

A TEST OF THE EXPANDED AIDS RISK REDUCTION MODEL: MANAGING
RISK TO ME, RISK TO YOU AND RISK TO US

Brian Todd Collins II

Submitted to the faculty of the University Graduate School
in partial fulfillment of the requirements
for the degree
Master of Arts
in the Department of Sociology
Indiana University

December 2015

Accepted by the Graduate Faculty, Indiana University, in partial fulfillment of the requirements for the degree of Master of Arts.

Master's Thesis Committee

David C. Bell Ph.D., Chair

Carrie Foote Ph.D.

Devon Hensel Ph.D.

Acknowledgements

I am very thankful to my parents for their love, support, and encouragement and for being with me on each and every step in my life. My parents taught me the important example of not giving up in the midst of adversity, especially when you have the chance to define yourself with resilience. My parents who have always been my nearest neighbors and have been so close to me that I found them with me whenever I needed. It is their unconditional love that motivates me to set higher targets. I also dedicate this thesis to my brothers (Malcolm, Gysai, and Jeshua) and sister (Zakara) who are my nearest surrounds and have provided me with a strong lover shield that always surrounds me and never lets any sadness enter inside.

I would like to express the deepest appreciation to my committee chair, Dr. David Bell, who has the attitude and the substance of a genius: he continually and convincingly conveyed a spirit of adventure in regard to research and scholarship and an excitement in regard to learning and independent thinking. He encouraged me, edited my work, embraced my distress and provided me mentorship and guidance. His timely advice, meticulous scrutiny, scholarly advice and scientific approach have helped me to a very great extent to accomplish this task.

I would like to thank my committee members, Dr. Carrie Foote and Dr. Devon Hensel who not only taught me within the classroom or lab how to learn and synthesize new and old knowledge, their insightful comments and

encouragement, but also for the critical feedback which incited me to widen my research from various perspectives. Thank for encouraging me with your advice and for being a source of motivation and placing faith in me and urging me to do better. Their support has been invaluable on both an academic and a personal level, for which I am extremely grateful.

I would like to acknowledge the financial, academic and technical support of Indiana University Purdue University Indianapolis and its staff particularly in. I also thank the Department of Sociology for their support and assistance since the start of my Master's work in 2012 especially my research mentor, Dr. David C. Bell.

Brian Todd Collins II

A TEST OF THE EXPANDED AIDS RISK REDUCTION MODEL: MANAGING
RISK TO ME, RISK TO YOU AND RISK TO US

Currently, 1.2 million people in the United States are living with HIV (Human Immunodeficiency Virus) infection, while one in eight are unaware of their infection status. The purpose of this study was to test the ability of the expanded ARRM to see if the model contributed something to the research of why people protect themselves from HIV. To add to the research regarding motivating factors of HIV protection, we decided to add two concepts to the ARRM; partner protection and relationship preservation. Findings of the study suggest HIV-positive partners are motivated to using condoms to protect their partners especially when they believe their partners are at risk for contracting HIV. Relationship preservation results illustrated that when people fear of losing their relationship they are willing to do whatever it takes to keep the relationship going, even at the cost of contracting HIV. By extending the ARRM, as well as incorporating HIV status, we now can begin understanding the many motivating factors towards why people are and are not using condoms to protect themselves or their partner.

David C.Bell Ph.D., Chair

Table of Contents

Chapter One: Introduction

Introduction	1
AIDS Risk Reduction Model.....	2
Analytic Review of Literature	9
Summary of Hypotheses.....	16

Chapter Two: Methods

Sample and Recruitment	18
Data Collection	19
Measurements	21
Analyses	27

Chapter Three: Results

28

Chapter Four: Discussion.....

31

References

37

Curriculum Vitae

Chapter One: Introduction

Currently, 1.2 million people in the United States are living with HIV (Human Immunodeficiency Virus) infection, while one in eight are unaware of their infection status (Centers for Disease Control and Prevention 2012). HIV is the virus that causes infection which damages cells of the body's immune system, destroying the body's ability to fight infections resulting in AIDS (Acquired Immunodeficiency Syndrome). Most transmissions of HIV are innately dyadic, as it is spread through largely cooperative activities such as sex in the absence of effective prophylactic tools, such as condoms. Considering the inherent dyadic nature of most HIV transmissions, it is important to protect oneself from exposure.

Knowledge of how people protect themselves from HIV infections is essential for planning prevention efforts (Hall, Song et al. 2008). Serodiscordant couples, defined as couples in which one partner is HIV-positive and the other HIV-negative, have been used to study transmission risks. Three reviews summarizing the use of latex condoms among serodiscordant heterosexual couples indicated that using latex condoms substantially reduced the risk for HIV transmission (Cates W 1992, Weller 2002, CDC 2006). In addition, two subsequent studies of serodiscordant couples confirmed this finding and emphasized the importance of consistent (i.e., use of a condom with each act of intercourse) and correct condom use. In a prospective study of HIV serodiscordant partners, Skurnict and colleagues (1998) showed mixed couples increased their use of condoms and reduced their practice of unprotected

intercourse immediately following notification of HIV infection. However, despite somewhat increased safer sex practices, 26% of heterosexual serodiscordant couples continued to practice unprotected vaginal intercourse and 53% did not use condoms consistently during vaginal intercourse over a six-month period (Skurnick JH 1998) . The current study will examine the motivations and decisions of serodiscordant couples where each partner is aware of the risk to the HIV-negative partner.

This investigation will test an expansion of the AIDS Risk Reduction Model (ARRM), a self-protection theory that proposes factors which motivate protective behaviors against HIV transmission. The concept of self-protection from HIV is only applicable to HIV-negative partners. Yet the decision on whether to protect oneself from HIV infection generally requires dyadic cooperation, in which the motivations of both partners must be considered. Thus the characteristics and dynamics of relationships are important in capturing the influences, emotions, and meanings that encourage protection practices (Reisen. 1997). This study will not only expand the ARRM to include the effects of partner protection and relationship preservation but it will also examine the motivating factors that inhibit safe sex behaviors. Because the ARRM was designed for predicting sexual risk, I chose to focus the study on serodiscordant couples where male condom use is the primary mode of preventing HIV transmission.

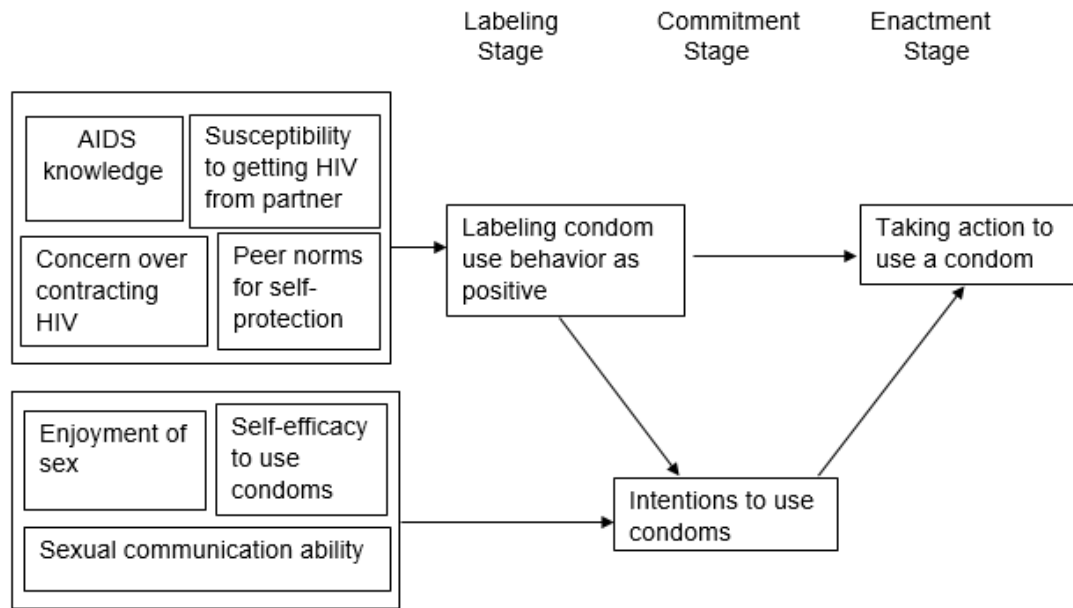
AIDS Risk Reduction Model

The proposed study will build on the ARRM, a model that provides a framework for explaining and predicting sexual risk behaviors (Catania, Kegeles

et al. 1990). The ARRM combines elements from the Health Belief Model (Rosenstock, Strecher et al. 1994), Self-Efficacy Theory (Bandura 1994), and the Theory of Reasoned Action (Ajzen 1991) to conceptualize HIV relevant behavior and decision making as a process involving three stages (Fig. 1): labeling behaviors as problematic, developing intentions to reduce risk, and taking action to protect oneself with a partner.

