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THE ROLE OF INTERPERSONAL POWER IN THE HIV PROTECTIVE BEHAVIOR OF LOW-INCOME AFRICAN AMERICAN WOMEN

By

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ABSTRACT

THE ROLE OF INTERPERSONAL POWER IN THE HIV PROTECTIVE BEHAVIOR OF LOW-INCOME AFRICAN AMERICAN WOMEN
By

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Given the current prevalence and incidence rates, the Human Immunodeficiency Virus (HIV) that causes Acquired Immunodeficiency Disease Syndrome (AIDS) is an ever-growing public health threat for women nationwide, and African American women in particular. While HIV rates have increased for women in general, African American women comprise 67% of the total AIDS cases among women of all ethnicities in the United States (Center for Disease Control and Prevention, 2004). The majority of new HIV cases among African American women are the result of heterosexual intercourse transmission.

While the HIV risk reduction field has focused on women's ability to negotiate safer sex behavior including condom use, an ecological framework, which locates sexual behavior within the context of gender relations and its antecedents, is emerging. Researchers have suggested that women may be constrained in negotiating HIV protective behavior strategies because of gender and culture based imbalances in heterosexual interpersonal relationships (Amaro, 1995; Gomez & Marin, 1996; Wingood & DiClemente, 2000).

Previous research has provided the groundwork for the continued development of various theories and models that have the potential to adequately address the disparities of HIV transmission among women of color. Perhaps most notable is Wingood and DiClemente's (1998) Theory of Gender and Power (TGP),

which was used as the theoretical framework for the development of the proposed model in the current study. The goal of TGP and the current study was to examine how interpersonal power influences HIV protective behavior among low-income African American women, while taking into account culture, gender relations, and various traditional cognitive behavioral factors.

The current study had two primary purposes. The first purpose was to contribute to the much needed descriptive literature on the HIV related behaviors, attitudes, and beliefs of low-income, African American women. The second purpose of this study was to propose an integrated model of HIV protective behavior which incorporated both the traditional and contemporary ecological models of health behavior.

While only some of the specific hypotheses were supported in the proposed model, further analyses (e.g., correlation and regression) suggest that the model is worthy of further investigation with relevant populations and that the hypothesized relationships between variables may need to be further conceptualized. These data provide important new insights into low-income African American women's risk for HIV infection, in particular, the specific barriers to consistent condom use and the factors that are relevant to women's interpersonal relationships.

DEDICATION

This dissertation is dedicated to the village that raised me and the shoulders of my of those who I try to stand tall on.

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INTRODUCTION

Given the current prevalence and incidence rates, the Human Immunodeficiency Virus (HIV) that causes Acquired Immunodeficiency Disease Syndrome (AIDS) is an ever-growing public health threat for women nationwide, and African American women in particular. Poverty, racism, and gender inequality are fundamental social conditions that foster risk taking and create conditions of disease vulnerability for disenfranchised women domestically and worldwide. While HIV rates have increased for women in general, African American women comprise 67% of the total AIDS cases among women of all ethnicities in the United States (Center for Disease Control and Prevention, 2004). The majority of new HIV cases among African American women are the result of heterosexual intercourse transmission. HIV risk reduction requires the cooperation of both partners; however, male controlled condom use remains a barrier to HIV protective behavior for women in heterosexual relationships (CDC, 2004).

While the HIV risk reduction field has focused on women's ability to negotiate safer sex behavior including condom use, an ecological framework, which locates sexual behavior within the context of gender relations and its antecedents, is emerging. In addition to examining the ecological contexts, which consider the ability of women to negotiate safer sex, the motivation and deterrents of HIV protective behavior are being further investigated. Researchers have suggested that women may be constrained in negotiating HIV protective behavior strategies because of gender and culture based imbalances in heterosexual interpersonal relationships (Amaro, 1995; Ehrhardt & Wasserheit, 1991; Fullilove, Fullilove, Haynes, & Gross, 1990; Gomez & Marin, 1996;

Wingood & DiClemente, 2000). This perspective has engendered a number of women specific HIV interventions.

Traditional prevention research on HIV risk reduction focuses primarily on individual level cognitive behavioral factors without taking into account the other influential factors including intimate interpersonal relationships. It has become increasingly evident that African American women of lower socioeconomic status are at increased risk for HIV infection, not entirely because of their own behaviors, but because of the behaviors of their male partners (Hobfoll, Jackson, Lavin, Britton, & Shepherd, 1994). It is the dynamics of intimate relationships that can heavily influence a woman's actual and perceived HIV risk and in turn, her ability or desire to engage in HIV protective behaviors (Amaro, 1995).

Behavioral health theories that are widely used to understand risk behaviors and behavior change, stress the importance of knowledge, attitudes and beliefs. Traditional health theories assume that behavior change can be explained by models that are generalizable to all individuals (Amaro, 1995). Findings from some intervention studies suggest that these models may fail to account for behavior change among specific understudied or non-mainstream groups (e.g., low-income African American women) (Cantania et al., 1992). In an attempt to specifically address the experiences of low-income African American women, in terms of HIV prevention, there have been a number of conceptual studies that have theoretically hypothesized the gender and culture specific factors related to HIV protective factors. Among the most influential factors identified are a combination of cognitive behavioral and biopsychosocial issues.

The HIV epidemic does not uniformly affect African American women. Instead, the increasing incidence rates are most commonly found among women of lower socioeconomic statuses. Socioeconomic status factors have been suggested to influence women's vulnerability to HIV in a number of different ways, including the link between lower income levels and HIV protective behaviors (Bowleg, Belgrave, & Reisen, 2000; Peterson et al., 1992; Wingood & DiClemente, 1998), and less access to optimal and quality preventative health care (Mays & Cochran, 1988). As demonstrated, the relationship between lower socioeconomic status and increased HIV susceptibility is not a direct one. There are a number of predictors and mitigating factors that influence this relationship. A model that empirically examines these factors is proposed in the current study to help further understand the contextual factors that contribute to the disparate rates of HIV infection among low-income African American women. Specifically, interpersonal power has demonstrated to be necessary to engage in HIV protective behaviors within the context of dyadic relationships and there exist a number of cultural factors that are hypothesized to predict interpersonal relationship power. The cultural factors that are identified by the current study include traditional feminine gender roles, financial dependency, and perceived sex ratio imbalances. Some of these factors are generalizable to all women; however, the dynamics of the African American community interact with these factors to create unique relationships not previously examined in the empirical research literature.

Essential for interpersonal relationship power to be relevant for HIV protective behaviors is the presence of perceived susceptibility or risk of HIV infection. The Health Belief Model (HBM) posits that people who perceive themselves as susceptible to a

negative outcome are more likely to reduce risky behaviors than those who do not see themselves as being at risk (Janz & Becker, 1984). Contemporary HIV specific models (i.e., the AIDS Risk Reduction Model) state that individuals need to recognize that their behaviors are risky before change can occur (Cantantia, Kegeles, & Coaates, 1990). Many HIV theories endorse the underlying assumption that perceived risk is constructed by a "rational" simple cost-benefit analysis, rather than a multiplicity of risk construction (Estrada & Quintero, 2000). The social underpinnings of risk construction have been speculated to be influenced by a number of cultural and traditional behavioral factors. The cultural predictors of perceived risk identified in the current study include optimistic bias, fatalism, and HIV knowledge. Furthermore, partners and relationship status can also have an influence on risk reduction efficacy judgments, depending on partners' attitudes and characteristics (Wingood & DiClemente, 2002).

Previous research has provided the groundwork for the continued development of various theories and models that have the potential to adequately address the disparities of HIV transmission among women of color. Perhaps most notable is Wingood and DiClemente's (1998) Theory of Gender and Power (TGP), which was used as the theoretical framework for the development of the proposed model in the current study. The goal of TGP and the current study was to examine how interpersonal power influences HIV protective behavior among low-income African American women, while taking into account culture, gender relations, and various traditional cognitive behavioral factors.

Upon entering into the third decade of the HIV epidemic, there is no vaccine or cure for HIV/AIDS. However, treatment advances are continually improving. There are a

number of individuals who are benefiting substantially from treatment advances such as Highly Active Antiretroviral Treatments, and unlike a generation ago, many of these individuals are able to remain contributing and fully functioning integrated members of society, whose disease status is often unknown to the general population.

Among African American women, HIV is mostly transmitted through social interactions with sexual partners within their social networks. The behaviors that place individuals at risk for HIV are capable of being changed; however, effective prevention programs must motivate individuals to make and maintain behavioral changes that reduce the probability of HIV transmission. While low-income African American women represent a disproportionate number of increased HIV incidence rates, there remains a dearth of empirical culture and gender specific research on this population.

The current study had two primary purposes. The first purpose was to contribute to the much needed descriptive literature on the HIV related behaviors, attitudes, and beliefs of low-income, African American women. The second purpose of this study was to propose an integrated model of HIV protective behavior which incorporates both the traditional and contemporary ecological models of health behavior. The following literature review examines the current theoretical and empirical HIV research literature for all "high risk" populations, followed by a review of the HIV research literature on African American women. Lastly, the literature on African American women's cultural context is examined in order to place the aforementioned health behaviors into their proper cultural context.

Overview of the HIV Epidemic

The HIV/AIDS epidemic is stabilizing and declining in some of the populations first and hardest impacted by the disease. However, women are among one of the few groups whose rates are quickly increasing. Since 1985, the proportion of all AIDS cases reported among adult and adolescent women has more than tripled, from 7% in 1985 to 25% in 1999 (Center for Disease Control and Prevention, 2000). The increasing incidence rates are especially evident among women of color. African American and Hispanic women comprise less than one-fourth of all US women, yet they account for more than three-fourths (80%) of all reported AIDS cases among women. African American women have an HIV incidence rate 23 times that of their White counterparts, and HIV/AIDS is currently the leading cause of death for African American women aged 25-34 (CDC, 2000).

The disparities in HIV incidence rates are due in part to the fact that a significant proportion of African American women live below the poverty line (US Census, 2002). Studies have demonstrated a direct relationship between higher HIV incidence rates and lower income (Diaz, Chu, & Buehler et al., 1994). A variety of socioeconomic problems associated with poverty directly or indirectly increase HIV susceptibility, including limited access to quality health care and HIV prevention education, as well as increased substance use compared with the general population. Confronted with high unemployment, poverty and disproportionately high indices of morbidity and mortality, many Blacks may see HIV as relatively unimportant in comparison to other more imminent problems, such as paying rent and putting food on the table (Icard, Schilling, El-Bassel, & Young, 1992).

Weeks et al. (1999) argues that biologically, "the virus is the agent of the disease, however, various social structures and relationships of disempowerment create pathways of least resistance or greatest opportunity for the virus to traverse, resulting in the predominance of the disease among those least empowered and facing the greatest barriers to making behavioral changes for the sake of HIV prevention" (p. 193). Research has suggested that membership in a minority group and lower socioeconomic status are linked to risky sexual behavior, but are not directly as a function of ethnicity and socioeconomic status (Becker et al., 1998; Schilling et al., 1991). These studies, however, do not explore how race and poverty may interact with one another to influence HIV risk behaviors (Ickovitz et al., 2002).

Upon entering into the third decade of the epidemic, it is evident that new at-risk groups have emerged. Heterosexual transmission has taken the place of intravenous drug use as the number one mode of transmission for women. In 2000, 38% of women reported with AIDS were infected through heterosexual exposure to HIV, while injection drug use accounted for only 25% of new cases. In addition to the direct risks associated with injection drug use (e.g. sharing needles), drug use is also fueling the heterosexual spread of the epidemic. A significant proportion of women infected heterosexually were infected through sex with an injection drug user (CDC, 2004).

Similar to women in general, African American women are most likely to be infected with HIV as a result of sexual intercourse with infected men, followed by infection through injection drug use. While preventative interventions have been effective in some populations, diverse populations require a diverse range of interventions that target specific risk behaviors and the contextual factors that facilitate or inhibit risk

behaviors (Carey et al., 1997). Data on transmission suggests that prevention efforts with African American women should focus on prevention of transmission through heterosexual intercourse. Therefore, the nature of sexual negotiation in male-female relationships is an important domain for examining the behaviors and contexts that place African American women at risk for HIV infection (Bowleg, Lucas, & Tschann, 2004; CDC, 2002). In order to prevent HIV transmission we must understand the aspects of relationships that facilitate or impede HIV protective behaviors.

The HIV epidemic varies among populations and across communities. For some populations, prevention efforts have dramatically aided in declining incidence rates (CDC, 2000). In the US, collaborative prevention efforts have contributed to a 50% decrease in HIV seroprevalence among White men who have sex with men (MSM). Between 1988 and1993, there was a more than 40% decrease in the HIV seroprevalence among injection drug users in New York City. Between 1992 and 1998, there was a 75% decrease in perinatal infections. Overall, from 1998 and 2002, HIV incidence rates decreased among Whites and Latinos (CDC, 2004). Although these declines are remarkable, the number of annual new infections in other groups has increased over the last decade and is unacceptably high, warranting a need for continued prevention efforts to curtail the epidemic. From the beginning, the epidemic affected White gay males disproportionately and as a result, it had a powerful male profile. Women did not realize their own risk for HIV transmission from male partners through heterosexual transmission, and HIV incidence rates among women of color in particular, surged due to the early neglect of prevention and intervention activities. For White gay males, the HIV epidemic was instrumental in altering the context of sexual relationships by influencing

both internal and external structures that were related to behavior change maintenance. As noted, diverse groups have diverse needs, suggesting that strategies that helped facilitate change in the White gay male community are different from those that need to be addressed in African American community.

HIV Transmission

According to the Center for Disease Control and Prevention (2004), the most effective way to avoid transmission of sexually transmitted diseases is to abstain from sexual intercourse, or to be in a long-term mutually monogamous relationship with a partner who has been tested and who is not infected. For persons whose sexual behaviors place them at risk for sexually transmitted diseases (STDs), correct and consistent use of the male or female latex condom can reduce the risk of STD transmission. However, there is no protective method that is 100 percent effective. In order to achieve the protective effects of condoms, they must be used correctly and consistently. Incorrect use can lead to condom slippage or breakage, thus diminishing their protective effect.

For many women, abstinence is not a desirable option. Long term monogamy and condom use are not prevention strategies that are completely under the control of the individual woman. Rather, they require the cooperation of another a partner. Research on the sexual behavior of women demonstrates that women are more likely to protect themselves from sexual outcomes (e.g. pregnancy) using methods that do not require partner cooperation, such as oral contraceptives, than they are in using methods that require partner cooperation (UCSF CAPS, 1998). Research on women's attitudes toward condom use suggests that many African American women in particular, appraise condoms negatively, viewing condoms as unromantic, interfering with spontaneity, and

detracting from sexual pleasure (Hinkle et al., 1992; Kline, Kline, & Oken, 1992). Condoms also are viewed negatively within the African American community because of their association with casual relationships, infidelity, disease, and because of beliefs that they detract from trust, intimacy, and commitment in a relationship (Sobo, 1993; Weeks et al., 1995). These findings suggest that increasing incidence rates are not necessarily due to lack of motivation to engage in protective behaviors, but may be attributed to the complexities of engaging in behaviors within the context of a dyadic relationship.

Prevention with African American Women

Traditional HIV sex-related research, which has been based on the medical model, has taken a deficit-based approach to African American sexuality when examining disparate HIV incidence rates. A serious limitation of previous theoretical frameworks is the belief that protective behavior is largely under an individual's control, and an inability to account for the combined effects of gender and race and how these factors play out in the contexts of dyadic relationships (Amaro & Raj, 2000). Widely utilized cognitive behavior models place HIV behavior largely under the control of the individual without regard for the external factors like social norms and gender roles which, within a sexual relationship, shape women's choices for engaging in protective or risky HIV behaviors. Lack of understanding the social factor, which interact with internal factors to create the conditions for HIV risk does not provide a complete and accurate picture of the epidemic. Research must recognize the conditions specific to African American women that creates their risk of exposure to HIV (Weeks et al., 1999). For instance, all women must balance sexual scripts that include passion, romance, trust, and sexual passivity with mistrust, fear of unprotected sex, and sexual assertiveness to ensure

personal safety (Amaro, 1995). Among African American women, social inequalities in terms of racism, access to resources (e.g. income, education and health care), and their intersection with other contextual factors such as unequal sex ratios, substance abuse, incarceration, and gender ideologies may contribute to the disproportionate incidence and prevalence of HIV among African American women (Bowleg et al., 2004). Moreover, African-American women may not have the desire or the ability to negotiate condom use, because they think it would interfere with physical and emotional intimacy, imply infidelity by themselves or their partner, or possibly result in physical/emotional abuse. Interventions that fail to take these complexities into account are not likely to assist women of color with HIV prevention.

