulations to protect human participants at various stages in the research process.
- a description of guidelines for the protection of special populations in research.
- a definition of informed consent and components necessary for a valid consent.
- a description of the role of the IRB in the research process.
- the roles, responsibilities, and interactions of federal agencies, institutions, and researchers in conducting research with human participants.

National Institutes of Health

<http://www.nih.gov/>

APPENDIX G

FORT PECK MEN'S SEXUAL HEALTH STUDY DATA SAFEGUARDING PLAN



THE FORT PECK SEXUAL HEALTH STUDY

DATA SAFEGUARDING PLAN

I. Project Description

This is a community-based research study with American Indian men age 18 to 24 years old living on the Fort Peck Indian Reservation. The purpose of this project is to examine the individual, social and environmental factors that appear to have the greatest influence on American Indian men's sexual and reproductive health and their use of family planning services.

Describe the types of data collected or acquired and their usage.

1. In-depth interviews with American Indian men age 18 to 24 years old: n=112. Questions address individual characteristics, social dynamics that influence sexual and reproductive health, and environmental factors that impact utilization of family planning services. Administered by trained interviewers and voice recorded; tapes labeled with a study identification number.
2. Transcripts of in-depth interviews with American Indian men: n=112. Voice recorded interviews will be transcribed into an electronic document and will be labeled with a study identification number.
3. Interview summary: Paper form, with affixed study identification number, that interviewers will complete. Includes information essential for the interpretation of in-depth interviews (respondent's candor, number of interview interruptions, etc.)
4. Interview guide: Paper form, with affixed study identification number, that interviewers will fill out as they conduct in-depth interviews. Includes responses to interview questions and non-verbal interview information.
5. Recruitment data: Paper form that includes contact information (name, phone number, possibly address), interview scheduling information (date, time, location), and recruitment method information.
6. Consent form: Paper form that respondents will sign indicating their willingness to participate in the study.

II. Responsibility for Data Safeguarding

The principal investigator, Elizabeth Rink, PhD has the ultimate responsibility for data safeguarding.

Who else will be responsible for data safeguarding and in what role?

Those also responsible for data safeguarding include Kris Four Star, Fort Peck Research Coordinator, and Rebecca Hazard, MSU Research Coordinator. The interviewers conducting the in-depth interviews with American Indian men are also responsible for data safeguarding.

III. Data Sensitivity

What direct or indirect identifiers will be present? To what data will they link?

The identifier will be the study identification (ID) number (3 digit number). The study ID number will be assigned to a respondent once a recruitment form is generated for that respondent. Documents marked with a study ID number include:

1. Voice recorder tapes
2. Interview guide
3. Interview summary forms
4. Interview transcripts

There will be no other data linked to this study ID number.

What specific data items are sensitive?

Respondents will be asked to answer questions about their sexual activity, contraceptive use, attitudes towards sex, and use of family planning services.

IV. Data Transmittal

What outside organization is involved in receiving and transmitting data?

Fort Peck Tribal Health will be involved in receiving study data from interviewers, temporarily storing that data in a secure manner, and transmitting study data to the Principal Investigator at Montana State University.

Specifically, Fort Peck Tribal Health will:

1. Receive data gathered by the interviewers. Data will be secured in a mailing envelope that has been sealed and is marked with a study ID number. This sealed envelope will be transferred from the interviewer to Kris Four Star at Fort Peck Tribal Health within 24 hours after the in-depth interview occurs.
2. Store data in a secure manner. After Kris Four Star has received a sealed mailing envelope from an interviewer he will open that envelope, check its contents, and separate the documents marked with a study ID number from those documents without a study ID number. These two sets of documents will be stored in separate draws of a locked file cabinet.

With ID number

Interview tapes
Interview guide
Interview summary

Without ID number

Recruitment form
Signed consent form

3. Transmit study data to the Principal Investigator at Montana State University. Data will be handed over to the Principal Investigator in person during monthly trips to Fort Peck and then hand carried back to Montana State University where it will be stored in a locked file cabinet. Alternatively, data will be express-mailed to the Principal Investigator at Montana State University, if necessary.

V. Data Safeguarding Procedures

Interviewers

1. All documents with information that could identify the respondent will be put in the respondent's study envelope, the envelope will be sealed, and the envelope will stay on your person until it is given to Kris Four Star. Documents in this category include:
 - Recruitment forms
 - Signed consent forms
 - Interview tapes
 - Interview guide
 - Interview summary forms
2. If something should happen that results in the disclosure of identifying information, contact Kris Four Star immediately. He can be reached at 768-████ (work) or 650-████ (cell). If Kris cannot be reached at that time, contact Rebecca Hazard at 570-████ (cell) or Elizabeth Rink at 994-3833 (work) or 600-████ (cell).