Some of the stage concepts have been renamed here to better specify meaning. What was originally titled by Catania and colleagues as “labeling sex behaviors as problematic” has been renamed “labeling condom use behavior as positive” to make direction clear (Catania, Kegeles et al. 1990). Previous studies have assessed labeling sex behaviors as problematic by items such as “I’ve already done things that could have exposed me to HIV” and “I never do anything that could give me AIDS.” Yet it can be argued that based upon intention, a person may or may not label his/her sex behaviors as “problematic” upon his/her goals of infection. For example, HIV-negative actors who want to become infected in order to match their HIV-negative partner might also label safe sex as “problematic” for their goal of infection.

Figure 1. The AIDS Risk Reduction Model



In this study the labeling stage was renamed to better define a goal away from HIV infection. In addition, the title of “intentions to reduce risk” has been changed to “intention to use condoms” to better define what it means to commit to protecting oneself. Previous studies have assessed intentions to use condoms through items such as “In the month ahead, I will use condoms” or “In the year ahead, I will always use condoms during vaginal or anal intercourse.” Yet an individual who intends to use condoms may already engage in low risk behaviors, in which case, reducing risk would no longer be a goal.

The ARRM is based on the principal that people will protect themselves. To the extent of this realization, he or she is said to come to recognize that labeling safe sex as positive is a solution towards avoiding exposure to HIV. Intention to use condoms is said to imply that the individual realizes that the best way to go about protecting him or herself during sex is through the use of

condoms. After intention to use condoms, the person will then according to the ARRM, take action to protect him or herself when having sex with his or her partner.

Labeling Condom Use Behavior As Positive. According to the ARRM, progression through the stages is seen to be influenced by several variable concepts that motivate the three respective stages. Concepts that lead a person to label condom use behavior as positive for avoiding HIV transmission include knowledge of sexual activities associated with HIV transmission, perceived susceptibility to HIV, concern of contracting HIV, and the influence of peer norms. Knowledge of the risk factors involved in HIV transmission are hypothesized as necessary for one to determine risk accurately and to develop perceptions of personal susceptibility to infection. Perceived susceptibility to contracting HIV is seen to be a motivation that is different from AIDS knowledge. Though a person may be well informed of HIV transmission routes, some individuals may not perceive themselves as susceptible and may even see themselves as invulnerable to contracting HIV. Concern about contracting HIV addresses the belief that contracting HIV is undesirable. This concern may stem from being stigmatized as engaging in behaviors which caused infection or that HIV is a virus that can harm the body. Peer norms influence a person's perception through community or peer group disapproval of high risk activities and approval of protective behaviors.

Intentions To Use Condoms. To the extent that the individual has arrived at the perception that engaging in a particular behavior places them at risk for

infection, the individual makes the intention to use condoms. Intention to use condoms is seen to be influenced by labeling safe sex as a positive solution, enjoyment of sex, self-efficacy to use condoms, and the strength of the individual's sexual communication abilities. Enjoyment of sex negatively influences the extent to which an individual intends to use condoms. For example, the more an individual desires to have sex every day, the less likely they are to intend to use a condom. Self-efficacy affects one's ability to be able to use condoms. If an individual finds it easy to get condoms and use them when he/she is going to have sex with his/her partner, then he/she will be more likely to intend to use a condom. Sexual communication abilities are important for negotiating with one's partner about taking protective measures. For example, if an individual sees oneself as able to negotiate with his or her partner, then he/she will more likely be motivated to intend to use a condom.

Taking Action to Use a Condom. The final stage of the ARRM, taking action to use a condom, results from the decisions made in both of the two prior stages. In some cases recognition of safe sex as a positive solution may be the single motivation needed to encourage taking action to use a condom. For others, in addition to recognition of safe sex as a solution, they must intend to use condoms before taking action to use a condom.

Self-Protection. The motivation most often proposed in theories of risk reduction behavior is self-protection. The ARRM proposes that rational HIV-negative persons (one who desires to protect himself/herself from HIV infection) will protect themselves during sexual activities with any partner whose HIV-

positive status they know or suspect. Studies have indeed shown that when a person is aware of the partner's HIV-positive status, risk behavior is altered accordingly (Bekker, Beyrer et al. 2012). Yet, rationality can be undermined when HIV-positive persons do not disclose their HIV status to their partners because of the fear of being stigmatized, refusal of partner to have sex, loss of privacy, or the desire to keep infidelity a secret from their partners (Corbett, Dickson-Gomez et al. 2009)

Furthermore, treating the problem of sex risk as a measure of self-protection often casts an individual as solely responsible for situations that he or she cannot control. For example, best safeguard practices against contracting HIV suggest that people must rely not only on both attitude and efficacy but also have conscious concern for evading risky sexual behaviors. In addition, one must convince partners to use a condom and engage in safe sex behaviors.

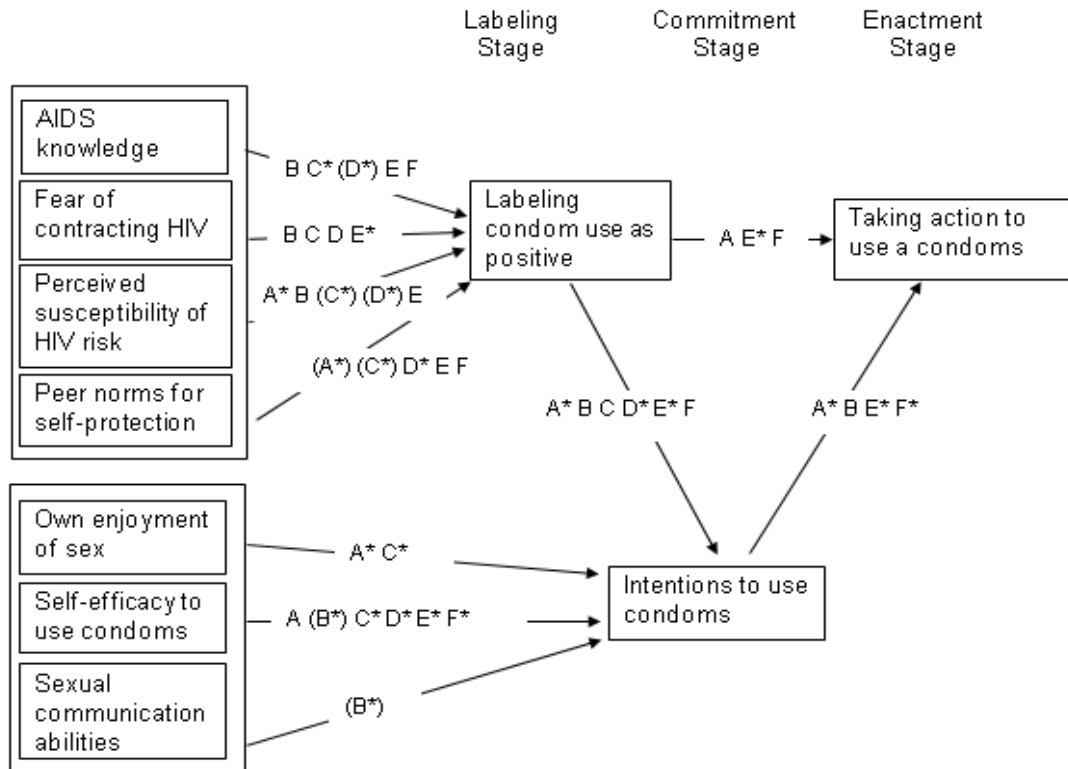
Hypothesis 1. The more labeling condom use behavior is labeled as positive the greater the intentions to use condoms. The greater each of these variables, the more the person will take action to use a condom. This is the basic model for the ARRM.