Traditional research has focused on individual responsibility for personal behavior change, rather than focusing on the dyadic nature of sexual relationships (Amaro & Raj, 1995). Recently, HIV/AIDS researchers have made significant strides towards developing integrated models of HIV risk behavior that include the intersection of race, class, and gender (Connell, 1987; Harlow et al., 1998; Wingood & DiClemente, 1998; Wyatt et al., 2000). More conceptually complex models that take the social complexities of sexual behavior into account are still needed (Weeks et al., 1999).

Theories and Models Guiding HIV Interventions

In health research, theoretical approaches are used to direct attention to the understanding of the modifiable psychological determinants of risk behavior. Theory driven research has been a useful tool in helping to understand, predict, and modify behaviors in order to decrease HIV transmission rates. Some of the traditional, pre-HIV health models and theories currently used in HIV research and interventions include the

health belief model (Rosenstock, Strecher, & Becker, 1994), the theory of reasoned action (Ajzen & Fishbein, 1977, 1980; Fishbein, 1980; Fishbein & Ajzen, 1975), and social cognitive theory (Bandura, 1977). The central tenant of these theories and models is that individuals who recognize that their behavior places them at risk for a disease or illness are more likely to adopt less risky behaviors than those who do not (Kowalewski, Henson, & Longshore, 1997). An additional assumption is that these behaviors are voluntary and are fully within an individual's control (Logan et al., 2002). These dominant traditional theories do not easily accommodate contextual, personal, and sociocultural variables such as gender and racial/ethnic culture.

Fisher and Fisher (2000) discuss some of the limitations of HIV prevention interventions that rely solely on traditional health theories. Among some of their noteworthy findings are the methodological weaknesses in the operationalization of some of the theories. For instance, while the health belief model (HBM) is one of the most widely used models in HIV research and interventions, the relationships between some of the variables in the HBM remain "unconceptualized" and "unspecified" (Fisher & Fisher, 1994). The authors of the theory (Rosenstock et al., 1994) acknowledge that the relationships among the key variables in the model have never been adequately addressed and as a result, the HBM is typically used in conjunction with other models and theories. This lack of specification found in many traditional theories has led to inconsistent empirical support in the area of HIV and health research in general (Fisher & Fisher, 2000).

The application of traditional models and theories to HIV prevention has resulted in information based interventions. These models have several limitations. First, many of

these models do not take into account the relevance of the information to HIV preventative behavior for a particular population (e.g., transmission of HIV in regard to condom negotiation). Second, there remains a strong focus in most interventions on efforts to change general patterns of behavior (e.g., having sexual intercourse) as opposed to focusing on increasing individuals' inclination and ability to practice specific risk reduction acts. Third, many interventions fail to motivate individuals to change their risky behavior or provide training to help them acquire, rehearse, and refine the behavioral skills necessary for HIV risk behavior change (Fisher & Fisher, 2000). Fourth, many prevention programs target middle class populations and do not adequately address the needs of high risk groups (Weeks et al., 1995). Traditional theories and models were conceptualized using populations of convenience (e.g., White middle class college students), suggesting that these theories may not be generalizable to diverse populations.

Since the emergence of the HIV/AIDS epidemic and dramatic changes in the epidemiology of the disease, some of the traditional theories and models have been modified or expanded, and a number of new theories have been developed or applied to the problem of HIV, with the specific purpose of addressing the complexity of issues surrounding the disease not previously addressed. Some of the more recent theories and models applied to HIV transmission include the AIDS risk reduction model (ARRM) (Catania, Kegeles, & Coates, 1992), the transtheoretical model (Prochaska, DiClemente, & Norcross, 1992), the diffusion of innovations theory (Rogers, 1995), and the theory of gender and power (Connell, 1987; DiClemente & Wingood, 1998). The various traditional and contemporary health theories and models have been used with varied

success in preventing the spread of the disease. One group with which prevention effects have been particularly effective has been White gay males.

Interventions Targeting Men Who Have Sex with Men

The HIV literature has a wealth of examples of effective interventions that have utilized traditional and contemporary theories and models that target men who have sex with men (MSM). Researchers and providers have worked collaboratively with the gay community to bridge the gap between science and application. As a result, interventions have been successfully tailored to the specific needs of this particular population. The Center for Disease Control and Prevention (1999) has published a compendium of what they judge to be successful interventions; however, there remain limited scientific evaluations of many of these programs. Publication bias has also contributed to the dissemination of only successful interventions, resulting in little knowledge about interventions that have had limited success. An exhaustive review of interventions has demonstrated that the most common and successful interventions among men who have sex with men are small group or workshop programs that provide participants with risk reduction information, while simultaneously focusing on modifying group norms (Kelly et al., 2000). Most of these interventions have utilized aspects of social cognitive theory and diffusion of innovation theory. A brief review of theoretically driven and scientifically evaluated interventions targeting men who have sex with men is provided.

As a forerunner in HIV research and interventions, Kelly and colleagues have documented changes in safer sex norms and behaviors in urban gay communities. Kelly et al. (1992) reasoned that they could encourage condom use among communities of small-city gay men efficiently by identifying the natural opinion leaders in the

community and enlisting them to endorse behavior change. Taking an ecological community psychology approach and employing aspects of the diffusion of innovation theory and social cognitive theory, the intervention model assumed that community-wide change in this community could be facilitated by changing group social norms. This method was chosen because of the belief that many gay men have a sense of group identity. As such, changing the views of opinion leaders can be expected to reach and influence other members of the community. This model does not require that all members of a community have direct contact with an opinion leader, because the opinion leader's message is assumed to diffuse through the communication networks in which the opinion leader is embedded. This method is based on the assumption that the opinion leader is representative of the actual community and that the target population identifies with the community.

To test these assumptions, Kelly and colleagues designed a bar-based opinion leader intervention (Kelly, St. Lawrence, Diaz, et al., 1991; Kelly, St. Lawrence, Stevenson, et al., 1992) which produced community-level adoption of condom use in two-city and three-city comparison group studies (Kelly, St. Lawrence, Diaz, et al., 1991; Kelly, St. Lawrence, Stevenson, et al., 1992) and in a multiple-city randomized field trial (Kelly et al., 1993). This work highlighted the distinctive nature of urban gay male bar networks and how they provide a particularly powerful place in which diffusion might occur for this population. The findings of Kelly and colleagues highlight the important role that perceived peer norms can play in influencing an individual's behavior. Kelly's intervention is likely one of the most replicated models of HIV prevention with men who have sex with men.

Building on the work of Kelly and colleagues, Kegeles et al. (1996) developed and implemented a community-level HIV prevention program also utilizing aspects of the diffusion of innovation theory. The peer-led program had three components: outreach, small groups, and a publicity campaign. Independent of the prevention program, a cohort of young gay men (n = 300) was surveyed in this and in a similar comparison community, pre- and post-intervention. Following the intervention, the proportion of men engaging in any unprotected anal intercourse decreased significantly with both non-primary partners and primary boyfriends. No significant changes occurred in the comparison community over the same period. Another study conducted by Valdiserri et al. (1989) found that gay men attending group interventions that taught risk reduction skills including: condom use, safer sex negotiation, sexual assertiveness when confronted with risk coercions, self-management of risk "triggers," and problem-solving strategies, exhibited substantial reductions in high-risk sexual behavior practices.

Miller et al. (1998) conducted a study to explore the effectiveness of HIV prevention programs for male prostitutes and other patrons (n= 1,741) in New York City "hustler" bars. The findings from this study indicated significant reductions in paid, unprotected sexual intercourse and oral sex following the intervention. Importantly however, Miller et al. found variation in the intervention's effects by bar and by participants' race/ethnicity. Latino and White men benefited from the intervention, whereas Black men did not. These findings suggest that race/ethnicity may represent a boundary of social networks within the bars and selected opinion leaders may only be able to promote change within their own peer group (Miller et al., 2001). The researchers did find behavior change among Latinos in places where the opinion leaders were also

Latino and among Whites where the opinion leaders were also White (Miller et al., 1998). Previous research has demonstrated that individuals are more likely to be persuasive role models if they are similar to the people they are attempting to persuade (Fisher, 1988; Rogers, 1995). This premise is consistent with the findings of Miller and colleagues.

Miller's study targeted three bars. Two bars were predominately White with approximately 20% of clients identifying as men of color. The third bar was diverse in terms of men of color who were the male prostitutes, however, their clientele was primarily White. Miller found that when bars had multiple, nonoverlapping social networks, rather than being a homophilious setting (e.g. having a single network or several overlapping networks), this can act as a limitation to opinion leader interventions. She suggests that communication may be more effective in a homophilious setting. The bars in this intervention were characterized as heterophilious or containing diverse groups of people of varying social status (Fisher, 1988; Rogers, 1995). Miller and colleagues speculated that the success of the intervention among particular sites and groups was attributed to ownership of the intervention by community collaborators and that the enthusiasm and solidarity of the opinion leaders and target populations led to more persuasive communication. These findings suggest that when interventions are matched to community cultures and settings, they are more likely to be successful.

Limitations of interventions for diverse groups. It is important to recognize that published, or evidence-based, approaches to HIV prevention developed for White gay males may not be effective with men who have sex with men (MSM) of color. The Compendium of HIV Prevention (CDC, 1999) previously noted, identifies 24 effective

interventions across a variety of at-risk populations. Only four of these interventions specifically target gay men and surprisingly, none specifically target ethnic minority MSM or men who have sex with men and women (MSM/W). A review of culturally sensitive interventions conducted by Miller et al. (2003) concluded that even when interventions acknowledge the role of culture and claim to provide culturally sensitive interventions, culture is typically not defined explicitly and is almost unanimously operationalized as synonymous with race/ethnicity. Possible explanations for the elevated HIV risk among MSM and MSM/W of color may lie in the sociocultural and structural factors facing many members of minority groups not addressed in interventions (Ayala & Diaz, 2001). Available research on the association between experiences of social discrimination and HIV risk demonstrate that financial hardship, racism, and homophobia heighten the risk for HIV infection by decreasing self-esteem and increasing social isolation, alienation, and personal shame for MSM and MSM/W of color (Carballo-Dieguez & Dolezal, 1996; Choi et al., 1999; Diaz & Ayala, 1999; Diaz, Ayala, Bein, Henne, & Marin, 2001;; Ramirez-Valles, Zimmerman, & Newcomb, 1998). If these issues are not addressed in an intervention, the goals of the intervention may be compromised or usurped.

A history of activism, group solidarity, and sense of community that pre-date the HIV epidemic have helped to create an environment in which HIV interventions can be fostered and disseminated in the White gay community. The inability to reach men of color who have sex with men has been a point of contention in HIV interventions, further highlighted by these groups' increasing incidence rates. There remain cultural, socioeconomic, and other differences that exist among MSM of color, that limit the

effectiveness of interventions targeting individuals who identify with the "gay culture" (CDC, 2004). For instance, there remain a substantial number of African American men who have sex with men who, due in part to the stigmatized nature of homosexuality in the African American community, lead dual lives and have sex with men and women without informing their female partners. This has been dubbed the "down low phenomena." This lack of openness can promote riskier behaviors and the lack of open identification with the gay community limits the ability to gain from interventions that target this group. To date no published interventions have specifically targeted men who live "on the down low," further demonstrating a need for more diverse research and interventions.

Some of the underlying factors related to the limited success of interventions among men of color that target the gay communities are also seen in interventions that target women of color. While a commonality with most interventions targeting men who have sex with men is the community level intervention approaches, these interventions incorporate and build on pre-existing strengths that exist within the gay community to promote individual level behavior change. The opinion leader interventions in the gay community are particularly effective because the intervention is tailored specifically for men who identify as gay. These interventions utilize the natural social group networks and peer group culture in the gay community along with its norms to create effective behavior change (Miller et al., 2003). The ability to generalize these findings to heterosexual women of color has not been met with the same success.

The impact of structural barriers facing African American women contributes to the limited effectiveness of HIV interventions as compared to that seen in the gay

community. Communities of color are less able to organize and they have fewer financial and other resources available to them to support HIV prevention efforts. This means that the skills, resources, personnel, and procedures necessary to organize African American women may differ markedly from those employed successfully in the predominantly White gay community (Friedman et al., 1992). In order for interventions that target African American women to be effective, they must take into account the culmination of structural, cultural, and individual factors that contribute to HIV transmission.

It has become increasingly evident that a multidimensional framework is necessary to understand HIV risk behaviors for African American women. This framework locates sexual behavior within a context of gender relations and considers the aspects of the intersection of race, gender, and class that make African American women more susceptible to HIV transmission in comparison with women of other ethnic racial groups (Amaro, 1995). The disproportionately high rates of HIV/AIDS among African American women point to the need to examine the ecological factors within which these behaviors occur. These include: gender norms, cultural values, the role of interpersonal power in relationships, and the factors that contribute to power imbalances. A substantial number of empirical studies have examined many of these factors as one-dimensional predictors of risky behavior, however, few studies have examined these issues from a multidimensional framework focusing on understanding the processes of risk rather than the outcome of engaging in risky behavior.

Interventions with Heterosexual Women of Color

Not surprisingly, interventions that have been successful in the gay community have been attempted with African American women. Peer education has not been met

with the same success for African American women as demonstrated in the White gay community. Unfortunately, these approaches depend on a sense of unification on the part of the target population. Several researchers (Fishbein & Ajzen, 1975; Fisher & Misovich, 1990) have argued that for many heterosexual women of color, there is no unifying group solidarity like that demonstrated in the gay community. Furthermore, women at risk for HIV are not always visible as a specific population or community. In addition to the limitations of peer education, an over reliance on information based interventions fails to take into account the particular context of practicing protective behaviors in an intimate relationship for African American women. Among African American women, attitudes of male partners have been demonstrated to be a salient factor determining whether African American women are willing or able to introduce condoms into sexual relationships (Kline et al., 1992; Quinn, 1993). Many African American women believe their partners dislike condoms and perceive condom-protected sex as less enjoyable, reducing the likelihood that women will attempt to introduce condom use into the relationships (Libbus, 1995). During long-term relationships women may perceive the trust and care in the relationship to be deeply imbedded. Conversely, if a man suggests that condoms be used during sex, he may be implying that either he has been unfaithful or that he suspects that his partner has been unfaithful (Nichols, 1990) possibly placing the relationship in jeopardy.

HIV prevention research has successfully identified the behaviors associated with risky sexual practices, however, the context within which these behaviors occur is still vastly misunderstood. Taking a gender related approach allows researchers to understand the social influences that shape sexual relationships for women, and is imperative in the

development of efficacious interventions programs. A gender related approach requires the examination of cultural, gender-specific, and psychosocial factors that are determinants and antecedents of behavior (O'Leary & Wingood, 2000).

Programs that address issues such as relationship power or negotiation by training interpersonal and negotiation skills have shown considerably more promise than have their information-based predecessors. DiClemente and Wingood (1995) developed the first experimental study of HIV prevention among low-income, African American women that took into account some of the aforementioned contextual issues. The components of this intervention were tailored and personalized by including cultural contextual themes that fit the lives of the targeted population. In some cases entire portions of the sessions dealt with issues relevant to the target population but only indirectly related to risk behavior. The theory of gender and power (TGP) was used to guide this intervention (Connell, 1987; Wingood & DiClemente, 2000). Researchers recruited 100 African American women into a five-session skill based intervention, a single-session HIV education group, or a control group. DiClemente and Wingood's intervention operationalized TGP in an integrated manner utilizing aspects of social learning theory (SLT) and cognitive behavior modification (CBM) to implement behavior change. At three-month follow-up, women in the social skills intervention group demonstrated increased consistent condom use, greater self-efficacy, greater sexual communication, greater sexual assertiveness, and increased partner's adoption of norms supporting consistent condom use. There were no significant changes detected for the HIV education condition and the delayed HIV education condition.