Fort Peck Tribal Health

1. Once interviewers hand over the respondent's study envelope, unseal the envelope and check to see that it includes all necessary documents. Separate the documents marked with a study ID number from those documents without a study ID number. Place the documents with a study ID number (interview tapes, guide, summary) in a file, also marked with this study ID number, in the top drawer of a two-drawer file cabinet. Place the documents without a study ID number (recruitment form, signed consent form) in a file in the bottom drawer of a two-drawer file cabinet. Lock this file cabinet.
2. If something should happen that results in the disclosure of identifying information, contact Elizabeth Rink immediately. She can be reached at 994-3833 (work) or 600-████ (cell).

Montana State University

1. The contents of the two-drawer locked file cabinet will be transferred to the Principal Investigator at Montana State University on a monthly basis. The Principal Investigator, Elizabeth Rink, will have a filing system identical to that used at Fort Peck Tribal Health in her locked office on the campus of Montana State University. Research data will be stored in this locked file cabinet in this locked office.

2. If something should happen that results in the disclosure of identifying information, the Principal Investigator and other members of the research team will immediately meet (on the phone or in person) and discuss what mitigating actions need to occur. The Institutional Review Board at Montana State University, Indian Health Service Billings, and the Fort Peck Tribal Council will be contacted, if necessary.

VI. Disclosure Risks

Who might have an interest in the data and where are the greatest disclosure risks likely to occur?

Other than to contact respondents to schedule/re-schedule an interview, the personal identifiers in the data will not be of interest and will not be used in this study. The greatest disclosure risks are likely to occur with interviewers who will conduct the in-depth interviews with American Indian males. Interviewers will be trained not to reveal the identity of the respondents and the content of interviews to anyone other than Kris Four Star, Fort Peck Tribal Health Research Coordinator, Rebecca Hazard, MSU Research Coordinator, and Elizabeth Rink, Principal Investigator. Interviewers will sign confidentiality statements agreeing to maintain confidentiality.

What are the effects of inappropriate disclosure in terms of harm?

If a breach of confidentiality were to occur, it is possible that the male respondents would feel embarrassed that they participated in a study that addressed sexual and reproductive health. In addition, given that personal sexual information is asked during the in-depth interviews, this information could lead to stigmatization by friends and family and therefore damage relationships, social standing, and/or reputation. Finally, because this is a community-based study involving American Indians, a breach of confidentiality could result in significant damage to the trust that has been established between the research team and the community.

APPENDIX H

FORT PECK MEN'S SEXUAL HEALTH STUDY CONSENT FORM



THE FORT PECK SEXUAL HEALTH STUDY

CONSENT FORM FOR SUBJECTS TO PARTICIPATE IN HUMAN RESEARCH AT MONTANA STATE UNIVERSITY

You are being asked to participate in a study on sexual and reproductive health!

Why are you here?



Individual values, attitudes, and behaviors have an important effect on sexual and reproductive health. We want to learn more about how individual, social and environmental issues influence things like perceptions of pregnancy, perceptions of risk for getting a sexually transmitted disease, condom use, birth control use, and seeking health care.

What will happen to me?



We are interested in learning what individual, social, and environmental factors keep people healthy and protected from sexually transmitted diseases and unintended pregnancy. If you agree to participate you will be asked questions about topics related to sexual health, pregnancy, birth control, relationships, sexually transmitted disease, and seeking health care services. Most of the interview questions will be about knowledge, perceptions, attitudes and behaviors. Each interview will take about one to two hours to complete and will be tape recorded. Once an interview is completed you will receive a \$25 gift card to either Tribal Express in Poplar or Town Pump in Wolf Point.

What are the risks?



You may feel shy about a few of the questions because some of the questions are about personal experiences. Also, your participation in this project will be anonymous and your responses will be kept strictly confidential. Only the project's research team will have access to your interview, but please keep in mind that your name will not be on the interview transcript. The data collected from our interviews will be shared with our Community Advisory Board, the Fort Peck Community, the Tribal Council, and with other researchers. However, your name will not be associated with your answers and there will be no way to track your answers back to you.

What are the benefits?



Your answers will be used to design an effective, culturally appropriate, and community-based intervention to promote sexual health and wellness in your community.

REMEMBER: You may choose to end your participation at any time.

Please contact us with your questions!
THANK YOU!

Institutional Review Board:

Dr. Mark Quinn –Chair
Montana State University
Phone: 406.994.6783
mquinn@montana.edu

Montana State University:

Elizabeth Rink – Principal Investigator
Phone: 406.994.3833
elizabeth.rink@montana.edu

AUTHORIZATION:

I have read the above consent form and understand the discomforts, inconvenience and risk of this study. I, _____ (name of subject), agree to participate in this research. I understand that I may later refuse to participate and that I may withdraw from the study at any time without consequence. I have received a copy of this consent form for my own records

Signed: _____

Witness: _____

Investigator: _____

Date: _____