Hypothesis 2. The greater a person's AIDS knowledge, fear of contracting HIV, perceived susceptibility to HIV from the partner, and the stronger the peer norms for self-protection, the more the person will label condom use behavior as positive. It is expected that Hypothesis 2 will apply to HIV-negative persons with HIV-positive partners.

Hypothesis 3. The more a person's enjoyment of sex, the greater their self-efficacy to use condoms, and the greater their sexual communication ability, the more strongly they will intend to use a condom. This component of the ARRM is expected to apply to everyone.

Analytic Review of Literature

Figure 2. Prior test of the ARRM



Note. Letters on arrows indicate that a given effect was tested. An asterisk indicates that the effect was found to be significant. Letters in parentheses were tested but had a different result from that in the ARRM.

- A. Catania et al (1994)
- B. Malow et al (1993)
- C. Kowaleski et al (1994)
- D. Longshore et al (1998)
- E. Longshore et al (2004) (Injection risk behavior)
- F. Conner et al (2005)

Figure 2 depicts each of the model's concepts and indicates the six studies in which the concepts were tested and found to be significant. In a seminal study of the ARRM, Catania and colleagues (Catania 1994) tested the ARRM among a sample of 716 HIV-negative unmarried African American, Hispanic, and White heterosexual adults with at least one risk factor for contracting HIV. Labeling condom using behavior as positive was significantly

predicted by one of the ARRM's concepts, perceived susceptibility. Intentions to use condoms were significantly predicted by three of the model's concepts: labeling and enjoyment of sex were supported as described by the ARRM, while peer norms was found statistically to have a direct effect on intention to use condoms, which the model predicted would have an indirect effect through labeling. Risk of HIV was significantly predicted by intentions to use condoms. Results also found a direct effect of, peer norms, and enjoyment of sex. As predicted by the ARRM, labeling safe sex as problematic was found to have an indirect effect on risk of HIV with one's sex partner(s) through intentions to use condoms. Tested effects are indicated with an "A" in Figure 2. Significant effects are indicated with an asterisk.

Subsequently, the ARRM has been investigated for its usefulness with populations of male heterosexual intravenous and non-intravenous drug users. Malow and colleagues (1993) tested the ARRM among a sample of 136 HIV-negative heterosexual, cocaine-dependent African American men who reported being engaged in sex with more than one partner in the previous three months. Malow found that perceived susceptibility and concern about contracting HIV had significant effects on labeling safe sex as positive. Intentions to use condoms were significantly predicted by enjoyment of sex. HIV risk was significantly predicted by intentions to reduce risk, self-efficacy and sexual communication skills. Note that self-efficacy and sexual communication skills were not found to operate through intentions to use condoms. This is noted in Figure 2 by enclosing those effects within parentheses. Tested effects are indicated with a

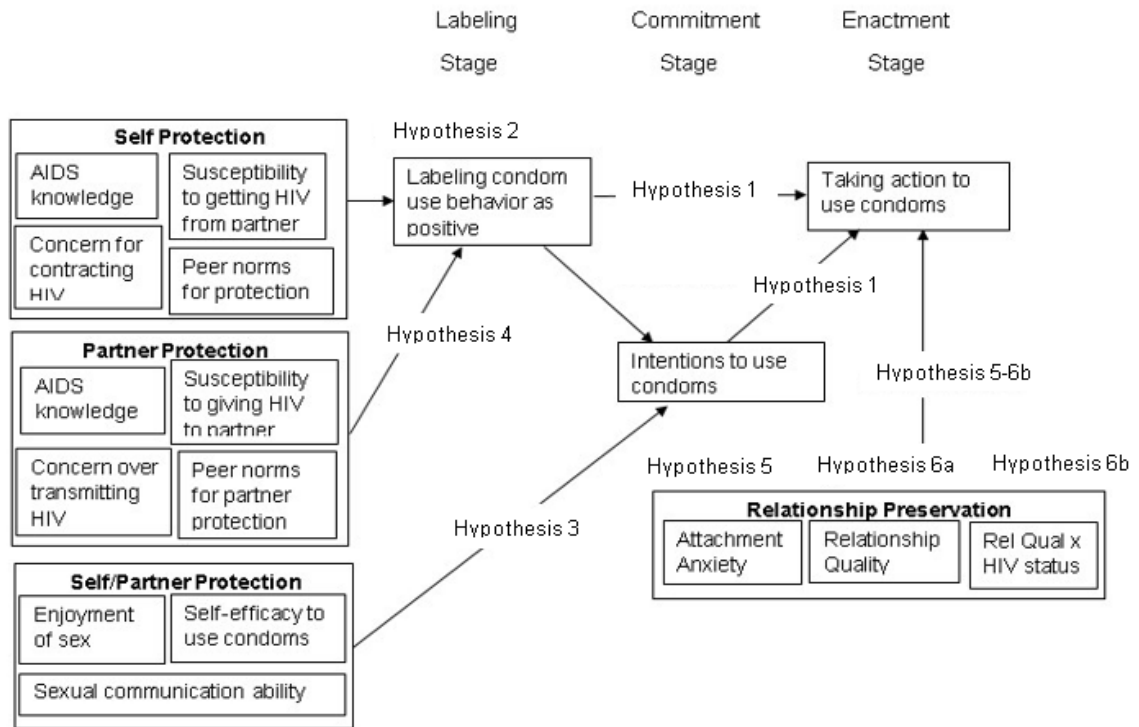
“B” in Figure 2. Kowalewski, Longshore and Anglin examined concepts of the ARRM associated with intentions to use condoms among a sample of 161 HIV-negative injection drug users (IDUs) who reported having more than one sex partner in the past year (Kowalewski, Longshore et al. 1994). Labeling safe sex as positive was predicted by AIDS knowledge and perceived susceptibility; intentions to use condoms were predicted by self-efficacy and enjoyment of sex. Tested effects are indicated with a “C” in Figure 2. Longshore, Anglin and Hsieh found in a sample of 128 HIV-negative IDUs, that intentions to use condoms incurred through multiple sex partners were predicted by AIDS knowledge, perceived susceptibility, and peer norms (Longshore, Stein et al. 1998). Tested effects are indicated with a “D” in Figure 2. In a later study, Longshore and colleagues tested the ARRM for injection risk behavior among a sample of 294 HIV-negative individuals enrolled in opiate substitution treatment (Longshore, Stein et al. 2004). They found that labeling was predicted by concern about contracting HIV and perceived susceptibility. Intention to use condoms was predicted by labeling and self-efficacy. Risk of HIV was predicted by labeling and intention to use condoms. Tested effects are indicated with an “E” in Figure 2. Conner and colleagues tested the ARRM among a sample of 294 HIV-negative opiate-addicted heterosexual men (Conner, Stein et al. 2005). Findings of the study depict that self-efficacy had a significant effect on intentions to use condoms. Intentions to reduce risk were found to have a significant effect on the risk of HIV. Tested effects are indicated with an “F” in Figure 2. Significant effects

in the figure are indicated with an asterisk. Effects not predicted by the ARRM are shown in parentheses.