Kalichman, Rompa, and Coley (1996) conducted a skill training intervention with 92 high-risk African American women randomly assigned to receive sexual communication skills, behavioral self-management skills, a combination of the two, or a risk education group. These researchers realized that skill building alone has little effect if people are resistant to engaging in condom use. Therefore, the intervention included videotapes with basic information related to HIV transmission, followed by facilitator-guided discussions. These discussions were directed at issues that addressed barriers to condom use and were also used to clarify misconceptions, dispel myths about AIDS, and discuss prevention options. This intervention encouraged participants to assess their own risk, benefits, and limitations of condom use. At three-month follow-up, more of the women who received interventions that included communication skills training were using condoms in comparison with women in the control condition, suggesting that a combination of skills was necessary for women to reduce their actual risk.

In a recent experimental intervention, St. Lawrence, Wilson, Eldridge, Brasfield, and O'Bannon (2001) assigned 445 African American women into one of three theoretically driven experimental interventions based on either the theory of gender and power (TGP), social learning theory (SLT), or cognitive-behavioral theory (CBT). While the SLT and CBT groups were operationalized to involve some aspect of skill observation or rehearsal, the TGP group was unstructured with no skills training or rehearsal of risk reduction skills. This group consisted entirely of a video followed by discussions among the participants, with minimal engagement of the facilitators. At one-year follow-up the results demonstrated that condom use, knowledge, communication comfort, and self-efficacy increased for all three experimental groups in comparison with

the control group. Contrary to expectations, those in the SLT and CBM conditions exhibited greater increases than did women in the TGP groups. These findings are attributed to differential operationalization of the theories to the interventions, suggesting that skill training may be an essential component. Findings from this study provide further support for the efficacy of skill-based interventions over purely information-based interventions with this population.

In the past couple of years, researchers have begun to examine the utility of community level interventions for African American women, like those seen in the gay community. Lauby et al. (2000) examined the effects of a multisite community level HIV prevention intervention on condom-use behaviors among women of color and peer educators. The intervention was implemented in four communities in three metropolitan areas: two public housing communities, a low-income neighborhood, and a group of inner city neighborhoods. The intervention targeted sexually active women of childbearing age and consisted of multiple activities conducted throughout the community designed to reach a large number of women through repeated contacts. These activities included the development and distribution of prevention materials, mobilization of peer networks of community volunteers, a network of community organizations and businesses that supported the project, and the delivery of prevention messages by trained outreach specialists through individual contacts and small group activities. In addition, theory-based, culture specific role model stories were developed by trained staff. The stories were produced and distributed by community volunteers. The main outcome variable measured was condom use. Data was collected from a total of 1,836 women at baseline. At two-year follow-up, the effects of the intervention on women's condom use

behaviors with their main partners and with other sex partners was measured. Although the intervention did not have a direct effect on consistent condom use, an increased willingness to discuss the subject and to initiate use was detected. The findings from this study demonstrate that, while the desired outcome was not obtained, there are other noteworthy findings that can be incorporated into future interventions, including the importance of increased communication. Communication in particular is related to sexual negotiation and sexual assertiveness, components necessary for protective behavior to occur. Consequently, while the intervention did not achieve its desired effects, increased communication is an indication that individuals may be developing the antecedents to the skills necessary to engage in protective behaviors.

In another community level intervention, Sikkema et al. (2000) conducted a study targeting 690 minority women living in 18 inner city housing developments across five US cities. This intervention utilized a community level approach similar to Kelly et al. (1991), to create positive attitudes towards behavior change and strengthen social norms to avoid risk with outreach workshops and community forums. Women voted by their peers as opinion leaders were invited to give their input into the development of the intervention. These opinion leaders then formed health councils where they invited their friends and neighbors to participate in workshops about HIV. The leaders also assisted with the implementation of community events. The intervention groups consisted of nine to 14 women who participated in four, ninety-minute workshops. Women who participated in the workshops were expected to disseminate the information to the rest of their community. The community events attracted a large number of individuals (15-200). The results were reported for the entire community, rather than women who had

directly received the intervention (n=1,265). Outcomes including condom use, perceived risk, condom carrying, and knowledge were examined. At two-month follow up, unprotected intercourse had decreased 36% in the intervention community, while rates remained unchanged in the comparison communities. At one-year follow up, women reported a significant decline in unprotected intercourse by 30%. The strength of this intervention was attributed to the inclusion of community members into the intervention design, along with the acknowledgment and incorporation of contextual factors and the taking of female roles and power dynamics into account when delivering the intervention. For instance, the intervention presented taking care of themselves as a way to protect their families and communities, a role that was already familiar to them.

There remain various strengths and limitations to interventions that utilize traditional and contemporary theories and models. These findings provide encouragement for the promise of future interventions. Limitations of many published interventions include the lack of critical information, such as participation rates or whether or not randomization was performed, making it difficult to evaluate and compare studies (O'Leary & Wingood, 2000). Individual level interventions that focus on skill building demonstrate more success than information-based interventions (DiClemente, 2000). These findings provide further support for the notion that African American women may reduce their HIV risk after receiving negotiation and condom skill training. However, despite primary partners being the main mode of transmission for African American women, there remains evidence of the difficulty of negotiating condom use in "long term" stable relationships (O'Leary & Wingood, 2000).

Interventions targeted at the community level are designed to promote HIV preventive behavior change by providing individuals with information and skills to change behavior through naturally occurring channels of influence in the community, and helping to create an environment that promote or sustain the ongoing adoption of preventative behaviors (DiClemente, 2000). The community level interventions presented (e.g., Sikkema et al., 2000) are limited by the fact that not all women in the intervention developments were exposed to intervention activities. Additionally, there remains significant transient activity among individuals of lower SES. Therefore women at most risk may not be in a community long enough to receive the full benefits of the intervention. Lastly, while evidence exists that women who receive various types of intervention are able to achieve behavior change, many women are not able to change their behavior because the barriers to practicing protective behaviors have not been sufficiently addressed. Though many of these factors are beyond the control of the interventionists, researchers and service providers must provide practical options for women to engage in protective behaviors. For instance, learning effective, culturally appropriate condom negotiation skills may be a healthy strategy that women can use to engage in protective behaviors. The largest barrier to a woman's ability to engage in protective behavior may be her sex partner since the behavior change necessary for preventing sexual transmission requires the cooperation of another person. Interventions are necessary for the creation of an environment that supports prevention norms among both men and women (DiClemente, 2000).

A recent meta-analysis examining the effectiveness of US based HIV prevention interventions specifically targeting 36 women, found that overall, interventions impacting

the sexual and relational context of HIV risk had limited long term effects (Mize, Robinson, Bockting, & Scheltema, 2002). The successes and limitations of the above mentioned interventions provide further support for the notion that behavior change efforts must now rapidly move to "second generation" approaches that not only understand the predictors of self-protective behaviors, but also have an appreciation for the contexts in which these behaviors occur. As the infection rates increase among African American women successful theoretically based interventions need to become more rigorous with implementation to a wider audience.

A wide range of interdisciplinary traditional and contemporary theories have played a significant role in the development and implementation of HIV interventions with limited success across populations. The limitations of these approaches have led to the maturation of previous theories, along with the development of new ones. The current theoretical approaches have been useful in furthering the understanding of HIV risk behaviors. However, despite the utility of current models, much of the variance in behavior change remains unaccounted for as evidenced by the limited success of HIV interventions for African American women. Innovative theories that build on the strengths of established theories are beneficial in moving the arena of behavior change interventions into the future. Contemporary theories and models must acknowledge that many women are constrained in negotiating safer sex because of gender-based imbalances in relationship power (Amaro, 1995; De Bruyn, 1992; Ehrhardt & Wasserheit, 1991; England, 1997; Feimlee, 1994; Gomez & Marin, 1996; Wingood, Hunter-Gamble, & DiClemente, 1993). The success of any given HIV risk-reduction intervention is its ability to acknowledge and incorporate some of the issues that surround

engaging in protective behavior. Understanding the ability or otherwise stated "power" that an individual has to initiate the desired behavior within the contexts of a relationship is critical.

Interpersonal Power

The central premise of a gender-specific approach to examining HIV prevention is a strong focus on power differentials in relationships (Amaro, 1995). Power is a complex multidimensional construct that has been conceptualized and operationalized in a multitude of ways and most recently been used in order to understand women's risk for HIV infection (Amaro, 1995). Interpersonal power has been defined as the ability to influence one's partner (Cromwell & Olson, 1975). Greater power is held by the member of the couple who maintains control over decision-making in the relationship, has control over both their own and their partner's actions, is less dependent on the relationship, possesses more resources, and is perceived to have alternatives to the current relationship (Pullerwitz et al., 2000). Research demonstrates that women who subscribe to traditional gender roles and are more dependent on their partner's have less interpersonal power in relationships (Amaro, 1995). Asserting one's power can conflict with what is traditionally expected from women in interpersonal relationships if gender role norms and institutional rules define the behavior as inappropriate for women (Jenkins, 1994a; Stewart & Chester, 1982). Much of the research literature about power is based on assumptions that are not inclusive of the experiences of African American women. Examination of interpersonal power and how it influences HIV protective behavior can only be appropriately applied to African American women if it is translated conceptually

into the social roles and normative behaviors prescribed for women within their cultural frameworks.

Much of the previous HIV/AIDS research has assumed that individuals have total control over their own behaviors, without regard for the contextual factors, such as power differentials and gender roles that may heighten women's HIV risk. In a qualitative study of HIV-related risks perception, Timmons and Sowell (1999) interviewed African American (n=19) women between the ages of 18 to 44. The number one risk identified by participants was the practices of sexual partners labeled, "A man will be a man." Most of the participants in the sample reported that men are unable to be monogamous resulting in feelings of an overall sense of powerlessness or lack of control over men's behavior.

The findings of Timmons and Sowell (1999) support the view that the desire to be in a relationship often overrides the desire and often promotes women relinquishing their power in relationships to protect oneself against HIV. The women in this study felt an overall sense of powerlessness represented by a lack of control over men's behavior (Timmons & Sowell, 1999). These attitudes may lead to a more passive position on HIV protection because outcomes are attributed to the "blessings" or "lessons" of a higher power. To date, few published studies have examined these beliefs in the context of HIV preventative behavior among African American women. The impact of African American women's unequal social status, further perpetuated by low socioeconomic status, places them at severe disadvantage in negotiating sexual encounters and in seeking and utilizing education and health services (Chen, Sepulveda, Amor, & Segal, 1991, p. 1999). In order to understand interpersonal power within the contexts of African American women's

lives, there are three important aspects of cultural context that need to be taken into account. These include: gender roles, sex ratio, and partner dependency.

One theory that has attempted to take an integrative approach to account for the contextual factors that contribute to interpersonal power and the role it plays in HIV preventative behaviors, particularly among ethnic minority women, is Wingood and DiClemente's (1998) expanded version of Connell's (1987) theory of gender and power. Wingood and DiClemente expanded Connell's theory to develop a public health model that includes exposures, risk factors, and biological factors that adversely affect the health of women in relation to HIV risk. This theory was used as a framework to guide the proposed study. This theory suggests that women's lack of protective behavior is influenced by socioeconomic factors, power imbalances within relationships, and gender-specific gender roles influenced by culture. The theory of gender and power (TGP) takes a multi-level, multidimensional approach to examining many of the factors that place African American women at risk for HIV transmission. The current research will built this theory in order to gain further understanding the processes through which interpersonal power influences HIV protective behavior.

Developing an Integrated Model of Gender and Power

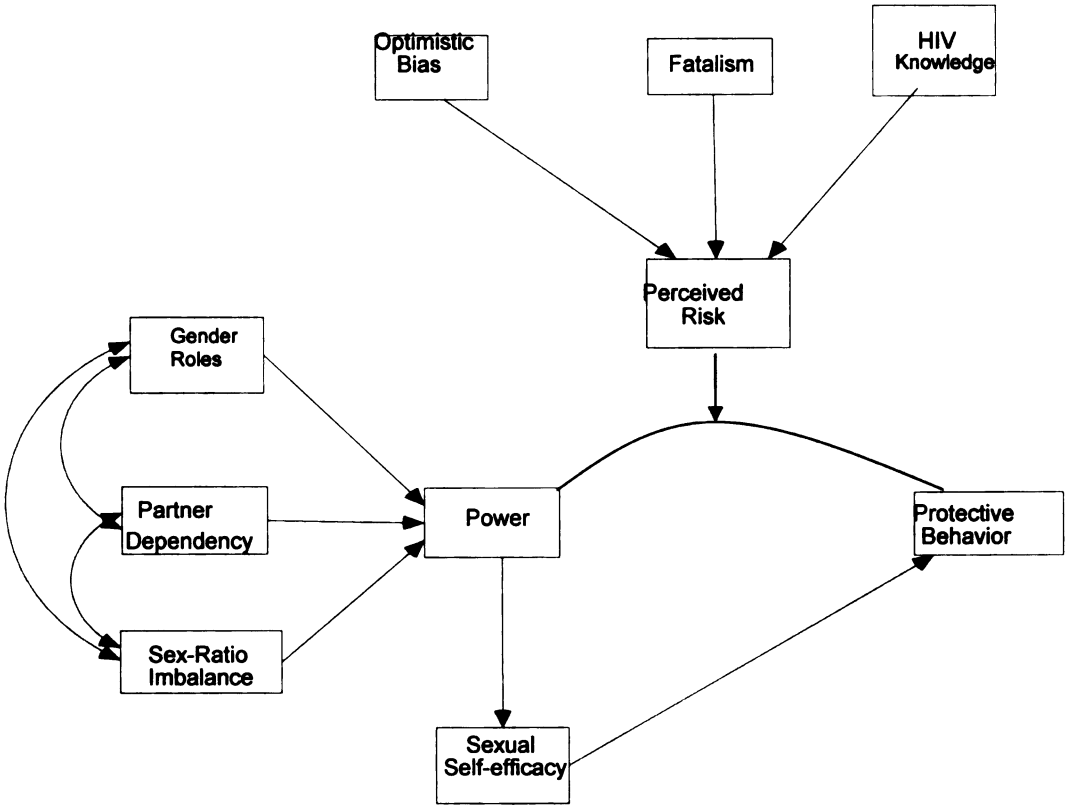
Until recently, research has excluded Black women as participants in research on diseases that pose the largest threat to Black women's heath (Klonoff, Landrine, & Lang, 1997, NIH, 2000). In recent years, Black women's health issues have gained a larger amount of attention (Klonoff et al., 1997). Understanding the relationship between interpersonal power and HIV protective behaviors is relevant across all dyadic relationships; however, understanding the cultural factors that influence interpersonal

power within specific groups is imperative. In addition to the traditional models of behavior change, other influential factors must be taken into consideration and integrated into existing models when examining the relationship between interpersonal power and HIV protective behavior. The purpose of this study is to propose an integrated model of behavior change that identifies and examines the circumstances surrounding HIV protective behavior among African American women. The theory of gender and power provides the framework for examining the context for HIV prevention among ethnic minority women. However the current study was designed to introduce and test a new integrated conceptual model of women's gender roles, power in relationships, and HIV protective behaviors. This model further integrates traditional behavior modification theories which allows for the deeper examination of the circumstances in which these relationship negotiations take place. A multidimensional, integrated analysis is necessary to understand the factors that contribute to interpersonal power and overall protective behaviors among African American women.

Previous studies that target African American women have provided the foundation for the development of more complex models by identifying important predictors of risky sexual behavior among African American women. However, some of these studies continue to support the prevailing stereotypes about African American women's sexuality, without understanding how and why ecological factors place this group at increased risk for HIV transmission. Few studies have examined how specific factors like gender roles, partner dependency, and sex ratio imbalance predict interpersonal power and how these relationships place this particular group at increased risk for HIV transmission.

While African American women share many common contexts and experiences, it is important to acknowledge the heterogeneity of this group. This study focused on the factors that predict interpersonal power for low-income African American women. The development of group specific models is beneficial in understanding protective behaviors within this population. This current study examined: (1) the relationship between interpersonal power and HIV protective behavior among low income African women, (2) the influence of risk perception on the relationship between interpersonal power and HIV protective behavior, (3) the role of sexual self-efficacy as a mediator of the relationship between interpersonal power and HIV protective behavior, and (4) the culturally relevant predictors of interpersonal power and perceived risk. In analyzing the variables that lead to protective behaviors among low-income African American women, the following model was proposed.

Figure 1: Proposed Protective Behavior Model



Predictors of Interpersonal Power

As described earlier the TGP suggests that interpersonal power in relationships is a key predictor of HIV/AIDS protective behaviors. Three culturally relevant predictors of interpersonal power was examined in this study: partner dependency, gender role, and perceptions of sex-ratio imbalance within the African American community.