The above studies have used the ARRM to test some of the pathways to HIV protection. Many common ARRM concepts were found to have significant effects in more than half of the studies such as perceived susceptibility on labeling safe sex as positive, and self-efficacy on labeling condom use as positive and intention to use condoms on taking action. Though tested in four of the above studies, peer norms was not found to have a significant effect on labeling in three of the studies. Labeling was found to have significant effects on intentions to use condoms in half of the studies but was found to have significant effect on the risk of HIV in sex with partner in only one of three studies where it was tested. Sexual communication was only tested in one study and was not found to be significant.

The ARRM proposes these concepts will explain and predict the behavior change efforts of individuals, specifically in relationship to the sexual transmission of HIV. As evidence in the aforementioned studies, varying results suggest that some parts of the model are not working as theorized. This study will proceed to examine theories proposing factors that both motivate and inhibit safe sex behaviors. The Expanded AIDS Risk Reduction Model is shown in Figure 3.

Figure 3. The Expanded AIDS Risk Reduction Model



Partner Protection. Another motivation towards protective safe sex behaviors is the desire to protect one’s partner. HIV-positive partners often report that they feel responsible for preventing HIV transmission to HIV negative partners, and as a consequence often worry about infecting their partners (Van Kesteren, Hospers et al. 2005). The motivation to meet another’s needs has been shown to have a neurobiological basis as support for partner protection in close relationships (Bell 2001). The extent to which HIV-positive people view their behavior as placing others at risk significantly influenced their decision to adopt preventive action. HIV positive women who had partners who were HIV-negative, had high perceived power to influence their partner’s condom use, and

had partners that did not want more children, were more likely to use condoms consistently with their partner (Crosby 2013).

Hypothesis 4. The greater a person's AIDS knowledge, fear of transmitting HIV, perceived susceptibility of the partner to HIV, and the stronger the peer norms for partner protection, the more the person will label condom using behavior as positive. It is expected that Hypothesis 3 will apply to HIV-positive persons with HIV-negative partners as it can be argued that the greater a person's concern for their partner contracting HIV, the more likely he/she will be to use condoms in order to protect his/her partner.

Relationship Preservation. Bowlby suggested that relationship issues are central to an understanding of the expression of development and that attachment theory provided a useful perspective on human bonds (Bowlby 1969/1982). The attachment theory, originally developed by Bowlby emphasizes how the desire to remain in an intimate and comforting relationship influences development. According to Bowlby, a component of the attachment system was attachment anxiety, the fear that the relationship with the partner will be lost (Bowlby 1969/1982, Bartholomew 1990).

People with a high level of attachment anxiety are said to be worried about the possibility of losing the relationship with their partner. Given this attachment bond, if the person is afraid of losing the relationship, taking actions that are protective against HIV infection during sex, such as condom use, can be viewed as a sign of mistrust or an accusation of infidelity which will threaten the relationship (Afifi 1999, Buysse and Ickes 1999, Adam, Sears et al. 2000,

O'Leary 2000). It is therefore expected that persons with high attachment anxiety will be less likely to take precautionary measures, as such measures might indicate one's own unreliability as a partner (Afifi 1999). Additionally, those persons may be reluctant to behave against the wishes of their partner, in fear of losing their partner. If the partner is HIV-positive, an HIV-negative person may agree to unprotected sex rather than risk losing the relationship.

Hypothesis 5. The greater the attachment anxiety, the less that a person will take action to use a condom.

Individuals are more likely to use condoms with new partners than with their established partners (Misovich, Fisher et al. 1997, Cusick 1998). The relationship does not have to be of long length before condom use decreases, sometimes only a month or less (Fortenberry, Tu et al. 2002). It has been found that HIV-positive persons use condoms less with primary partners than with their secondary or casual partners (Anderson, Wilson et al. 1999). Attempting to protect oneself from HIV infection during sex between committed partners can be viewed as an undesirable sign of mistrust or an accusation of infidelity (Afifi 1999, Buysse and Ickes 1999, Adam, Sears et al. 2000, O'Leary 2000).

Hypothesis 6a: The greater the relationship quality, the less that a person will take action to use a condom.

Many HIV-positive individuals fear that initiating safe sex practices with casual partners will hinder the development of relationships (Remien 1995). Studies have indicated that HIV-positive persons often avoid close relationships with regular HIV-negative partners due to the challenges of sustaining safe sex

and thus seek HIV-positive partners (Day 1990, Remien, Carballo-Dieiguez et al. 1995). HIV-positive individuals are more likely to protect their HIV-negative partners in a committed relationship than a casual relationship (De Rosa and Marks 1998). This effect is likely to be seen in a statistical interaction between HIV status and relationship quality.

Hypothesis 6b: The greater the relationship quality in interaction with HIV-positive status, the more that a person will take action to use a condom.

Summary of Hypotheses

Using a dataset from a study of sexual risk including dyads with both HIV-positive and HIV-negative participants, we will test the predictive ability of the expanded ARRM among serodiscordant dyads. As seen in Figure 3, we have added the additional motivations of partner protection and relationship preservation to the ARRM to capture the motivations of protective behaviors not addressed by the original ARRM. Because the ARRM was designed for predicting sexual risk, this study will focus on serodiscordant dyads where male condom use is the primary mode of preventing HIV transmission. The following were hypothesized:

Hypothesis 1. The more condom use behavior is labeled as positive the greater the intentions to use condoms. The greater each of these variables, the more the person will take action to use a condom. This is the basic model for the ARRM.

Hypothesis 2. The greater a person's AIDS knowledge, fear of contracting HIV, perceived susceptibility to HIV from the partner, and the stronger the peer

norms for self-protection, the more the person will label condom use behavior as positive. It is expected that Hypothesis 2 will apply to HIV-negative persons with HIV-positive partners.

Hypothesis 3. The more a person's enjoyment of sex, the greater their self-efficacy to use condoms, and the greater their sexual communication ability, the more strongly they will intend to use a condom. This component of the ARRM is expected to apply to everyone.

Hypothesis 4. The greater a person's AIDS knowledge, fear of transmitting HIV, perceived susceptibility of the partner to HIV, and the stronger the peer norms for partner protection, the more the person will label condom use behavior as positive. It is expected that Hypothesis 3 will apply to HIV-positive persons with HIV-negative partners as it can be argued that the greater a person's concern for their partner contracting HIV, the more likely he/she will be to use condoms in order to protect his/her partner.

Hypothesis 5. The greater the attachment anxiety, the less that a person will take action to use a condom. This component of the ARRM is expected to apply to everyone.

Hypothesis 6a: The greater the relationship quality, the less that a person will take action to use a condom. This component of the ARRM is expected to apply to everyone.

Hypothesis 6b: The greater the relationship quality in interaction with HIV-positive status, the more that a person will take action to use a condom. This component of the ARRM is expected to apply to everyone.

Chapter Two: Methods

Sample and Recruitment

Participants were HIV-positive and HIV-negative individuals in HIV-serodiscordant sexual dyads recruited into a larger study designed to better understand the role of relationship dynamics in the prevention or transmission of HIV. Several different community-focused recruitment methods were used to identify potential participants, including referral of individuals through staff at community HIV care sites serving men and women, informational flyers placed at these community care sites, and targeted mailings to HIV clients on a centralized database managed by state and the county departments of health. Participants could also self-refer into the study via word of mouth within the community or via contact from a completed participant.

Potential participants contacted the study coordinator, who gave them a brief overview of the study, and screened them for eligibility. Participants were recruited as serodiscordant dyads. All participants in this analysis knew about the HIV status of the HIV-positive partner and believed that the other person in the dyad was HIV-negative. Dyads were required to have been sexually active (defined as any kind of sex) with that partner in the previous three months, and to have that partner be willing to also participate in the study. Across these dyads, relationship duration varied, with one quarter of relationships being no more than one month in length and one quarter being over five years in length.

Participants were required to be at least 18 years of age, have English speaking ability, not self-identify as transgendered, and in the case of the HIV-

positive partner, not have received an HIV diagnosis within the three months prior to study enrollment. The latter criterion was imposed to protect against psychological worry and disorganization from a recent diagnosis that might compromise the ability to give informed consent. Following screening, among those qualified and interested, interviews were scheduled for both partners on the same day.

Data Collection

On the day of the interview, dyad members were taken to separate study rooms both as a means of minimizing discussion between them regarding study responses, and as a means of maximizing privacy around individual responses. Because of the possibility of coercion to enter the study by one's partner, specific procedures were implemented both to detect coercion and to protect a coerced partner; however, no coercion was detected across the dyads used in this analysis. After the interviewer described the purpose of the study, potential risks, and study procedures, participants gave written informed consent. During interviews, participants provided information through computer-assisted personal interviews (CAPI), in which a trained interviewer posed questions to participants and recorded their answers on a computer. CAPI methods help increase efficiency and accuracy of data entry. Age, sexual orientation, relationship status, health status, education, as well as general psychosocial attributes, were assessed. Identifying information such as partner first name was collected to facilitate asking questions about multiple partners, but such information was

removed prior to data analysis. Participants were compensated \$40.00 for interview completion and costs associated with parking or bus transportation.

HIV Testing

At the end of the interview, both partners were privately given an OraQuick® mouth swab to test for HIV. All participants received CDC standard HIV counseling from an interviewer who had undergone training in HIV testing and counseling from the Indiana State Department of Health. Any participant who indicated their status as HIV-negative, but who subsequently tested HIV-positive using this test (over the course of the study, four of these cases occurred), was given a referral for confirmatory HIV testing, post-test counseling, and care.

Dyads from these participants were excluded from current analyses. All study procedures were approved by an Indiana University institutional review board.

Current analyses describe data from 128 HIV negative participants with HIV-positive partners and 145 HIV-positive persons with HIV-negative partners. Other participant characteristics are given in Table 1.

Table 1.
Demographic characteristics of HIV-negative and HIV-positive participants

	HIV-Negative (N=128)	HIV-Positive (N=145)
Age (N, %)		
20-30	38 (31.97)	37 (25.52)
31-43	38 (31.16)	53 (36.57)
44+	35 (31.98)	55 (37.91)
Gender (N, %)		
Male	88 (72.13)	92 (63.45)
Female	34 (27.87)	53 (36.55)
Ethnicity (N, %)		
White	41 (33.61)	49 (51.72)
Black	64 (52.46)	75 (33.79)
Multiple	10 (8.20)	10 (6.90)
Other	5 (4.10)	8 (5.52)
Education (N, %)		
Some high school or less	30 (24.59)	35 (24.14)
High school graduate/GED	35 (28.69)	43 (29.66)
Some college	39 (31.97)	48 (33.10)
College degree	15 (12.30)	17 (11.72)
Post graduate study	3 (2.46)	2 (1.38)
Marital Status (N, %)		
Married	20 (16.39)	26 (17.93)
Not Married	102 (83.61)	119 (82.07)
Employment Status (N, %)		
Unemployment	63 (51.64)	112 (77.24)
Part-time	24 (19.67)	17 (11.72)
Full-time	34 (27.87)	16 (11.03)
Sexual Relationship Type		
Heterosexual	68 (55.74)	69 (47.59)
MSM	36 (29.51)	49 (33.79)
Bisexual	16 (13.11)	27 (18.62)

Measurement

In testing the ARRM, some concepts were tested at the individual level to measure a quality of the participant while others were measured at the dyadic level to measure a quality of the dyad or partner. Summated scales were used whenever possible because summated scales of two or more Likert items provide greater reliability, but single items have been used when only one measure of a concept was available in the data set. Cronbach's alpha was assessed for each concept to determine internal consistency of items to gauge

reliability. Unless otherwise noted, indicators were 5-point Likert-type with response values ranging from strongly disagree (0) to strongly agree (4).

Labeling Condom Use As Positive

Labeling condom use behavior as positive (dyad level) an index of four items: "Always having safe sex is a goal for you," "The more you and partner have safe sex, the better", "It is important for you to have safe sex", and "Partner feels having safe sex is a goal." Higher values indicate greater perception of safe sex as positive ($\alpha=.80$).

HIV knowledge (individual level) was measured as the correct number of responses to 10 items testing the participants' knowledge about the various routes of HIV/AIDS virus transmission. Items included, for example, "A pregnant woman with HIV can give HIV to her unborn baby" and "A person can be infected with HIV for 5 years or more without getting AIDS." Higher values indicated more complete knowledge (Remien 1995)

Concern about contracting HIV (dyad level) was an index of three items: "You worry that you would contract/transmit HIV when you think about your sexual relationship with partner," "You feel scared about HIV with partner," and "The fear of getting HIV makes you feel nervous about having sex." Higher values indicated more concern about contracting HIV ($\alpha=.71$ HIV-positive participants did not complete these items and were assigned a value of zero.

Concern about transmitting HIV (dyad level) was an index of three items: "You worry that you would give someone HIV," "You feel scared about HIV with partner," and "The fear of giving HIV makes you feel nervous about having sex."

Higher values indicated more concern about contracting/transmitting HIV ($\alpha=.71$). HIV-negative participants did not complete these items and were assigned a value of zero.

Perceived Susceptibility to getting HIV (dyad level) was measured with a single item regarding awareness of HIV risk: "If you didn't take any precautions, what do you think the chances are you would get HIV from partner in the next year?" Scores ranged from 0 (no chance) to 100 (sure chance) with higher scores indicating greater susceptibility to HIV.

An interacting concept of perceived susceptibility and fear about contracting HIV was also included as a concept of labeling safe sex as positive. It is expected that the greater a person perceives their partner susceptible for contracting HIV and fears transmitting HIV the greater he/she will label safe sex as positive. Interaction of perceived susceptibility and concern about transmitting HIV (dyad level) was computed as a product between centered values of perceived susceptibility to partner and concern about transmitting HIV.

In addition to the original ARRM concepts of labeling safe sex as positive, we added an interaction concept by combining the concepts of fear about transmitting HIV with perceived susceptibility. It is expected that the greater a person perceives themselves susceptible for transmitting HIV, and fears transmitting, HIV the greater he/she will label safe sex as positive. The interaction of perceived susceptibility and concern about transmitting HIV (dyad level) was computed as a product between centered values of perceived susceptibility and concern about contracting HIV.

Perceived Susceptibility to giving HIV to partner (dyad level) was measured with a single item regarding awareness of HIV risk from partner: “If you didn’t take any precautions, what do you think the chances are you would give partner HIV in the next year?” Scores ranged from 0 (no chance) to 100 (sure chance) with higher scores indicating greater susceptibility to giving HIV.

Peer Norms for self-protection/partner protection (individual level) was measured with one of two items regarding the individual’s sexual partner(s) and friend’s behavioral norms for risk reduction: “Have any of your friends ever told you that you should protect yourself/partner when having sex?” If the participant’s response was “no” they were then asked “Do you think any of your friends believe you should protect yourself/partner when having sex.” If either response was “yes,” they were given a value of one, otherwise zero. Higher scores indicated greater peer norms towards self-protection/partner protection (Zimet GD 1988)

Intentions To Use Condoms

In testing intentions to use condoms, all concepts were tested at the individual level to measure a quality of the participant while others were measured at the dyadic level to measure a quality of the dyad or partner.

Intentions to use Condoms (dyad level) was measured with three items regarding the individual’s perception about condom use. Items included: “Condom use with partner is a good thing,” “Partner feels using condoms is a good thing,” and “Using condoms is a good thing.” Higher scores indicate greater labeling of condom use ($\alpha=.74$).

Self-efficacy to use condoms (dyad level) to reduce risk was measured with three items: "You can use a condom with your partner without it ruining the mood," "If you are already sexually aroused with your partner, you can stop before sex to use a condom," and "It is easy for you to get condoms when you are going to have sex with your partner." Higher scores indicate greater confidence in his or her ability to exert control over using condoms ($\alpha=.70$) (Cates W 1992)

Own enjoyment of sex (dyad level) was measured with two items, which indicated the participant's enjoyment of a sexual action with partner(s): "If it were convenient, you would want to have sex almost every day," and "You have a strong sex drive." Higher values indicated greater enjoyment of sexual actions with partner(s) ($\alpha=.76$).