Partner Dependency

Diseases in general pose a disproportionate threat to those who are economically disadvantaged (Carey et al., 1997; Krieger & Williams, 2001). The HIV/AIDS epidemic among African Americans highlights the problems related to low socioeconomic status, including lack of education, inadequate ethnic African American personnel in medical and public health fields, racism and its influence on access to the necessary resources to prevent HIV transmission (Williams, 2003). While lower socioeconomic status may influence access to resources, it may also influence how individuals behave within the confines of a relationship.

Despite the growing proportion of heterosexual HIV exposure among African American women due to male infected partners, there has been little focus on how the factors within a dyadic relationship play a role in HIV risk reduction behavior. Unsafe sex may be linked to emotional and economic dependence on men, further complicating the issue of self-protective behavior. Numerous studies indicate that women are psychologically, economically, and socially the more dependent partner in heterosexual dyads (Wingood & DiClemente, 2000). In some instances the male partner brings more assets (e.g., money, status, security) to the relationship and the female partner becomes dependent on these resources. For others, relationships are viewed as a means to individual achievement (Amaro, 1995). Many of the women most at risk for HIV transmission depend on their male partner for economic security (Jemmott et al., 1995). Women who are economically dependent on their partners generally have less interpersonal power, including control and decision making in relationships, which compromises their ability to negotiate protective behaviors with their partners. Some

economically dependent women may not have the desire to engage in protective behaviors if it jeopardizes the stability of the relationship.

Paradoxically, in some instances, African American women have historically been the "breadwinner" which places these women in a peculiar predicament of having to uphold the male status by compromising the true scope of their power and allowing their mate to dominate them in reaction to his diminished power in society (Wingood, Hunter-Gamble, & DiClemente, 1993). Therefore, while some women may exhibit greater financial self-sufficiency, they have had to temper this with satisfying dictated gender role based power imbalances. The relationship between African American women's economic dependency or lack thereof, and interpersonal power, is one that has not sufficiently been examined in the research literature. The existing literature on Black relationships supports the assertion that both economic dependence and economic independence may inhibit interpersonal relationship power among African American women, a curvilinear relationship (Staples, 1993). Black women have historically had to be more instrumental in terms of having to work outside of the home to provide economic security for themselves and their families, "they must also maintain traditional beliefs about the female role in order to sustain meaningful relationships within their domestic network; especially with men" (Binion, 1990, p. 505).

Gender Roles

Gender roles were found to be an influential factor in the examination of sociocultural factors that contribute to African American women's susceptibility to HIV transmission. Gender roles are a factor that influence an individual's attitude, opinions, and world-view, including appropriate sexual conduct (Bem, 1974; Fullilove et al., 1990).

Traditional gender role characteristics among women include passivity, docility, dependency, lack of initiative, and an inability to act (Miller, 1986; Amaro, 1995). Like women in general, African American women are expected to subscribe to culturally scripted gender norms that guide relationships and in turn, sexual behavior (Simon & Gagnon, 1986). Historical perceptions of Black women that contribute to the acceptance or rejection of contemporary gender roles have included the three prototypes of *Jezebel* (the seductive temptress), *Sapphire* (who has the ability to dominate poor, defenseless men), and the stereotype of *Aunt Jemima* or *Mammy*. Mammy was the ideal slave, obese, domesticated, and asexual (Wyatt, 1997 p. 31). The Jezebel or Sapphire persona typifies the image of the *She Devil,* who characterizes most of the negative characteristics attributed to African women before and during slavery. These images are emulated in the lifestyles of women who are labeled as "loose" and manipulate men in order to improve their life circumstances. This image is also most commonly used in the political rhetoric about Black teen mothers and welfare recipients. In order to counter these negative images, some African American women may feel the need to adopt more traditional gender roles, so as not to be viewed negatively. Gender roles provide women with the scripts that determine what behaviors are appropriate within the context of sexual relationships. These norms produce the laws, taboos, and prohibitions that define normalcy, restrain sexuality, and localize the cultural norm for femininity within relationships (Wingood & DiClemente, 1998). The prevailing gender roles for African American women dictate that they should be traditionally feminine in intimate relationships and maintain intimate relationships at the expense of their own needs (Golden, 1996). In the context of HIV transmission, gender norms provide scripts shaped

by sociohistorical contexts that may present an obstacle to the adoption of HIV sexual risk-reduction practices that encourages women to behave in "nontraditional," assertive ways that are in direct opposition to her culturally dictated gender norms (Howard et al., 1986). Previous research on gender roles and sexual risk behaviors suggests a link between traditional gender roles and decreased interpersonal power dictated by norms and risky behavior (Amaro & Gornemann, 1992; Howard, Blumstein & Schwartz, 1986).

Sex Ratio Imbalance

In addition to gender roles and partner dependency, another cultural factor that has been demonstrated to influence African American women's interpersonal power and in turn their risk for HIV transmission, is sex-ratio imbalance within the African American community (O'Leary & Wingood, 2000; Wingood & DiClemente, 1995). The concept of the structure of cathexis in the theory of gender and power, refers to the structure of social norms and affective attachments. It includes the emotional and sexual attachments women have with men. In the African American community, the sex-ratio imbalance between African American women may hinder women's ability to form meaningful emotional and sexual attachments with men. The decreasing number of eligible partners with whom to establish a relationship may increase African American women's susceptibility to HIV infection by placing African American women in a position where they must choose to tolerate objectionable behavior and in turn compromise their interpersonal power or remain alone (Mays & Cochran, 1988; Wingood & DiClemente, 1992). Traditional models and theories used in HIV prevention interventions have failed to take into account that violence, racism, incarceration, and lack of economic opportunity reduce the pool of potential African American male

partners, increase the value of having a mate, and contribute to male dominance in interpersonal relationships (Dicks, 1994; Quinn, 1993; Shervington, 1993).

As a result, many African American women perceive that they have little control over the sexual behavior of their partners, and limited opportunity to introduce condoms into the relationship (Weeks, Schensul, Williams, Singer, & Grier, 1995; Zierler, 1994). Additionally, men may view their options as limitless, resulting in less pressure to develop commitments, greater power within relationships, and the perception that they are not mandated to practice safer sex if they so choose, placing themselves and their sex partners at risk for HIV. Margillo and Imahori (1998) conducted a study on condom use among low-income African American women. Personal qualitative interviews revealed that the women in their sample felt that men could not be trusted. However, by virtue of their decreasing numbers, condom use among this sample was inconsistent. Men were thought to hold relatively greater power in relationships by having more alternatives in sexual relationships in comparison with African American women. This perceived sex-ratio imbalance demonstrates how viewing behavior (e.g., safer sex) in relation to the particular sociocultural and historical setting in which it occurs, is reflective of an ecological approach to understanding diverse issues. While it is imperative to study individuals' contexts and perceptions, there remain some pre-existing theories, that when combined with this ecological perspective, increase the understanding of various phenomena.

Perceived Partner Reaction

In order to understand the aforementioned factors' influence on HIV protective behavior, the context in which these behaviors occur must be taken into account. A

partner's reaction to an individual's initiation of protective behaviors plays a role in the ability to engage in HIV precautionary behaviors (St. Lawrence, Eldridge, Reitman, Little, Shelby, & Brasfield, 1998). In general, sexual behavior is shaped by prescribed gender roles, whereby in most societies, the lower status is ascribed to women (Amaro & Raj, 2000). Negotiation of condom use takes place within the context of relationships and more broadly within the contexts of social norms that prescribe expected sexual behavior in which women are to be passive and men are supposed to "take the lead." Within the contexts of a relationship, condom use is seen as a barometer of distance and intimacy and indicates what type of relationship an individual is in (Estrada & Quintero, 1999). Women may not prioritize HIV protective behavior, because for some women motivations for emotional connection, demonstration of trust, and/or desired pregnancy outweigh HIV infection risk.

With the decreasing number of potential African American partners, due to violence, incarceration, and lack of economic opportunity, there is an increased value of having a mate, and contributing to male dominance in relationships (St. Lawrence et al., 1998). With the recognition that gender-based inequalities are a major force driving the epidemic, some researchers feel that the development of prevention methods over which women have some control are imperative. In contrast to this view, research demonstrates that male partners have a strong influence on initiating or hindering HIV protective behavior strategies with both male and female condoms (Shervington, 1993). In a study of partner influences on noncondom use among African American women, Wingood and DiClemente (1998) demonstrated that noncondom use was strongly associated with a woman's perception that asking one's partner to use a condom may imply infidelity or

may compromise the stability of the relationship. In addition, women in this study who did use condoms were almost three times more likely to feel insulted if their partner suggested that condoms may be used. A woman's HIV risk may be strongly influenced by the dyadic nature of her relationship. Therefore, models developed to understand the process of HIV protective behavior among African American women must be used in conjunction with a gender/relationship relevant approach, including taking partners' reactions towards engaging in preventive methods into account. New models that are developed for diverse populations can benefit from building on the strengths of traditional theories and constructs.

Traditional Constructs of Behavior Change

Sexual Self-Efficacy

In addition to examining the cultural variables that play a role in HIV protective behavior, there remain several well-established traditional models of cognitive behavior change that are reliable predictors in HIV prevention. For instance, asserting the power to protect oneself in a relationship requires certain risk reduction skills and confidence in one's skills. The difficulty women have in negotiating safer sex with male partners is in part due to the perception of having little control over condom use in a sexual relationship. There is a marked difference between possessing skills and being able to use them under difficult circumstances (Bandura, 1994). Possessing the confidence to assert oneself in a given situation enables an individual to exercise control over their behavior and in short their social environment (Bandura, 1977). This confidence requires a certain amount of power, or the actual ability to make and enact decisions, specifically within a relationship. Bandura calls this self-efficacy or the level of confidence in one's ability to

effect change in a specific practice. A number of studies on perceived confidence in one's ability to practice safer sex even when barriers are present have been conducted (Bradford & Beck, 1991; O'Leary et al., 1992; Wulfer & Wan, 1993).

Self-efficacy is a variable that describes an individual's perception of their ability to initiate changes in self-destructive behavior influenced by the extent to which an individual perceives himself/herself as having control in certain situations (Bandura, 1977; 1990). Wingood and DiClemente (2000) have characterized self-efficacy as a part of the sexual division of power; however, while power in general is the ability to make decisions and the amount of control an individual has in a relationship, sexual self-efficacy has been demonstrated to mediate the relationship between interpersonal power and HIV protective behaviors (Shroder, Hobfall, Jackson, & Lavin, 2001). More specifically, interpersonal power predicts sexual-self-efficacy which in turn predicts HIV protective behavior. Promotion of self-efficacy has been the basis for condom promotion interventions and has been demonstrated to be an excellent predictor for condom use among African American women (Jemmott & Jemmott, 1992). Self-efficacy, specific to sexual behaviors, is treated as a global, cross-situational construct in some interventions. Self-efficacy is actually a context specific concept and must be enacted in the situations in which they occur (Bandura, 1977). In addition, the level of challenge or impediments to "successful performance" must also be examined. For instance, gender-based power differentials may influence a woman's ability to enact sexual self-efficacy (e.g. negotiate condom use). Findings from a study on African American women and condom use by St. Lawrence et al. (1998) demonstrates that women in exclusive relationships, stable circumstances, and with greater economic and employment resources, reported less

frequent condom use, but less frequent exposure to high-risk partners. In a study of the proximal and distal predictors of AIDS risk among African American and White women, Shroder et al. (2001) found that in comparison to White women, sexual self-efficacy beliefs and attitudes were strong predictors of safer sex among only the African American women in their sample.

The presence of physical, sexual, emotional or subtler forms of sexual coerciveness may complicate the implementation of self-protective behaviors, despite level of sexual self-efficacy (Gomez & Marin, 1996). In a study conducted by Murphy and colleagues (2001), a multidimensional examination of self-efficacy in the context of safer sex was investigated. Their findings demonstrate that self-efficacy is a good predictor of safer behavior when situation and level of difficulty or challenges present are accounted for. These findings suggest that research that examines self-efficacy must first take into account the contextual difficulties an individual is faced with, in order to enact efficacious behavior. If an individual does not perceive themselves to be at risk for contracting HIV, it does not matter how much interpersonal power they possess. There is no motivation to enact the necessary chain of event that lead to protective behavior becomes pointless.

Perception of Risk

Perceived risk is typically examined as a unidimensional cognitive representative of likelihood, without regard for the multidimensionality of this construct. The risk that an individual will contract HIV via sexual intercourse depends on the likelihood that a sexual partner is infected (determined by the prevalence of HIV within a population segment in a given community) (Kelly, 1995). In comparison, an individual's perception

of risk is subjective, based on beliefs people hold about the particular risk situation (Weinstein, 1988). Previous research indicates that perceived HIV risk is a primary motivator for the initiation of HIV precautionary behaviors (CDC, 2000; Gerrard et al., 1996) however, perceived risk or optimistic bias is dependent on both internal and external factors. Moreover, traditional cognitive behavioral theories have been unable to identify a direct link between perceived risk and the initiation of protective behaviors, suggesting other mitigating factors that constitute this relationship. To date, no published studies have examined the interaction between perceived risk and interpersonal power in predicting HIV protective behaviors. According to traditional theories of behavior change, by identifying certain practices (e.g. needle sharing) as conducive to the transmission of HIV, specific groups with these and other risky behaviors are prompted to recognize their heightened probability of HIV infection (Estrada & Quintero, 2000). This presumption assumes that the threat of HIV infection supercedes other problems (Wyatt, 1994). This perspective drastically oversimplifies an individual's perceived risk status because it does not account for the multiplicity of risk construction. While previous theories and models have incorporated perception of risk into their behavior change models, the factors that lead to the construction of personal felt risk have gone largely ignored.

With the growing disproportionate incidence rates of HIV among African American women, researchers have begun to address risk perception from a racial and gender relations perspective (Amaro, 1995; Carovano, 1991; Kane, 1990; Kline, & Oken, 1992; Sobo 1995; Weeks et al., 2000). For instance, in terms of power differentials in dyadic relationships, disempowerment is less consequential if women have accurate low

HIV risk perceptions and, in turn, low motivation to practice safer sex due to involvement in monogamous relationships (Bowleg et al., 2000). Consequently, the women who in fact need to reduce their chances of contracting HIV may not actually perceive themselves to be at risk (Wyatt et al., 1997). There are a number of factors that may influence the accuracy of risk perceptions. The health belief model purports that perceived risk is influenced by an individual's evaluation of their likelihood of contracting a disease or illness. Factors like HIV knowledge, optimistic bias, and fatalism may increase an individual's perception that they are at risk for contracting a disease. In a study of 671 African American women conducted by Sikeema, Kelly, Anderson, Winett, Soloman et al. (1996), one third of the women were perceived by the researchers to be at high risk for HIV infection, yet they reported weak behavioral intentions to reduce risk. In addition, women in coupled relationships were least likely to use condoms consistently due to feeling that they were in a monogamous relationship, further supporting the claim that relationship status may decrease the perception of risk. Perhaps most influential is the view proposed by Cochran and Mays (1993) that ethnic minority women evaluate their risk in terms of the risk to their specific group, not some generalized notion of risk. In a study conducted by Hobfall and colleagues (1993), with a sample of African American and White women, both groups tended to underestimate their personal risk compared to the risk within their community. However this resulted in increased optimistic bias only among the African American women in their sample. Based on traditional models of behavior change, the aforementioned studies indicate that perception of risk alone does not contribute to engaging in protective behaviors. There are various mitigating factors including relationship status and accuracy of perceived risk.

Perceived risk is a traditional construct in behavior change theory, and has demonstrated to operate similarly across populations; however, the factors that influence the perception of risk are unique to various populations. Understanding the contextual factors that influence risk perception can improve the development of risk reduction models. The general health literature suggests that perceived HIV risk is not determined by a single underlying construction. Instead, the multiplicity of factors may influence individual's risk perception (Estrada & Quintero, 1999). These may include optimistic bias, fatalism, and HIV knowledge.