Sexual Communication Ability (dyad level) was measured with five items: "Some sexual matters are too upsetting to discuss with partner," "There are issues or problems in your sexual relationship with partner that you have never discussed," "You have difficulty telling partner what you like or don't like sexually," "You feel embarrassed when talking about details of your sex life with partner" and "Talking about sex is a satisfying experience for you and partner." All items but the last are reverse coded. Higher values indicated a greater level of sexual communication with one's partner ($\alpha=.65$) (Skurnick JH 1998) .

Relationship Preservation

Attachment Anxiety (dyad level) was an index of five items: "You are afraid you will lose your partner's love," "You worry that your partner doesn't really love

you,” “You often wish that partner’s feelings for you were as strong as your feelings for him/her,” “You worry that partner might become interested in someone else” and “You get mad that you don’t get the affection and support you need from partner.” Higher values indicated greater attachment to partner ($\alpha=.81$).

Relationship Quality (dyad level) was an index of six items which measured the satisfaction with the relationship. Items included: “You feel comfortable sharing your private thoughts and feelings with partner,” “You can easily discuss your problems and concerns with partner,” “You find it helps to turn to partner in times of need,” “You tell partner just about everything,” “You talk things over with partner” and “You find it easy to be affectionate with partner.” Higher values indicated greater relationship quality ($\alpha=.93$).

Interaction of relationship quality and HIV-positive status (dyad level) was computed as the product of centered value of relationship quality and HIV status (HIV-positive = 1; HIV-negative=0).

Enactment

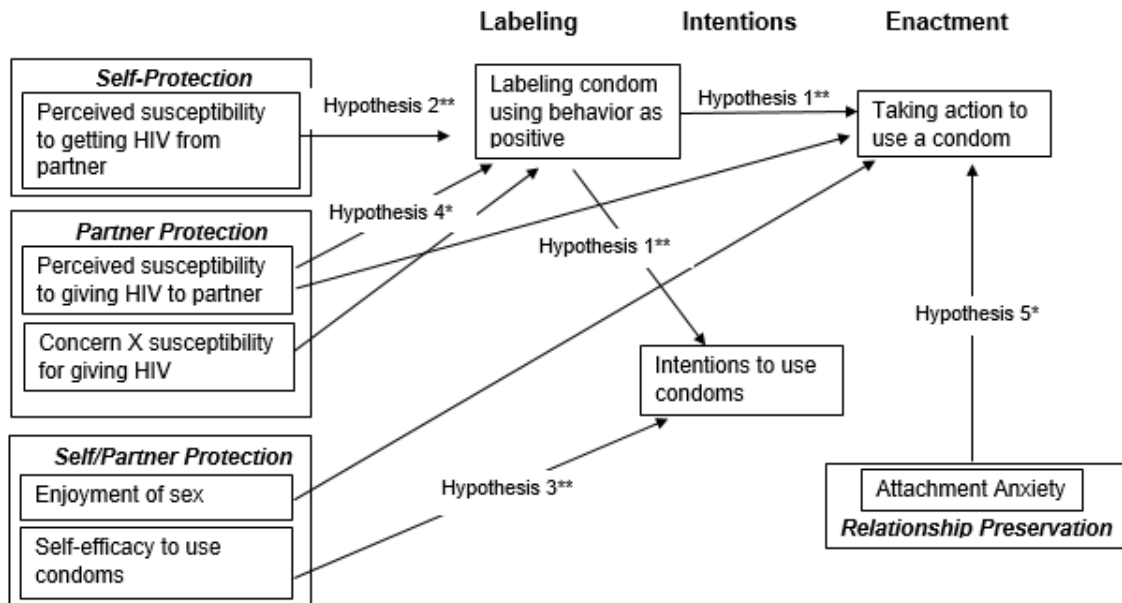
Taking Action to Use Condoms (dyad level) assesses the frequency of two behaviors in the previous 90 days by self-report which included, the sum number of times you have had vaginal sex without a condom and times you have had anal sex without a condom. The value is the sum of these quantities. Anal sex scores without a condom were counted twice as anal sex is twice the more risk for HIV infection than vaginal sex. Values greater than 40 were recorded to 40 avoid undue influence of outliers. Higher scores represented greater protection.

Analyses

Multiple regression using both individual and dyadic information were performed to predict three dependent variables: labeling safe sex as positive, labeling condom use as positive and taking action to protect, from multiple independent variables. The path analyses included in the regression equations meet the criteria of statistical significance. Statistical significance were defined as having a probability no greater than .05 (two-tailed) of obtaining a nonzero regression coefficient when its true value is zero. All analyses were conducted in Stata 11.0; descriptive statistics, and interaction effects will all be described.

Chapter 3: Results

Figure 4. Test of the Expanded ARRM



Note: Arrows represent significant regression paths among 245 serdiscordant dyads (* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$).

Multiple linear regression analysis was used to develop a model for predicting concepts of the expanded ARRM (Figure 4). The dependent variable was taking action towards protection with partner. To minimize multicollinearity problems, all interaction terms were constructed from standardized variables.

Our first step was to test Hypothesis 1 by regressing taking action to use a condom by two effects; labeling condom use behavior as positive and intentions to use condoms. Of these two effects, labeling condom using behavior as positive was the only concept found to positively predict taking action to use a condom ($p < .05$); the more people labeled condom using behavior as positive the more likely they were to take action to use a condom.

We tested Hypothesis 2 by regressing labeling condom use behavior as positive behavior by four effects: concern for contracting HIV, perceived susceptibility, AIDS knowledge, and peer norms. Of the four effects, only perceived susceptibility positively predicted labeling use behavior as positive ($p < .05$); the more people perceived themselves as susceptible to contracting HIV the more likely they were to take action to use condoms.

We then tested Hypothesis 3 by regressing intention to use condoms by four effects: labeling condom use behavior as positive, self-efficacy, sexual communication abilities, and enjoyment of sex. Of the four effects, labeling condom use behavior as positive ($p < .01$) and self-efficacy ($p < .01$) positively both positively predicted intentions to use condoms. The more people labeled condom use behavior as positive the more likely they were to intend to use condoms. In addition, the more people viewed themselves as confident enough to get condoms, the greater the intention to use condoms.

We tested Hypothesis 4 by regressing labeling condom use behavior as positive by four effects; concern for transmitting HIV, perceived susceptibility to giving HIV, AIDS knowledge and peer norms. Of the four effects, the interaction of perceived susceptibility to giving HIV and concern for giving were significant to labeling condom use behavior as positive ($p < .05$). The more HIV-positive partners perceived their partner as susceptible to contracting HIV the more likely they were to label condom use behavior as positive. In addition, if HIV-positive partners perceived their partners as susceptible and were concerned about their

partners contracting HIV they were more likely to label condom use behavior as positive.

Hypothesis 5 was tested by regressing attachment anxiety on taking action to use condoms. The hypothesis was supported as attachment anxiety negatively predicted taking action to use a condom ($p < .05$). The more people were attached to their partners, the less likely they were to use condoms.

Hypothesis 6a was tested by regressing relationship quality on taking action to use condoms. Findings of the study show that relationship quality had no significant effect on taking action to protect. In addition, the interacting effect of relationship quality and the HIV status of the participant also did not have a significant effect on taking action to protect.

Chapter 4: Discussion

The purpose of this study was to test the ability of the expanded ARRM to see if the model contributed something to the research of why people protect themselves from HIV. To add to the research regarding motivating factors of HIV protection, we decided to add two concepts to the ARRM; partner protection and relationship preservation. In addition to examining these new concepts we studied a sample of discordant couples. The results of this study imply that the original ARRM concepts, as well as the extended ARRM, are viable representations of key relationships among concepts related to risk behaviors among serodiscordant couples.