Construction of Perceived Risk

Optimistic bias. Group membership and adherence to the norms and values of that group play a critical role in the way people think and behave when it comes to health and preventive practices. A common practice by most prevention programs has been to construct the idea of "high" risk versus "low" risk groups. These labels tend to reify already stigmatized members of society (e.g. homosexuals, IDUs). In doing so, a conceptual buffer is provided which allows "others" (e.g. heterosexuals, non-IDUs) to distance themselves from feeling vulnerable to HIV infection. Therefore, if an individual is not a member of a "high" risk group, they do not feel the need to enact protective behaviors (Estrada & Quintero, 1999), when in fact their behaviors, or the behaviors of their partners may actually be conducive to the transmission of HIV. The HIV literature purports that one of the major contributing factors to the growing HIV epidemic in the African American community is the original view of HIV as a White gay male disease. The tendency to make downward comparisons is one cause of optimistic bias, which may make optimism especially prevalent among African Americans in terms of HIV risk

(Shroder et al., 2001). From the beginning of the epidemic to the present, African Americans did not associate their risky behaviors with the White gay community and therefore, did not feel that they were at risk. Weinstein and colleagues (1999, 1996, 1980) show that people make comparative risk assessments in an egocentric manner, paying little attention to the risk status of others when asked to determine their own relative risk. This ideology continues to be a barrier in HIV prevention in the African American community. According to Johnson (1993: p. 54), there is an "omission of specific information regarding the relationship between ethnicity and high risk sexual behavior related to HIV infection." Therefore, it is difficult to determine the attitudes that African Americans have in regard to engaging in risky sexual behaviors.

Many individuals are not willing to conclude that their behavior may actually contribute to their probability of contracting a disease or being injured. This personal fable is further perpetuated by reportedly high levels of spirituality among African American women. The African American community has a well-documented history of using religious/spiritual beliefs as a coping mechanism (Jagers, 2000). Studies have shown both positive and negative associations between religion and health beliefs and behaviors (Franklin & Schlundt, 2004). Belief in a higher power in some, but not all instances, is associated with higher levels of optimism (e.g. following the bible, adherence to religious rules and doctrine). These beliefs involve the tendency to overestimate one's probability of experiencing positive life events (Elkind, 1967). For example, in the area of health, research has demonstrated that more than half of surveyed individuals perceive that they are less likely than others to be afflicted with such health outcomes as drug addiction, cancer, tooth decay, and auto injury. Overestimation of

experiencing positive life events is known in the health arena as optimistic bias (Weinstein, 1987). Optimism is described as a general yet favorable attitude or expectation toward future events irrespective of one's perceived ability to efficaciously engage in goal-oriented situations or control outcomes. Optimistic bias is also the tendency to view oneself as invulnerable (or less likely than others) to experiencing negative life events and has been linked with spirituality or belief in a higher power. It is also the belief that other people, but not one's self, will develop a disease, or experience other negative effects (Brannon & Feist, 2003). Diseases that are related to behavior risk factors, or diseases that show an increased perceived controllability, increase the optimistic bias in the perception of risk for that disease (Taylor, 1989; Weinstein, 1982, 1984, 1987).

Optimistic bias has mostly been examined in treatment adherence or substance use, however, there is a small but growing body of literature indicating that it may play a role in HIV risk reducing behaviors (Timmons & Sowell, 1999). Kunda (1990) suggests that engaging in behaviors with the knowledge that it may lead to a controllable disease constitutes a threat to one's intelligence, perhaps leading to cognitive dissonance. In order to preserve self-esteem, one is more motivated to assess his/her risk for the possible harmful outcomes of this behavior as being low.

Fatalism. When a disease is extremely threatening or precautionary measures are either unavailable or perceived to be difficult to implement or sustain, the typical reaction is to ignore or distort the threat, rather than to change one's behavior. In these circumstances, religious/spiritual beliefs may influence individuals' motivation to engage in protective behavior. Religious/spiritual beliefs can affect the amount of control people

feel that they have over their lives and how things will affect them in the future (Jagers, 2000). As noted, African American women report high levels of spirituality and religiosity and rely heavily on a sense of spirituality which has demonstrated to be a coping mechanism and aids in resiliency, perseverance and destiny (Jagers, 2000). As a result, there is evidence that African American women feel their lives are guided by a higher power and their circumstances are beyond their control (Powe, 1996). While high levels of religiosity/spirituality can foster feelings of optimism when dealing with certain situations, it may also have the effect of believing an individual has no control over the outcome of a situation. A phrase frequently used, but not unique to, the African American community "this situation is in God's hands." Powe (1996) asserts that "in addition to poverty, oppressive forces such as the long history of slavery, segregation, discrimination, substandard health care, and the subsequent perceptions of meaninglessness, hopelessness, and social despair provide the environment for the emergence of fatalism" among African Americans (Powe, 1996; p. 18). Not surprisingly, people with more fatalistic attitudes have demonstrated to be less likely to take advantage of preventive services (Conrad, Brown, & Conrad, 1996; Powe, 1995, 1996).

In a cross-cultural study of cancer fatalism, Conrad et al. (1996) found African Americans and women to be more fatalistic than European Americans and men. Women, particularly African American women, in the study were less likely to seek mammograms if they were afraid of cancer, believing that any time one has cancer it will be fatal and result in death. Not only was their willingness to seek mammograms inhibited, but their willingness to seek out information or even think about cancer was also diminished (Champion et al., 1998).

HIV knowledge. There remains some ambiguity about the relationship between knowledge of HIV risk factors and actual behavior modification to engage in protective behaviors. However, most models and theories used in HIV risk reduction identify knowledge as an important component of their programs (Carey et al., 1997). According to the protection motivation theory (Rogers, 1975), information about a health hazard stimulates a cognitive appraisal of the vulnerability to the negative event and is said to act as a motivator to protect oneself. Accurate knowledge about preventive behaviors and awareness of the need to practice them is critical for behavior change to occur. According to the information-motivation-behavioral skills (IMB) model, Fisher and Fisher (1992) argue that a person is more likely to adopt HIV-risk-reduction strategies (e.g., condom use) if he or she is well-informed about HIV transmission and prevention, motivated to reduce his or her risk, and capable of demonstrating the necessary self-management and interpersonal skills needed to avoid risk behavior. Health educators acknowledge that cognitive and attitudinal changes take place from HIV/AIDS education, but these changes alone do not necessarily result in changes in behavior that lower the risk of infection.

Studies have shown that the accuracy of knowledge about HIV and AIDS may be effective in changing risky sexual behaviors among White gay males (McCusker, Stoddard, Mayer, et al., 1988). There are various factors that influence the perception, receipt and overall acceptance of accurate HIV knowledge and it has been indicated that the relationship between HIV knowledge and HIV protective behavior demonstrated among White gay males, may not be applicable to African American populations (Johnson, 1987: p. 53).

There is a tremendous variability in the level of knowledge that African Americans have about HIV (Johnson, 1983: p. 47). In comparison ti other ethnic groups, African Americans report lower rates of accurate HIV knowledge (UCSF, CAPS, 2000). Many African-Americans have a history of distrust of government programs and health institutions. Remnants of the Tuskegee Experiment continue to fuel the lack of comfort and trust African Americans have with the medical system (Bowmen, Hickman, & Power, 1997). Some African-Americans believe that the effects of AIDS on the community are the results of deliberate efforts and omission of responsibility by the US government as demonstrated in the Tuskegee Experiment. Distrust of formal institutions including those that provide HIV information, can lead to incorrect or lack of knowledge which has been identified as a major contributing factor to the sexual HIV risk among African American women (Cochran & Mays, 1993; St. Lawrence, 1993). Reagan and colleagues (1999) assert that disseminating information about behavior change will be ineffective if barriers, misunderstanding, and fear exist between health care professionals and clients. They maintain, "even if well-informed specialists successfully transfer information, (to the individuals at risk) a positive behavioral change may not result because other variables also motivate behavior." Also significant are the African American community's misconceptions and myths about HIV/AIDS and the unavailability of HIV/AIDS statistical data to most African Americans, resulting in the group's underestimation of the problem (Williams, 2003). Additionally, some HIV prevention programs serve only to reinforce the misconceptions already in place in the community. For example, strong negative views and attitudes held by many African Americans about homosexuality and the perceptions of HIV/AIDS as a "gay" disease

may have hindered efforts to positively engage African American communities in meaningful HIV/AIDS prevention (Carey et al., 2000). Furthermore, the beliefs that illness is a form of punishment by God, and attitudes that HIV is a consequence of sinful behavior, also affect ways in which some African Americans respond to HIV/AIDS prevention efforts (Williams 2003).

Using an ecological approach and taking the aforementioned factors into account, knowledge alone does not account for behavior change without examination of the context within which certain behaviors occur. In a study of African American men and women, research has demonstrated that having HIV/AIDS knowledge seldom results in regular condom use (Johnson, et al., 1992). Taking into account gender differences in knowledge, Carroll (1991) found that greater knowledge of HIV was related with safer sex practices among men, but not women college students. Males in this research who were more knowledgeable about HIV/AIDS reported less intercourse and said they were more likely to use condoms, suggesting that power may play a mediating role in the relationship between knowledge and behaviors. HIV knowledge and misinformation can lead to the misperception or under identification of risk, which will influence an individual's motivation to enact HIV protective behaviors.

HIV Protective Behavior

In order to understand HIV protective behavior, the variable and the contexts in which that behavior occurs must be identified. While previous research has made strived in identifying some noteworthy predictors of HIV protective behavior among African American women, the complex processes through which these behaviors occur warrant further understanding in the development of models. As demonstrated, knowledge does

not automatically translate to HIV protective behaviors; however, it does play a key role in the ability to properly protect oneself. Whether having sex with an infected partner will result in contracting HIV infection is substantially determined by the nature of the sexual practice and its efficiency for transmitting HIV (Kelly, 1995). The most certain way for persons to avoid sexually contracting HIV infection is by refraining from sex under any circumstance where a partner might be infected, whether this is achieved by abstinence or by having sex only in the context of a mutually-monogamous relationship with an assuredly uninfected partner. Although abstinence until establishing a monogamous relationship constitutes the most certain protection against HIV, it is not the pattern that characterizes the sexual behavior of most young adults in the United States. There has been little evidence of change in the age of sexual activity onset or in the numbers of sexual partners of American adolescents and young adults since the start of the HIV epidemic, except for overall reductions in multiple partner rates among gay men in some AIDS epicenters (Martin, 1987). Given this reality, consistent condom use during intercourse or the adoption of other safer sex practices is widely encouraged among persons who are sexually active outside assuredly monogamous relationships with uninfected partners. Although condoms reduce the risk of HIV transmission during vaginal intercourse by approximately 90% (Trussel, Sturgen, Strickler, & Dominick, 1994), condom use among inner-city African American women remains relatively low (Jemmott & Jemmott, 1991; Kelly et al. 1994). Individuals who lack accurate HIV knowledge have devised a host of methods to protect themselves against HIV, including genital washing, douching, use of spermacides, and knowledge of non-primary relationships to name a few. It is critical to understand individuals' subjective perceptions

and the construction of personal meanings as determinants of HIV protective behavior. While some individuals who practice these behaviors may avoid becoming infected, in the presence of HIV these behaviors are rendered ineffective. The contexts in which individuals live helps to promote or inhibit specific behaviors. The current study was designed to identify and examine the attitudes and beliefs that are predictors of actual and perceived HIV/AIDS protective behaviors among lower income African American women.

Summary

The purpose of this study was to propose a model which examines the relationship between contextual interpersonal power and HIV protective behaviors African American women. With the growing HIV incidence rates among African American women, data on transmission suggests that prevention efforts with African American women should focus on prevention of transmission through heterosexual intercourse within the contexts of dyadic relationships. The effects of gender-related factors such as interpersonal power on women's abilities to engage in HIV protective behavior is a critical component to developing effective HIV prevention interventions specific for African American women most at risk. Therefore the nature of sexual negotiation in male-female relationships is an important domain for examining the behaviors that place African American women at risk for HIV (Bowleg, Lucas, & Tschann, 2004; CDC, 2002). This study builds on previous prevention and intervention research with the goal of contributing an integrated perspective to the HIV literature. Previous research demonstrates that successful interventions targeting African American women are typically grounded in theory. Effective theory is developed through empirical

investigations that locate sexual behavior within a context of gender relations and considers the role of cultural factors which facilitate or inhibit African American women from engaging in HIV protective behaviors.

Rising HIV incidence and prevalence rates suggest that gaining a deeper understanding of the epidemic in the African American community is an urgent priority. Although we are entering the third decade of the HIV pandemic, there is yet no HIV cure or vaccine. At this time, the principal means for deterring the further spread of HIV remains behavioral risk prevention. Thus, developing and implementing theory and models that focus on behavioral prevention are of utmost importance. Although the scope of the epidemic has reached into most segments of society, its disparity continues to be striking and this trend has continued and worsened. Previous research and traditional theories and models have provided a foundation and groundwork for understanding HIV risky behaviors; however, new integrative approaches that take the strengths and limitations of previous work into account are necessary to meet the challenges that HIV presents to the health and well-being of African American women. Like the virus, the behavioral and social aspects of HIV are constantly changing, making HIV prevention research an ongoing process.

Contributions of the Proposed Study

This study utilizes aspects of the theory of gender and power along with traditional models of behavior change (e.g. health belief model) to examine the well-substantiated relationship between interpersonal power and HIV protective behaviors of African American women. The theory of gender and power provides the framework for examining the relationship between interpersonal power and protective behaviors, while

taking into account the cultural factors that predict interpersonal power. Previous studies have targeted low-income African American women; however, few studies have examined how specific factors like gender roles, partner dependency and sex ratio imbalance predict interpersonal power and how these relationships place this particular group at increased risk for HIV transmission. Consequently, while the relationship between interpersonal power and HIV protective behavior is critical to understand in dyadic relationships in general, the factors that predict interpersonal power for low-income African American women will be unique for this group. Therefore, the development of group specific models is useful in understanding risk behaviors within this population.

Traditional theories of behavior change serve an important purpose in the development of culturally relevant HIV prevention models. Traditional models (e.g., like the health belief model) focus on perceived risk as a determinant of protective behaviors. While there is a wealth of support for the relationship between interpersonal power and HIV protective behaviors, there are no published studies to date that examine a multidimensional model, which examines how perceived risk moderates this relationship. Additionally, while perceived risk has been examined as a predictor of HIV protective behaviors, to date there are no published studies which examine the cultural factors that predict perceived risk (e.g. access to HIV knowledge, trust, optimistic bias, and fatalism). In conclusion, various aspects of the proposed model have been identified in the literature as important predictors in HIV prevention. However, to this author's knowledge, there are no published studies that include the aforementioned factors into one multidimensional model specific to low-income African American women. While it is

imperative to examine the factors that contribute to HIV protective behaviors, researchers must understand the complex processes which lead to the desired outcomes.

Research Questions

1. Will the proposed model of HIV protective behavior fit for low-income African American women?

2. How do African American women protect themselves against HIV?

Specific Hypotheses

Hypothesis 1. Three cultural factors will have a direct effect on interpersonal power. These include: gender roles, partner dependency, and sex-ratio imbalance.

1a. Individuals who subscribe to more "feminine" gender roles will have less interpersonal power.

1b. Individuals who are more financially dependent on their partner will have less interpersonal power in their relationships.

1c. Individuals who perceive there to be fewer available partners will have less interpersonal power in relationships

Hypothesis 2. Higher levels of interpersonal power will predict higher levels of protective behaviors.

Hypothesis 3. Sexual self-efficacy will mediate the relationship between power and protective behaviors.

Hypothesis 4. Perceived risk will moderate the relationship between interpersonal power and protective behaviors. Specifically, the relationship between interpersonal power and protective behaviors will only exist in the presence of perceived risk.

Hypothesis 5. Three culturally relevant factors will have a direct effect on perceived risk. These include optimistic bias, fatalism, and HIV knowledge.

5a. Optimistic bias will be negatively correlated with perception of HIV risk.

5b. Fatalism will be negatively correlated with perception of HIV risk.

5c. HIV knowledge will be positively correlated with perception of HIV risk.

METHOD

Participants

Epidemiological data from the Center for Disease Control and Prevention (CDC, 2004) report that the HIV/AIDS epidemic disproportionately affects women, people of color, and individuals of lower socioeconomic status; therefore, the participants for this study were purposively selected to represent this larger population of interest.

Two hundred and sixty (n=260) women were either approached or contacted the research team to express interest in participating in the study. Only 5% (n=9) of the individuals who were approached and recruited for the study reported not being interested in participating. Two hundred and fifty-one Black/African American women were screened (according to the study criteria) for potential participation (refer to Table 1 for a complete list of recruitment rates). After being screened, it was determined that a total of thirty-two (n=32) women were ineligible by one or more of the eligibility criteria, and 211 two women were eligible and invited to complete a survey.

Selection criteria for inclusion in the study included (1) self-identification as an African American woman, (2) at least 18 years of age, (3) must have currently been in a heterosexual relationship in which sexual activities occurred, or have been in such a relationship within 3 months prior to completing the survey, and (4) individuals who earned a salary of ≈ $30,000 or less a year.[1]

Exclusion criteria for the study included: (1) participants who were aware of their HIV seropositive status, (2) participants who were pregnant or in the process of trying to conceive[2], and (3) participants who were married[3], because individuals who are married are expected to represent less variance in terms of HIV risk perception and behaviors due

to marriage's implicit connotation of fidelity, which (if mutual) should not place individuals at risk for sexual transmission.

Procedure

Prior to the initiation of data collection, community gatekeepers, leaders, key informants, executive directors, and staff who provide services to African American women or who were somehow connected with the target population were identified in Lansing, Grand Rapids, Flint, Saginaw, and Detroit. Information packets containing material about the author, the purpose of the study, and the benefits to the community and participating organizations were mailed, and followed up by meetings with the study's principal investigator. To encourage participation, organizations and various individuals were asked to give input into the survey design and informed that they would receive a technical report and community/staff presentation at the conclusion of the study.

Pilot Data Collection

Pilot data collection was conducted in order to test the feasibility and validity of the proposed survey instrument. Piloting the instrument was a small-scale rehearsal for a larger scale data collection and followed a written protocol. The purpose of the pilot data collection was to learn more about the data acquisition process prior to investing large amounts of time and resources. A sample of convenience from a participating organization in Lansing was utilized. Data were collected from five members of the target population in order to examine whether the proposed methods and instruments were inappropriate or too complicated.

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[1] Financial criteria is consistent with receiving government assistance in accordance with the criteria set forth by the US Census of the Bureau.
[2] the desire to become pregnant is associated with not practicing "safer sex"
[3] unless separated for more than three months

The pilot data collection allowed for the data collectors to practice the sampling techniques and recruitment strategies, identifying potential problems with the survey instrument (e.g., word confusion) and the overall comfort level of the target population with the survey items. After completing the survey, participants were asked to identify any confusing sections of the survey and discuss their level of comfort with the survey items. This was done in an attempt to determine if there were any factors that needed to be addressed prior to the beginning of data collection. If necessary, after completion of the first phase of pilot data collection, the protocol would have been critiqued and revised. No major changes to the final protocol and/or survey were made based on the pilot data. The pilot data participants were included in the final sample.

Recruitment. Due to the sensitive nature of the current study, issues of confidentiality and participant safety were taken into account in the recruitment strategies and procedures. Participants were recruited in three ways: 1) through social service agencies (e.g., WIC, Work First), 2) community organizations and settings (e.g., Black Child and Family Institute) and 3) the snowball or social network technique.

1) Social Service Agencies: There were a number of identified service agencies that targeted a substantial number of African Americans. Data were collected from Lansing, Flint, Grand Rapids, and Saginaw (refer to Table 1 for a complete list of participating organizations). A total of 164 participants were recruited on site at social service agencies. Two approaches were used in these settings.

First, potential participants were informed of the research study either by staff or by seeing posters about the study and its inclusion criteria. Individuals who were interested in participating in the study had the option of volunteering for the study by

calling and making an appointment to complete a survey, or showing up at the designated data collection sites on the specified days. Potential participants who called the project office gave verbal consent to be screened over the phone. Those individuals who showed up at data collection sites on the designated days went through the informed consent procedure (detailed explanation by research assistant and then signing a consent form) and the screening criteria in person.

Second, the research staff was present at the agency and approached potential participants who were waiting for or leaving an appointment, and invited them to participate in the study. The majority of participants were recruited in this manner. Participants who agreed to be screened for the study in person went into a separate room for the consent and screening procedures and, if eligible, began survey administration. Those participants who were ineligible were thanked for their time, provided with an HIV resource guide, and entered into a drawing for a DVD player. For those individuals who were eligible but waiting for service appointments, research assistants and service providers determined if there was enough time to complete the survey prior to an individual's appointment or if the survey should be completed after an individual's appointment. In some instances, survey administration began and was interrupted by appointments. All but one participant completed their survey after the conclusion of their appointment. In other scenarios where participants did not have enough time to begin the survey, research assistants coordinated alternate times to complete survey administration.

2) Community Organizations and Settings: There were a number of organizations that provided direct services to African Americans; however, they were geared towards serving the African American community either as referral organizations, organized

clubs, or neighborhood centers. A total of 22 participants were recruited from organization and community settings. These institutions had a variety of programs that they offered on a regular basis including: classes (e.g., parenting, nutrition, self-help, computing, career planning), health awareness campaigns, and regular community social meetings. Recruitment in these settings took place in two ways similar to the methods utilized with the social service organizations.

First, outreach workers provided potential participants with brochures about the study and potential participants had the option of calling to inquire about the study. After contacting the research team and obtaining verbal consent, potential participants gave verbal consent to be screened over the telephone. If participants were eligible to participate in the study, they were invited to make an appointment to complete the survey in person.

Second, there were designated days on which onsite recruitment and data collection took place at these organizations (e.g., Baker Donora Community Center). These designated days took place during regular meetings or "special" events (e.g., health programs, Head Start end of the year program) where an announcement was made and potential participants stayed after the meeting to complete the survey, or community members were informed of regular designated data collection days where research assistants were available to administer the survey.

3) Snowball technique: potential participants were recruited from other known potential participants in a technique known as the "snowball effect" (also referred to as network sampling). This technique allowed participants to make referrals and actually act as recruiters to members of their network, who were assumed to share some of the

demographic characteristics of that individual. Participants were given flyers to distribute to the individuals in their social network. A total of 25 women were recruited via the snowball technique. Similar to the other recruitment strategies, potential participants could call to make an appointment to complete the survey, at which time they gave verbal consent to be screened over the phone. If participants were eligible to participate in the study, they were invited to make an appointment to complete the survey in person.

Research Assistant Training

This research study was conducted by an ethnically diverse group of seven undergraduate and one graduate research assistants. Due to the sensitive nature of this study, all of the research assistants were required to complete a three-week interviewer training module developed by the author. The purpose of the training was to teach the research assistants to be empathic and effective data collectors. During the first week of the training sessions, research assistants received basic HIV knowledge from an HIV prevention specialist from the Lansing Area AIDS Network (LAAN) and an introduction to the sensitive issues surrounding this research topic. The research assistants were encouraged to explore their own issues around HIV. In addition, research assistants also explored and were encouraged to challenge their own preconceived notions around working with this particular population. During the second week of training, the research assistants received a lecture on basic interviewer training skills (e.g., appropriate attire, body language, tone, how to approach potential participants). During the third week of training, the research assistants' basic HIV knowledge was assessed and the entire survey administration procedure was role played and audio-taped in order for the research assistant to critique their own interview. Two research assistants required additional

training after the completion of the three-week module. This additional training entailed additional role-playing. By the fourth week, all research assistants were trained and administering surveys.

Survey Administration

Trained research assistants gave participants a detailed explanation of the informed consent form and procedure. After obtaining a signed consent form, participants were given a copy of the consent form for their records. Research assistants then conducted the screening criteria in a structured interview format. Individuals who were eligible to complete the survey were asked to identify their present or previous most significant, primary partner. A primary partner was identified as an individual with whom the participant had had sexual intercourse (on more than two occasions) within the past three months, and whom they felt "closest" to (however they subjectively defined close). This individual's initials were then referred to in questions pertaining to "primary" partners throughout the remainder of the survey. In order to standardize the survey administration process, all surveys were administered in a structured interview format. Participants were instructed to answer all of the questions to the best of their ability. Additionally, participants were reminded that they had the option to not answer a question or discontinue the survey at any time if they so chose.

There were no participants who opted to discontinue taking the survey or who refused to answer any questions. After completing the survey, research assistants administered a debriefing protocol. During the debriefing, participants were given a resource guide/fact sheet about HIV prevention and referral services (Appendix D). The

resource guide included organizations that provided services related to some of the topics in the survey including HIV testing and counseling.

Participant Incentives. African Americans are considered a "difficult to reach" population. Methodological studies on African American participation in research studies recommend the use of community gatekeepers, incentives, and result reporting as methods to successfully engage this population in research studies (Bickman & Rog, 1998). This study utilized all three techniques. The majority of published HIV prevention research use some form of participant incentive. Individuals who participated in this study were compensated $10.00 cash. Individuals who chose to participate in the study, but were ineligible for inclusion in the study, were entered into a drawing to receive one of two DVD players. The American Psychological Association's Ethical Principles of Psychologists Code of Conduct research guidelines section 8.06, recommends the following guidelines for offering inducements for research participation (a) psychologists "make reasonable efforts to avoid offering excessive or inappropriate financial or other inducements for research participation when such inducements are likely to coerce participation." These incentives satisfactorily met these guidelines.

Confidentiality All research assistants involved with the project signed confidentiality agreements. Information containing participant names (e.g., consent forms, participant payment forms) were separated from participants' surveys and access was limited to the principal investigator and relevant project staff. All data were kept in a locked file cabinet in a locked office. Participants completed the survey in a confidential setting due to the fact that confidentiality typically decreases the rate of socially desirable responses to sensitive questions (Sudman & Bradburn, 1982).

Study Sample

Participants ranged in age from 18 to 57 years with an average age of 30.38 years (*SD* = 9.34) and reported having an average of 2.85 (*SD* = 1.75) children. More than one third of the participants (36%, *n*= 70) lived with their primary partner at the time of the survey. The average number of individuals living in the participants' household, including the participant, was 3.69 (*SD* = 1.85).

Participants were predominantly low-income and unemployed. Eighty-six percent (n=164) of participants reported being eligible for public assistance. Twenty-eight percent (n=55) of participants reported being employed. Among the employed participants, 14% (n=27) had a full-time job and 14% (n=28) had a part-time job. Seventy-two percent (n=141) of participants reported that they were unemployed. In lieu of employment, the participants reported being a "student," "homemaker," or "other." Forty-three percent (n=84) of participants reported sharing or pooling their finances with their primary partner. The reported yearly incomes for the participants ranged from $0 to $30,000 per year with a mean of $5,619 (*SD* = $7,900). The number of years of education for participants ranged from 7 to 17 years with a mean of 12.51 years (*SD* = 1.95). Consistent with the study's eligibility criteria, 82% (n=161) of participants were in a current sexual relationship and 18% (n=35) of the participants reported that they were not currently in a sexual relationship, but had been in one in the past three months prior to taking the survey (refer to Tables 2 and 3).

Measures

Eligible study participants completed a 20-minute, 45-item *Women's Health and Relationship Survey*. The survey was compiled by the principal investigator and included

a battery of published, modified, and newly developed measures. These measures included: demographics, gender roles, perceived sex ratio imbalances, partner dependency, interpersonal power in relationships, perception of HIV risk, fatalism, optimistic bias, sexual self-efficacy, HIV knowledge, and HIV protective behaviors. In order to determine whether individuals' HIV protective behaviors differed as a function of primary versus non-primary partners, the survey assessed HIV protective behaviors with present/past primary and non-primary sexual partners (refer to Appendix C for the complete survey instrument).

Demographic Measure

Demographic information on participants' age, relationship status (present vs. past) and length, salary, HIV status, religion, and desire to conceive were assessed (Appendix C, items 1-13,15-19, 38-45). These items were developed and compiled by the principal investigator and based closely on previous HIV surveys.

Exploratory Factor Analysis

The majority of the scales utilized in this study were developed for this study, modified from existing scales, or did not have published data on their psychometrics for this particular population. Therefore, exploratory factor analysis was conducted on all of the scales used in the current study.

Interpersonal Power

Interpersonal power in relationships has typically been measured using two dimensions: decision-making and control in relationships. For the purposes of this study, interpersonal power was initially investigated by examining both dimensions.

A modified version of the Sexual Relationship Power Scale (SRPS) (Pulerwitz, Gortmacker, DeJong, 2000) was used to assess: a) decision making, and b) control in relationships. The original version of the SRPS is a 23-item scale containing two subscales that can be used separately or combined, depending upon the research requirements. Cronbach's alpha for the overall published scale was .84. The Relationship Control subscale consisted of 15 items and the Decision-Making Dominance subscale had a total of 7 items. The Cronbach alphas of the two published subscales were .86 and .62, respectively.

The original control subscale of the SRPS was measured on a 4-point Likert scale, ranging from "1 = Strongly Disagree" to "4 = Strongly Agree." The original decision-making subscale was measured on a 3-point Likert scale ranging from, "1 = Your Partner," "2 = Both of You Equally," or "3 = You." Both the control and decision-making subscales were modified to be measured on a 5-point Likert scale ranging from "1 = My partner completely" to "5 = Me completely." These modifications were conducted in order to obtain more variability, increase analytical parsimony, and simplify survey administration. The modified version consisted of five control items (Appendix C, Items 23a-c) and three decision-making items (see Appendix C, items 23a-c).

Psychometric analyses were conducted to explore the internal consistency and underlying structure of the interpersonal power scale. These analyses included exploratory principal factor analysis and internal consistency reliability. The results of the exploratory principal factor analysis on the combination of control and decision-making items using the varimax method yielded a two-factor solution.

The first factor contained four items which measured both decision making and control (α =.61) and the second factor contained four items which measured decision making (α =.48). Because factors one and two yielded low internal consistency and both contained decision-making and control items, these subscales were combined and Cronbach's alpha reliability was conducted in order to identify a subset of items with the largest coefficient alpha. The newly formed scale consisted of items 22B, 22C, 22D, 22E, 23A, and 23C which loaded highly on the domain most related to interpersonal control. The new subscale was named relationship control and had a coefficient alpha of .64 for the current study. After reverse coding several items, mean scores were calculated with higher scores indicating higher levels of interpersonal power (refer to Appendix E for a complete description of the psychometric properties of the scale).

Relationship Commitment

A three-item scale was developed specifically for the purposes of this study to assess the level of commitment in an intimate relationship (Appendix C, Items 23D-F). Relationship commitment was measured on a 5 point Likert scale ranging from "1 = My partner completely" to "5 = Me completely."

Psychometric analyses were conducted to explore the internal consistency and underlying structure of the relationship commitment scale. The exploratory principal factor analysis using the varimax method yielded a one-factor solution which supported a unidimensional scale. All three items (23D, 23E, and 23F) loaded highly on one factor. The coefficient alpha for the relationship commitment scale for the current study was α =.80. Mean scores were calculated with higher scores indicating higher levels of commitment by the participant and lower levels of commitment by her partner.

HIV Protective Behavior

HIV protective behavior was examined as a two-dimensional construct, which included: a) objective HIV protective behavior (e.g., frequency of condom use across various sexual behaviors) and b) self-identified HIV protective behavior, where individuals generated responses about how they protected themselves against HIV.

Objective HIV Protective Behaviors

Primary Partner. The objective three-item HIV protective behavior scale was developed specifically for the purposes of this study to assess individuals' HIV protective behavior with their primary. The response items were scored on a 4 point Likert scale ranging from "1= None of the time" to "4 = All of the time." There was an additional option for individuals who did not engage in the described activities (Appendix C, Items 24A-C).

Second Partner. An identical three-item HIV protective behavior scale that was used with the primary partner was modified to assess individuals' protective behavior with a potential second partner. The response items were scored on a 4 point Likert scale ranging from "1=None of the time" to "4=All of the time." There was an additional option for individuals who did not engage in the described activities (Appendix C, 29A-C).

Sum scores were calculated and averaged across the sexual behaviors which comprised two separate sexual behavior indices (e.g., oral, anal, vaginal sexual intercourse) for the primary and second partner. The indices with higher scores indicated higher levels of HIV protective behaviors. The index with the primary partner was used

as the outcome variable in the structural equation model and all subsequent analyses used to test the specific hypotheses with the outcome variable of HIV protective behavior.