Greater labeling condom use behavior as positive was found to predict greater action to use condoms. Participant's HIV status may have played a role in the results. For example, a rational HIV-negative participant who believes he/she is at risk of contracting HIV will take immediate action to use condoms during sexual activities. In addition, HIV-positive partners who believed their partners are at risk will use condoms in order to protect their partner from contracting his/her HIV.

With regards to labeling condom use behavior as positive, perceived susceptibility results suggest the generalizability of prior sexual experiences to the HIV prevention process. In this regard, the results suggest that an important component of labeling condom use as positive is the belief that one is personally susceptible to contracting HIV. This observation was further confirmed as

perceived susceptibility predicted labeling condom use as positive which then was found to positively predict taking action to using condoms.

Intentions to use condoms were predicted by labeling condom use as positive and self-efficacy. As suggested in the original ARRM model, upon labeling condom use behavior as a positive solution from HIV transmission, a person will make the next step towards safe sex through intentions to use condom. With regards to self-efficacy, results suggest an important aspect of intentions to use condoms is for one to believe himself/herself confident in his/her ability to use condoms before engaging sexual activity. Furthermore, self-efficacy results indicate that both HIV-negative and HIV-positive partners feel assertive enough to say “no” to partners who refuse to comply to using condoms, can suppress their urges to ask for condoms, and have faith that they can convince their partners to using condoms. It should also be noted the majority of our sample consisted of men. This is important as male condom use was the primary form of protection in this study indicating that men feel confident their abilities in using condoms.

Perceived susceptibility to giving HIV and the interaction of concern and susceptibility for giving were significant to labeling condom use behavior as positive. The interaction between concern and perceived susceptibility may be significant due to HIV-positive partners feeling guilty of transferring HIV to their partner. Furthermore, HIV-positive partners live with HIV and know first-hand the consequences of not having safe sex. HIV-positive partners may label condom use behavior as positive as they see their partner is susceptible to HIV and

especially as their own concern intensifies this. In other words, labeling occurs, but at a lower level, when they are less concerned about the partner. People who are infected by HIV have a need to be, and are said to be, aware of the ethical ramifications of exposing their sex partners and to assume responsibility to protect their partners (Marks, Burris et al. 1999). Cusick and Rhodes found HIV-positive partners reported feeling responsible for preventing HIV transmission and as a result lived in a state of fear of infecting their partner (Cusick and Rhodes 2000). This is further evident in the results as perceived susceptibility (without the interacting effect of concern for contracting HIV) was found to positively predict taking action to use condoms.

The attachment anxiety results were not too surprising as an attempt to protect oneself from HIV infection during sex between committed partners has been found to be viewed as a sign of mistrust or an accusation of infidelity (Afifi 1999, Buysse and Ickes 1999, Adam, Sears et al. 2000, O'Leary 2000). For some people, to preserve the relationship they will be willing to take any actions necessary; even if it incurs risk in contracting HIV. With regards to relationship quality, in a relationship where one person has HIV, the other person may be willing to match their partner's status and thus will not take protective measures. In addition, an added relations quality valued caveat is that having children in the future is now a viable option as medical interventions can prevent their children from contracting HIV.

Enjoyment of sex, as expected negatively predicted taking action to use condoms. Results suggest the more one enjoys sex the less likely they will use

condoms when engaging in sexual activities. Negotiating safer and more enjoyable sexual behaviors are interpersonal processes that require assertive and confident persons to regulate his or her sexual interactions and to cope with potential embracement over discussing sexual matters. In addition, enjoyment of sex results may be closely related to issues seen within attachment anxiety where people desire to meet the needs of their partners. For example, if a one did desire to use a condom, but their partner does not, then he/she would still engage in sexual activities to meet not only their sexual desires but also the needs of their partner.

Limitations of this study should be noted. First, the sample was drawn from people that were in a Midwestern city. Consequently, results may be different if the sample was drawn from a larger or smaller city. Second, we only studied serodiscordant dyads, not seronegative (when both partners are HIV-negative) or concordant (when both partners are HIV-positive) dyads: yet serodiscordant dyads were the best sample to study for sexual protection. Third, my terminology for sexual protection referred specifically to condom use as I did not measure protective measures that could be a result of anti-viral medications or strategic positioning. Fourth, I did not have the strongest measure of our relationship quality. Relationship is a difficult thing to measure as it is subjective based upon each person's definition. Some people may consider things to be going well in the relationship when they are really not. For some, relationship quality may be based upon improvement from a previous relationship. Fifth, all of the HIV-positive participants were aware their HIV-positive status. Finally my

findings could have been influenced by unmeasured factors; namely the model may have been mis-specified. It is possible that my interpretations could be attributed to a number of non-measured, non-included variables; however, this is a limitation present in any non-experimental study.

Overall, testing multiple hypothesis within a model allowed us to provide support for the ARRM in more perspectives of HIV-protection rather than limiting ourselves to single theories of self-protection. The study provided limited support for the original ARRM as many of the self-protection concepts did not work as theorized. Labeling condom use behavior as positive may be a particularly crucial factor in maintaining condom use over time. The expanded ARRM results suggest HIV-positive partners are motivated to using condoms to protect their partners especially when they believe their partners are at risk for contracting HIV. Relationship preservation results illustrated that when people fear of losing their relationship they are willing to do whatever it takes to keep the relationship going, even at the cost of contracting HIV.

By extending the ARRM, as well as incorporating HIV status, we now can begin understanding the many motivating factors towards why people are and are not using condoms to protect themselves or their partner. Future studies should look towards examining the expanded ARRM through forms of protection outside of condom use, such as pre-exposure prophylaxis (PrEP) or strategic positioning. Also, the expanded ARRM should be examined through different sexual dyads such as concordant and seronegative dyads to further understand motivating factors of protection from different populations. More inclusive

research of this sort will help to broaden our awareness of leverage points most crucial for intervention.

References

- Adam, B. D., et al. (2000). "Accounting for unsafe sex: Interviews with men who have sex with men." Journal of sex research **37**(1): 24-36.
- Afifi, W. (1999). "Harming the ones we love: Relational attachment and perceived consequences as predictors of safe-sex behavior." The Journal of Sex Research **36**(2): 198-206.
- Ajzen, I. (1991). "The theory of planned behavior." Organizational behavior and human decision processes **50**: 179-211.
- Anderson, J. E., et al. (1999). "Condom use and HIV risk behaviors among US adults: Data from a national survey." Family Planning Perspectives: 24-28.
- Bandura, A. (1994). Social cognitive theory and exercise of control over HIV infection. Preventing AIDS: Theories and Methods of Behavioral Interventions. R. J. DiClemente and J. L. Peterson. New York, Plenum: 25-59.
- Bartholomew, K. (1990). "Avoidance of intimacy: An attachment perspective." Journal of social and personal relationships **7**: 147-178.
- Bekker, L. G., et al. (2012). "Behavioral and biomedical combination strategies for HIV prevention." Cold Spring Harb Perspect Med **2**(8).
- Bell, D. C. (2001). "Evolution of parental caregiving." Personality and social psychology review **5**(3): 216-229.
- Bowlby, J. (1969/1982). Attachment and loss, Vol. 1: Attachment. New York, Basic.

- Buysse, A. and W. Ickes (1999). "Communication patterns in laboratory discussions of safer sex between dating versus nondating partners." Journal of sex research **36**(2): 121-134.
- Catania, J. A., et al. (1990). "Toward an understanding of risk behavior: An AIDS risk reduction model (ARRM)." Health education quarterly **17**: 52-72.
- Catania, J. A. C., Thomas J.; Kegeles, Susan (1994). "A test of the AIDS Risk Reduction Model: Psychosocial correlates of condom use in the AMEN cohort survey." Health Psychology **13**(6): 548-555.
- Cates W, S. K. (1992). "Family planning, sexually transmitted diseases, and contraceptive choice:a literature update." Fam Plann Perspect **24**: 75-84.
- CDC (2006). "Sexually transmitted disease treatment guidelines, 2006." MMWR **55**(RR11): 1-94.
- Centers for Disease Control and Prevention (2012). HIV in the United States: At A Glance: 1-2.
- Conner, B. T., et al. (2005). "Are cognitive AIDS risk-reduction models equally applicable among high-and low-risk seekers?" Personality and individual differences **38**(2): 379-393.
- Corbett, A. M., et al. (2009). "A little thing called love: condom use in high-risk primary heterosexual relationships." Perspect Sex Reprod Health **41**(4): 218-224.
- Crosby, R. A. (2013). "State of condom use in HIV prevention science and practice." Curr HIV/AIDS Rep **10**(1): 59-64.

- Cusick, L. (1998). "Non-use of condoms by prostitute women." AIDS care **10**(2): 133-146.
- Cusick, L. and T. Rhodes (2000). "Sustaining sexual safety in relationships: HIV positive people and their sexual partners." Culture, Health & Sexuality **2**(4): 473-487.
- Day, S. (1990). "Prostitute women and the ideology of work in London." Culture and AIDS: 93-109.
- De Rosa, C. J. and G. Marks (1998). "Preventive counseling of HIV-positive men and self-disclosure of serostatus to sex partners: New opportunities for prevention." Health Psychology **17**(3): 224.
- Fortenberry, J. D., et al. (2002). "Condom use as a function of time in new and established adolescent sexual relationships." American Journal of Public Health **92**(2): 211-213.
- Hall, H. I., et al. (2008). "Estimation of hiv incidence in the united states." JAMA **300**(5): 520-529.
- Kowalewski, M. R., et al. (1994). "The AIDS Risk Reduction Model: Examining Intentions to Use Condoms Among Injection Drug Users¹." Journal of Applied Social Psychology **24**(22): 2002-2027.
- Longshore, D., et al. (2004). "Psychosocial antecedents of injection risk reduction: a multivariate analysis." AIDS Education and Prevention **16**(4): 353-366.
- Longshore, D., et al. (1998). "Psychosocial antecedents of unprotected sex by drug-using men and women." AIDS and Behavior **2**(4): 293-306.

- Marks, G., et al. (1999). "Reducing sexual transmission of HIV from those who know they are infected: the need for personal and collective responsibility." Aids **13**(3): 297-306.
- Misovich, S. J., et al. (1997). "Close relationships and elevated HIV risk behavior: Evidence and possible underlying psychological processes." Review of general psychology **1**(1): 72.
- O'Leary, A. (2000). "Women at risk for HIV from a primary partner: Balancing risk and intimacy." Annual review of sex research **11**: 191-234.
- Reisen., P. J. P. a. C. A. (1997). "Perception of Risk and Sexual Self-Protective Behavior: A Methodological Critique." AIDS: Education and Prevention **9**: 373-390.
- Remien, R., Carballo-Diequez, A., & Wagner, G (1995). "Intimacy and sexual sero-discordant male couples." AIDS Care **7**: 429-438.
- Remien, R. H., et al. (1995). "Intimacy and sexual risk behaviour in serodiscordant male couples." Aids Care **7**(4): 429-438.
- Rosenstock, I. M., et al. (1994). The health belief model and HIV risk behavior change. Preventing AIDS: Theories and Methods of Behavioral Interventions. R. J. DiClemente. New York, NY, Plenum Press.
- Skurnick JH, A. J., Kennedy CA, Valentine SN, Cordell JR (1998). "Maintenance of safe sex behavior by HIV-serodiscordant heterosexual couples." AIDS Education and Preventions **10**: 493-505.

- Van Kesteren, N. M., et al. (2005). "Sexuality and sexual risk behavior in HIV-positive men who have sex with men." Qualitative Health Research **15**(2): 145-168.
- Weller, S., Davis, K. (2002). "Condom effectiveness in reducing heterosexual HIV transmission." Cochrane Database Syst Rev(1).
- Zimet GD, D. N., Zimet SG, Farley GK. (1988). "The multidimensional scale of perceived social support." Journal of Personality Assessment **52**: 30-41.

CURRICULUM VITAE
Brian Todd Collins II

Education

Masters of Arts, Sociology **2015**
Indiana University- Purdue University Indianapolis (IUPUI), Indianapolis, IN

Bachelors of Science, Psychology **2011**
Morehouse College, Atlanta, GA
McNair Scholar

Research and Training Experience

Indiana University-Purdue University Indianapolis
Research Project: A Test of the AIDS Risk Reduction Model: HIV Negative People and Their Partners
Research Mentor: David C. Bell, Ph.D
Description: Examined a sample of HIV-negative partners to understand the motivating factors of self-protection from HIV.

Indiana University-Purdue University Indianapolis
Summer 2011
Research project: Neurotransmitter imaging among rats with anxiety and panic attacks.
Research Mentor: Philip Johnson, Ph.D
Description: Examined anxiety-like behavior, weight gain and by inducing menopausal state female rats with either of the following independent variables surgically removing the ovaries (OVEX) to deplete estrogen or treating females with selective estrogen receptor negative modulators.

Indiana University-Purdue University Indianapolis
Summer 2010
Research project: My breast cancer, our distress. Perceived burden on patients and their spouses.
Research Mentor Silvia M. Bigatti
Description: Examined breast cancer patients and their spouses and how stressors of breast cancer have an impact on the burden of illness. The aim of this study was to understand how the patient's perspective of the dynamics of a relationship such as communication, coping adjustments, and efforts of the spouse can play a role in feeling burdened by the cancer.

Indiana University-Purdue University Indianapolis
Summer 2009
Research Project: The psychological impact of coping strategies and perception of risk in women with a history of breast cancer and those without.

Research Mentor: Silvia Biggati

Description: Examined two groups of women currently diagnosed with cancer; women with a family history of breast cancer and women who did not have a family history of cancer, to compare and contrast the different mechanisms each group used to cope with their breast cancer

New York State United Teachers (NYSUT)

Summer 2008

Description: Intriguing summer internship in the Office of Executive Vice President – Alan B. Lubin, whereby I was a part of the team charged with the review, development and implementation of viable healthcare initiatives and New York state legislative policies for the 140, 000+ memberships as well as their constituency.

Professional Experience**Indiana University Kokomo**

2014-Present

Academic Advisor

- Facilitator, Retention and Graduation project team
- Secretary, Professional Staff Counsel
- Search Committee for Financial Aid/Veteran Affairs Counselor
- Planning Committee for IU Kokomo's 1st Cultural Bash Ceremony
- Member of the Sexual Misconduct Panel

Indiana University Purdue University Indianapolis

2012 -2014

Graduate Research Assistant for the Sociology Department projects:

- *A Test of the AIDS Risk Reduction Model: HIV Negative People and Their Partners*
- *Managing Risk To Me, You and the Relationship: A test of the Expanded AIDS Risk Reduction Model*

Indiana University Robert H. McKinney School of Law

2011- Present

Certified Examinations Proctor

- Directed the testing sessions for an array of periodic exams for all Year one – three students

Upward Bound Federal Trio Program (IUPUI)

2011-2012

Academic Advisor and Classroom Educator for High School level: Biology, Chemistry and English Coursework

- Utilized and enhanced the provided curriculum to best insure ultimate academic results for my students

- Program Mentor and one –on—one interpersonal communications and study skills support routinely provided.

Leadership - Civic Volunteer Activities

- NOBCCHE (National Organization for the Professional Advancement of Black Chemists and Chemical Engineers)
- IBM Annual Family Technology Day Presenter, Rensselaer Polytechnic Institute
- Chemistry Association
- Psychology Club
- IUPUI Upward Bound Mentor
- Up & Go IUPUI Graduate Student Association

Professional Associations

American Psychological Association
American Sociological Association
Indiana University Alumni Association
McNair Scholars
Morehouse College Alumni Association