Self-Identified HIV Protective Behaviors

Participants were asked to generate all of the behaviors that they engaged in to protect themselves against HIV (Appendix C, item 31A-I). This item was developed specifically for the purposes of this study to assess individuals' perceptions of how they protect themselves against HIV. This data was used to answer the second research question of participants' subjective HIV protective behaviors. Additionally, a dichotomous variable was created among participants who did and did not generate condom use as an HIV protective behavior. This new variable was used in additional analyses as an alternate HIV protective outcome variable (refer to Table 5 for a complete list of response endorsements).

Condom Self-Efficacy

Condom self-efficacy was examined using a subscale of the Sexual Self-Efficacy scale (Rosenthal et al., 1991). The original larger measure is a 20-item scale that assesses participants' perceptions regarding their efficacy in various sexual situations. Participants were provided with various scenarios and asked to rate their responses on a 5-point Likert scale ranging from "1=Very Uncertain" to "5 = Very Certain." The modified version of the seven item subscale was measured on a 5-point Likert scale ranging from "1=Strongly Disagree" to "5 = Strongly Agree."

Psychometric analyses were conducted to explore the internal consistency and underlying structure of the construct condom self-efficacy. Cronbach alpha reliability and exploratory principal factor analysis using the varimax method were conducted. The

analysis yielded a one-factor solution which confirmed condom self-efficacy as a unidimensional scale; however, reliability analyses yielded a low coefficient alpha of .38. Item analysis showed that negatively-worded items had lower item-total correlations than positively-worded items, consistent with the findings of Corwyn (2000) who found that negatively worded items do not load with positively worded items (refer to Appendix E). In order to increase the internal consistency of the measure, negatively worded items (32d & 32e) were deleted from this scale (Appendix E). The final scale was comprised of five items (32A, 32B, 32C, 32F, 32G), which yielded a coefficient alpha of .64 for the current study. Mean scores were calculated with lower scores indicating lower levels of condom self-efficacy (Appendix C, item 32A, 32B, 32C, 32F, 32G).

Perceived HIV Risk

The Sexual Risks Scale - Perceived Susceptibility (SRSP) scale (DeHart & Birkimer, 1997) was utilized to assess perception of HIV risk. This pre-existing five-item measure was a subscale of the larger SRSP scale. The response stems were on a 5-point Likert scale ranging from "1 = Strongly Agree" to "5 =Strongly Disagree." The published coefficient alpha for the subscale was .84. The original subscale was utilized in the current study.

Psychometric analyses were conducted to explore the internal consistency and underlying structure of the construct perceived HIV risk. The exploratory principal factor analysis using the varimax method yielded a one-factor solution which confirmed a unidimensional scale. The scale yielded a coefficient alpha of .67 for the current study. After reverse coding one item, mean scores were calculated higher scores indicating higher levels of perceived HIV susceptibility. (Appendix C, item 34a-e).

Fatalism

This seven-item scale was modified from an original scale developed by Colon (2000) to assess disease fatalism. The original scale consisted of 5 items measured on a 5-point Likert scale ranging from "1 =Strongly Agree" to "5 = Strongly Disagree," and was used to measure a generic sense of fatalism. The modified scale included items specific to HIV fatalism and were measured on the same 5-point Likert scale.

Psychometric analyses were conducted to explore the internal consistency and underlying structure of the construct fatalism. Exploratory factor analysis using the varimax method yielded a two-factor solution. As a result, fatalism was measured as a two dimensional scale, general and HIV fatalism.

General Fatalism

Factor one included three items (e.g., items 35A, 35B, 35C) regarding general fatalism ($\alpha = .64$). Mean scores were calculated with higher scores indicating higher levels of general fatalism (Appendix C, items 35A,35B,35C).

HIV Fatalism

Factor two included two items (e.g., items 35D, 35E) regarding HIV specific fatalism ($\alpha = .20$). Because of the low coefficient alpha and in accordance with the decision to delete negatively worded items (Corwyn, 2000), item 35e "There is not much a person can do to avoid getting HIV," was deleted which resulted in a one-item (Appendix C, Item 35D) indicator of HIV fatalism.

Optimistic Bias

Optimistic bias was assessed by a modified version of Chapin's (2000) five item optimistic bias scale. The modified response scale was a 5-point Likert scale which ranged from "1=Much Greater" to "5=Much Less."

Psychometric analyses were conducted including reliability and exploratory principal factor analysis using the varimax method and yielded a two-factor solution, sexual optimistic bias and general optimistic bias.

Sexual Optimistic Bias

The first factor consisted of three items (Appendix C items 36B,36C,36D) regarding sexual optimistic bias ($\alpha = .69$). Mean scores were calculated with higher scores indicating higher levels of optimistic bias.

General Optimistic Bias

The second factor included two general optimistic bias items (items 36A, 36C) which yielded a coefficient alpha of ($\alpha = .16$). Because of the low coefficient alpha and in accordance with the decision to delete negatively worded items, item 36a, "Compared to other African American women, my chances of experiencing a tragic event are..." was deleted (Corwyn, 2000), which resulted in a single item indicator of general optimistic bias (Appendix C, Item 36A).

HIV Knowledge

HIV knowledge was assessed by the HIV/AIDS Knowledge Scale (Yancey, Wang, Goodin, & Cockrell, 2003). This pre-existing 24-item HIV knowledge scale had an original response scale of "true," "false," and "do not know." The scale was developed specifically for use with African American women aged 17-44 years. The published

reliability for the scale was .73. The response option of "do not know" was not used in the modified version of the scale, in order to increase the item response rate. An HIV knowledge score was calculated by summing the correct responses to the 24 items. Higher scores indicated more accurate HIV knowledge (Appendix C, 37a-e).

In addition to the original items on the scale, three supplementary items were created to assess participants' knowledge of HIV/AIDS knowledge in the African American community (items 36L, 36O, and 36t). Overall, participants answered 77% of the questions pertaining to African American transmission correctly. The coefficient alpha for the entire HIV knowledge scale was (α = .63) for this sample.

Gender Role Identity

Gender role identity is a multidimensional construct that is typically measured as three factors: masculinity, femininity and androgyny. The original version of the Personal Attributes Questionnaire (PAQ)- (Spence & Helmreich, 1978) was utilized to assess "traditional" feminine gender roles. This pre-existing 25-item scale assesses masculinity and femininity in terms of respondents' self-perceived possession of various traits that are stereotypically believed to differentiate the sexes. The authors acknowledge that the PAQ taps into limited aspects of sex roles: certain self-assertive or instrumental traits traditionally associated with masculinity and certain interpersonal or expressive traits traditionally associated with femininity. Although the PAQ should not be viewed as a global measure of masculinity and femininity, it has been widely used in research with diverse populations (Bowleg, 1998) to provide a rough classification of participants in terms of their gender-role identity. In responding to the PAQ, the participants chose an answer that best represents the type of person they think they are. Each question

consisted of two opposing characteristics, with the letters A-E in between them. The letters form a scale between two extremes (scored from 1-5). Participants chose a letter that described where they fall on the scale. For the purposes of this study, femininity was the only construct of importance in the proposed model, therefore, masculinity and androgyny were excluded from further analysis.

Psychometric analyses were conducted to explore the internal consistency and underlying structure of the construct femininity. For the purposes of maintaining the integrity of the existing scale, reliability analyses were conducted based on the scale authors' directions for scoring. To compute a score on the femininity subscale of the PAQ, the numbers next to items 3, 7, 8, 9, 12, 15, 21, and 22, were summed. The coefficient alpha on the femininity subscale was .72 for the current study.

Perceived Sex Ratio Imbalance

Perceived sex-ratio imbalance is a five-item, unidimensional scale developed specifically for the purposes of this study to assess the perception of sex ratio imbalances of African American women to African American men. The response stems were measured on a 5-point Likert scale that ranged from "1 =Strongly Agree" to "5 = Strongly Disagree."

Psychometric analyses were conducted to explore the internal consistency and underlying structure of the construct sex ratio imbalance. Exploratory factor analysis using the varimax method yielded a two-factor solution. Factor one consisted of three items (33A, 33D, 33E) (α = .35) and factor two consisted of two items (33B, 33C) (α = .24). Reliability analyses suggested that the items on factor one yielded the highest reliability of .35, therefore items 33B "If I wanted to, I could find a new partner," and

33C "There are plenty of available partners for African American women," were deleted. After reverse coding two items, mean scores were calculated a with higher scores indicating higher levels of perceived sex ratio imbalance in the African American community (Appendix C, Items 33A,33D,33E).

Partner Dependency

Partner Dependency was assessed by examining participant financial independence. Financial independence was a unidimensional construct that that was developed specifically for the purposes of this study.

A seven-item scale was developed to assess partner financial independence. The response scale was measured on a 4 point Likert scale ranging from "1 = Strongly Disagree" to "4= Strongly Agree."

Psychometric analyses were conducted to explore the internal consistency and underlying structure of the items. The exploratory principal factor analysis using the varimax method yielded a three-factor solution. The first factor consisted of items 20A, 20B,and 20C. The second factor consisted of items 21B, 21C, and 21D. The third factor consisted of item 21A. Reliability analysis demonstrated that all of the items combined yielded an alpha coefficient of $\alpha = .24$.

Reliability analyses were conducted on each factor which demonstrated that if factor one excluded item 20C "I rely on the assistance from others (e.g., family/friends to help me get by," it would yield a higher coefficient of .62 with the remaining two items (20A and 20B). (refer to Appendix E for a complete list of the psychometric properties of this scale).These two items (20A & 20B) were used to comprise the final scale of

financial independence. Mean scores were calculated with higher scores indicating higher levels of financial independence (Appendix C, Items20A, 20B).

Attitudes Toward Condom Use

Perceived partner and participant attitudes toward condom use were assessed by using items from the Sexual Relationship Power (SRPS) Scale (Pulerwitz, Gortmaker, & Dejong, 2000). The original partner reaction items from the scale loaded onto control and dominance dimensions in previous studies (refer to Appendix E). The original subscale of partner and participant reactions was comprised of 13 items. The modified version contains five parallel participant and partner items and one additional item pertaining to the perception of one's partner becoming violent if the participant introduced condoms. The modified version of this scale was measured on the original 4-point Likert scale ranging from "1=Strongly Disagree" to "4=Strongly Agree."

Psychometric analyses were conducted to explore the internal consistency and underlying structure of the construct, "attitudes toward condom use." Exploratory principal factor analysis using the varimax method yielded a three-factor solution, however, factor analysis did not yield exclusive factors. The first factor consisted of five items (25C,25E,25F,25H,25G) regarding participant and perceived partner negative and positive attitudes toward condom use (α= .27). The second factor consisted of four items (25K, 25I, 25J, 25H), three of which consisted of participant attitudes towards condom use and one item which regarded perceived partner attitudes (α.= .51). The third factor consisted of two items (25A & 25D) regarding enjoyment of sexual intercourse by the participant and partner when condoms were used (α =.60).

Due to the poor performance of the total scales, items were separated into two subscales, a) partner attitudes toward condom use, and b) participant attitudes toward condom use, and an additional single item indicator of perceived violence.

Perceived Partner Attitudes Toward Condom Use

Reliability analysis yielded the highest coefficient alpha for the following three items including 25C, 25E, and 25F ($\alpha = .75$). These items assessed perceived partner positive attitudes toward condom use (Appendix B). Mean scores were calculated with higher scores indicating more positive perceived partner attitudes toward condom use.

Participant Attitudes Toward Condom Use

Reliability analysis yielded the highest coefficient alpha for the following three items including, 25K, 25I, 25G ($\alpha = .63$). These items assessed positive participant attitudes toward condom use (Appendix C). Mean scores were calculated with higher scores indicating more positive attitudes toward condom use.

Violence

Item 25j regarding violence was used as a single item indicator based on face validity and its lack of conceptual congruence combined with a low inter item correlation with the other items comprising the other subscales scales (refer to Appendix E).

Data Preparation

Double date entry was performed by two research assistants who entered all of the data into two separate SPSS version 12 databases. After data entry was completed, the two databases were compared and frequencies were examined in order to determine any discrepancies in data entry. Data discrepancies were checked and corrected against the

original paper data. Preliminary examination of the data detected missing data and/or outlier scores.

Data Analysis Strategy

Univariate and multivariate analysis techniques were employed to examine the research questions posed in this study. Univariate analyses (e.g., descriptive statistics, frequency distributions, histograms, and scatter plots) were utilized to conduct descriptive analyses on the demographic data and overall scales. In order to test the hypothesized relationships between variables (e.g., moderator effects), multiple linear regression (MLR) was employed. To test the specification of the proposed model, and mediation effects (Mackinnon et al., 2002), the Structural Equation Modeling (SEM) program AMOS 5 (Arbuckle & Wothke, 1999) was utilized in accordance with Anderson and Gerbing's two-step approach (Anderson & Gerbing, 1988), in which the fit of the measurement model, with all constructs allowed to freely covary, provides a baseline for testing the fit of the hypothesized structural model.

RESULTS

Univariate Analysis

Univariate analyses were conducted on all descriptive data. Descriptive statistics were also conducted on the independent and dependent variables in order to examine skewness, kurtosis, outliers, and missing data (see Table 6).

Missing Data. Due to the interview format of the data collection, missing data was very uncommon; there were approximately (n=4) or 2% cases with missing data on a few items, generally due to human error. The statistical software AMOS is able to address missing data by utilizing a full information maximum likelihood (FIML)

algorithm; however, because the extent of missing data was so low, item mean replacement methods were used in order to allow calculation of all fit indices and diagnostics.

Descriptives

Interpersonal Relationships

HIV infection most commonly occurs within the context of dyadic relationships for African American women, signifying the importance of examining relationships in HIV prevention. Eighty-two percent (n=161) of participants in this sample were currently in a sexual relationship. The remaining 18% (n=35) had been in one or more relationships in the past three months. Three percent (n=5) of the participants reported being married at the time of the survey, but separated for more than three months. On average, participants reported that they and their partners shared approximately equal levels of control and decision-making power within their relationships ($M = 3.39$, $SD = .65$) on a scale of one to five. With regard to relationships with male partners, the majority of participants reported high levels of perceived sex ratio imbalance (more African American women than African American men) ($M = 4.09$, $SD = .77$) on a scale of one to five. However, 63% of participants "strongly agreed" that "they could find a new partner if they wanted to."

Overall, the majority of participants reported approximately equal levels of commitment to their relationship with their partners ($M = 3.38$, $SD = 1.00$) on a scale of one to five. When asked in an open ended question to describe their relationship, the majority of participants 68% (n=132) described their relationship as monogamous (7%, n=12) or serious (61%, n=120), while approximately one third of the participants (32%,

n=60) described their relationship as casual (23%, n=46), open (7%, n=14), or "other" (2%, n=4).

Interpersonal relationships and HIV risky behaviors. When asked, "how do you protect yourself against HIV," 25% (n=55) of the participants indicated that they were in a monogamous relationship. Despite the number of women who reported being in a monogamous relationship, nearly half of the participants 47% (n=93) reported that their primary partner had sexual relations with someone else during some point in their relationship, and 20% (n=37) of the participants reported having sexual relations with someone else other than their primary partner within the past three months. Of the participants who reported having a second partner within the past three months, 13% (n=26/37) of the participants reported being in a relationship with their primary partner when this behavior occurred.

In terms of HIV protective behavior (measured as condom frequency with the combined index of anal, vaginal, and oral intercourse), there were significant differences based on relationship status $t(91) = -1.95$, $p < .05$. Participants who indicated that they were in a monogamous relationship engaged in less condom use ($M = 1.69$, $SD = .88$) in comparison with participants who reported being in a casual or open relationship ($M = 2.02$, $SD = 1.02$).

HIV risk and knowledge. The majority of participants (66%, n=120) reported that their primary partner had previously been tested for HIV, and 88% (n=172) of participants reported that *they* had at least one previous HIV test. Seventy-one percent (n=137) of the participants reported previously receiving some form of HIV education. The majority (77%, n=151) of participants rated their HIV knowledge as average (31%,

n=61), good (30%, n=59), or excellent (16%, n=31). On average, participants reported a low (M=1.77, SD = .81) perception of HIV susceptibility or risk on a scale of one to five. In terms of perceived HIV risk, these results yielded trend level differences between monogamous and non monogamous relationships $t(194) = -1.66$, $p = .10$. Participants who indicated that they were in a monogamous relationship perceived slightly lower levels of HIV risk (M= 1.61, SD = .68) in comparison with participants who did not indicate being in a monogamous relationship (M= 1.83, SD = .84).

HIV knowledge was assessed by examining participants' knowledge of general HIV transmission and rates in the African American community. On average, participants answered approximately 82% of the general HIV knowledge items correctly and 77% of the African American community items correctly. Participants were most likely to answer the following questions wrong, 1) *all pregnant women infected with HIV will have babies born with AIDS,* 2) *Coughing and sneezing do not spread HIV,* and 3) *African American women are twice as likely as White women to get HIV,* respectively (refer to Table 7 for a complete list of response rates).

HIV Protective Behavior

Self-Identified HIV Protective Behaviors

One of the current study's research questions was, "How do African American women protect themselves against HIV? Participants were asked to generate the HIV protective behaviors that they used to protect themselves against HIV. The majority of participants 65% (n=127) identified condom use as the method they used to protect themselves against HIV. The results demonstrated that the participants were more likely

to choose effective strategies to protect themselves against HIV over ineffective strategies (refer to Table 5).

Objective HIV protective behavior

Primary Partner

Forty-four percent (n=87) of participants reported using condoms in the past three months "none of the time" when they engaged in vaginal intercourse with their primary partner. Fifty-six percent (n=110) of the participants reported using either condoms or other latex barriers "some of the time" (20%, n=39), "most of the time" (17%, n=33), or "all of the time" (18%, n=9) when engaging in vaginal intercourse with their primary partner.

Second Partner

Of the participants (20%, n=39) reported having vaginal or oral intercourse with a second partner. Out of this number, (19%, n=37)[4] reported having vaginal intercourse with at least one other sexual partner other than their primary partner within the past three months, 13% (n=5/37) reported using condoms with the second partner in the past three months "none of the time." While 87% (n=32/37) of the participants who engaged in vaginal intercourse with a second partner within the past three months reported using condoms or other latex barriers with the second partner "some of the time" (16%, n=6/37) "most of the time" (22%, n=8/37) and "all of the time" (49%, n=18/37) when engaging in vaginal intercourse with a second partner.

Birth Control

Over half of the participants, 55% (n=107) were currently using some form of birth control. Tubal ligation was the most common form of birth control reported (16%, n=32), followed by Depoprevera (13%, n=26). Condoms (4%, n=7) were the fifth most common form of birth control used (refer to Table 4 for a complete list of birth control methods). There were no significant differences in the frequency of condom use among participants who reported using birth control other than condoms (M= 1.88, SD = 1.01) and those who did not (M= 1.90, SD = 1.00), $t(187) = .25$, $p = .61$.

When participants were asked about their perceptions about their partner's attitudes toward condom use, the majority of participants (59%, n=115) reported that their partner "never" refused to use some form of protection. Forty percent (n=79) of the participants reported that their partner refused to use some form of protection "some of the time" (19%, n=37), "most of the time" (5%, n=9), or "always" (17%, n=33).

When asked if the participants, themselves "refused to use any form of protection?" the majority of participants (70%, n=137) reported that they "never" refused to use any form of protection. Thirty percent of the participants reported that they refused to use some form of protection "some of the time" (17%, n=34), "most of the time" (3%, n=5) or "always" (10%, n=20). When asked who was more likely to initiate condom use, the majority of participants (57%, n=112) reported that they (the participant) were more likely to initiate condom use, followed by both (the participant and their primary partner) (17%, n=33), their partner only (12%, n=24), and neither (6%, n=12). On average, participants reported high levels 4.57 (SD = .64) of condom self-efficacy on a scale of

one to five. Ten percent (n=19) of participants reported that their partner would become violent if they (the participant) initiated condom use.

Intercorrelations of the Independent and Dependent Variables

Interpersonal Relationship Control

Among the hypothesized predictors of interpersonal relationship control, financial independence demonstrated to have the strongest correlation with relationship control, however, this relationship was slightly above the cutoff for significance (r= -.13, p = .06). Relationship control was related to the combined index of oral, anal, and vaginal intercourse with a primary partner (r= .11, p< .14), such that higher levels of relationship control were related to a higher frequency of condom use. Although not significant, this relationship was approaching a trend.

Perceived HIV Risk

Both cultural and cognitive behavioral factors were related to perceived HIV risk. Individuals who had higher levels of perceived HIV risk had lower levels of general fatalism perceptions (r= -.30, p< .05), and lower levels of sexual optimistic bias (r= -.17, p< .05). There was a trend level relationship between perceived HIV risk and engaging in vaginal intercourse with the primary and second partners (r= .12, p = .09).

Condom Self-Efficacy

Condom self-efficacy was related to a number of different variables including with relationship commitment (r= .18, p< .05), HIV risk (r= -.14, p= .05), general fatalism (r= -.13, p< .05), HIV knowledge (r= .15, p< .05), financial independence (r= .22, p< .05), participant attitudes toward condom use (r= .33, p< .05), and HIV protective behavior (anal, vaginal, and oral) with the primary (r= .19, p< .05) and

secondary partner (r= .33, p< .05). There were also trend level relationships with interpersonal relationship control (r= .12, p< .09) and relationship violence (r= -.12, p< .08) (refer to Table 8 for a complete list of correlations).

Testing the Model

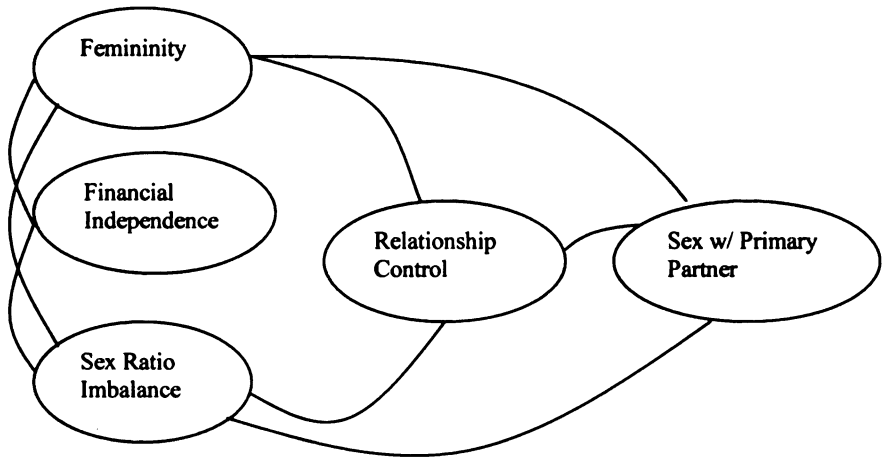
In order to examine the first research question of whether the proposed model of HIV protective behavior would fit for low-income African American women, structural equation modeling (SEM) techniques were utilized, using maximum likelihood (ML) as recommended by Hu and Bentler (1995). The first step in SEM is specification of a model and essentially confirming a hypothesized model. As currently recommended by the literature (Hu & Bender, 1998, 1999), model fit was assessed through the following indices and thresholds: standardized root meanresidual (SRMR) of .08 or smaller, root mean-square error of approximation (RMSEA) of .06 or smaller, and incremental fit index (IFI) of .95 or greater. Model chi square values were also assessed, and the likelihood ratio (LR) chi-square was used to compare the fit of the measurement and structural models. These fit indices guided the modification of the measurement model in order to specify and improve the model fit. Individual path coefficients were examined in order to test the specific hypotheses about relationships among variables in the proposed model . Indirect and direct effects were examined by path coefficients in the SEM. Multiple linear regression (MLR) techniques were utilized to examine the hypothesized moderated relationship.

The proposed model was examined in two steps: validating the measurement model and fitting the structural model (Anderson & Gerbing, 1988). The validation of the measurement model was accomplished primarily through confirmatory factor analysis

(principal axis factoring), first on the core model (Figure 2) with the constructs that were purported to have a direct effect on the outcome variable, then with the larger model, including the indirect effects on the outcome variable (Figure 3). Confirmatory factor analysis (CFA) was used to confirm that the indicators sorted themselves into factors corresponding to how the author linked the indicators to the latent variables. CFA models in SEM are used to assess the role of measurement error in the model. Structural Equation Modeling (SEM) goodness-of-fit tests were examined to determine if the pattern of variances and covariances in the data were consistent with a structural (path) model specified by the author. Once the measurement model was validated, the structural model was examined.

Transformations. Several variables had significant negative or high kurtosis and skew which pose model fit and estimation problems for the measurement model in SEM. If skew and kurtosis values were over the absolute value of three, transformations were conducted. In some instances, when skew improved, kurtosis became worse or the opposite would occur. Therefore, some values maintained a relatively high kurtotic value (refer to Tables 6 and 9). These log transformations were applied to particular items and scales to better meet the assumption of multivariate normality for SEM. Among the variables that were included in the final model, skew and kurtosis did not exceed the absolute value of three.

Figure 2 *Core Measurement Model*



Testing the Core Model

The initial core measurement model for only the independent variables that were purported to have a direct and empirical evidence of an indirect effect on HIV protective behavior was estimated. Kline (1998) recommends the two step approach of estimating a measurement model first to determine if the fit of the measurement model is found acceptable, then to proceed to the second step of testing the structural model by comparing its fit with other structural models and the initial measurement model. The results of the CFA indicated a moderately good overall fit to the data [$I\!I^2$(180, N=196) = 214.87, p = .04, IFI =.93, RMSEA =.03, SRMR = .06]. However, tests of univariate and multivariate normality indicated problematic distributions on several item-level indicators, and examination of item loadings showed that several were not significant. The next step was to modify the measurement model.

The goal of model modification is to develop parsimonious, good –fitting models with unimportant parameters deleted (Tabachnick & Fidell, 2001). The parameter estimates and modification indices output in AMOS were useful in evaluating unnecessary parameters. The following analyses were framed within an exploratory, rather than confirmatory mode although confirmatory factor analytic procedures were used for the respecification and reestimation of the model, known as "specification searches" (MacCallum, 1986).

Parameter estimates and modification indices suggested several other modifications. First, item 14C did not significantly load onto its latent construct of femininity and was therefore excluded from further analyses. The resulting coefficient alpha for the new seven-item scale was $\forall$ =.76. Second, two of the three indicators (20A, 20B) for the latent construct Financial Independence had a large negative skew and kurtosis. Log transformations to improve distribution were successfully conducted on these two items. Third, based on model specification problems (e.g., low inter item correlations with the other variables and single item indicators), the construct Sex Ratio Imbalance was excluded from further analyses due to model specification problems. Principal axis factor analyses yielded low reliability for Sex Ratio Imbalance, and as such, none of the three indicators loaded significantly onto the latent construct. Additionally, the overall construct did not significantly contribute to the overall prediction of the model, which provided further support for the decision to exclude this variable from subsequent analyses.

Lastly, two error terms from the femininity construct (14O " aware of others feelings" and 14U "understanding of others") were allowed to covary because these two

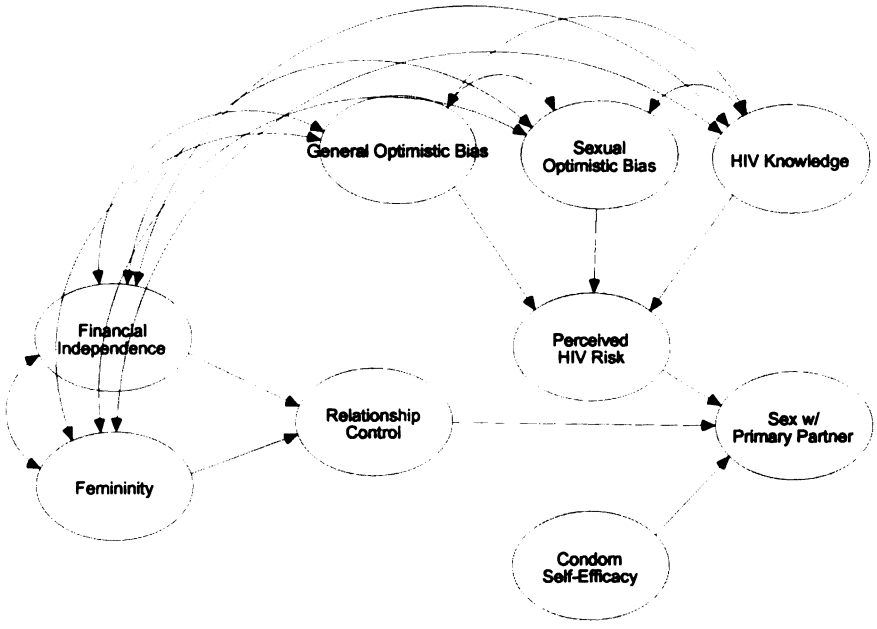
items were conceptually more similar to each other than to other items and appeared to share measurement error (Hoyle, 1991). Random measurement error is generally assumed to be independent of other variables, and the strength of various relationships can be misestimated if correlated errors are not reflected in the model. A liklihood ratio chi square difference test was conducted. The LR Chi square difference test is the most commonly used method for comparing the fit of two nested models. The results yielded 96 degrees of freedom and a chi-square of 114.23, which was significant at $p < .05$. This indicated that the structural model did not fit the data as well as the CFA, which allowed all constructs to freely covary; this suggested that better-fitting models might exist.

Testing the Core Structural Model

After conducting all of the aforementioned modifications, the modified measurement model was estimated. The results demonstrated that the model provided an excellent fit to the data [$I\!T^2(84, N=196) = 100.64, p = .10$, IFI =.96, RMSEA =.03, SRMR = .05]. All measurement parameters were significant and in the expected direction (refer to Table 13).

Figure 3

Final Structural Model



The next step in data analysis was to conduct a CFA on the entire measurement model (Figure 3). The entire measurement model extended the modified core measurement model by including the variables that were purported to have an indirect effect on the outcome variable of HIV protective behaviors. The initial entire measurement model was estimated in a confirmatory factor analysis. [$I\!T^2(395, N=196) = 423.26, p = .00$, IFI =.98, RMSEA =.02, SRMR = .06]. Table 14 reports the goodness-of-fit statistics for the latent variable models.

Parameter estimates and modification indices suggested several modifications. The constructs of sex ratio imbalance, HIV fatalism, and general optimistic bias had distribution problems and did not have significant regression weights and did not

correlate with other constructs in the model. These three constructs were excluded from further analysis. Additionally, six error terms were freed and allowed to covary because the items were theoretically similar and highly correlated (refer to Appendix C); therefore, their error terms were allowed to covary within, but not across constructs (Hoyle, 1991). Modifications were made to the latent construct of condom self-efficacy. Five indicators originally comprised this construct. However, Item 32A, "I can buy condoms or dental dams without feeling embarrassed," and item 32B, "I can carry condoms or other latex barriers around with me in case I have sex," were excluded from further analyses due to a lack of correlation with the outcome variable HIV protective behaviors compared with the other three items, large kurtosis and violations of external parallelism. It is essential that the items relate identically or, at least are similar to theoretically linked covariates (Cheong & Raudenbush, 2000). In addition, these items represented a conceptually different aspect of behavior related to condom acquisition and access, in contrast to the remaining three items which specifically addressed condom use behavior. The remaining scale consisted of three items (32C, 32F, 32G) with a coefficient alpha of (α= .51), which, although it yielding a lower coefficient alpha than the original alpha of (α= .64) obtained for this sample, represents a conceptually consistent measure of condom self-efficacy. Measurement loadings for all items were significant. The modified model provided an excellent fit [I^2(395, N=196) = 423.37, p =.16, IFI =.98, RMSEA =.02, Standardized RMR = .07].

Estimating the Structural Model

Based on the CFA, the structural model was estimated and the results yielded a model that was a good fit to the data [I^2(412, N=196) = 462.94, p =.04, IFI =.96,

RMSEA =.03, SRMR = .07]. The correlations among the exogenous variables were calculated (refer to Table 6). The magnitude of the direct and indirect effects in the model and the proportion of variance explained in the frequency of HIV protective behavior was examined (refer to Tables 11 and 12). The change in fit between successively estimated models was assessed through the use of a likelihood ratio (LR) chi-square difference tests. The results yielded 17 degrees of freedom and a chi-square of 39.63, which was significant at $p = .002$. This indicated that the structural model did not fit the data as well as the CFA, which allowed all constructs to freely covary; this suggested that better-fitting models might exist. However, the proposed model met the criteria for excellent fit on all indices and had a small model chi-square that was significant at $p = .04$. Therefore, the parameter estimates generated from the final model were used to examine the specific hypothesized relationships at a .05 significance level.

Results of the Hypotheses Testing

HYPOTHESIS: Three cultural factors: gender roles, financial independence, and sex ratio imbalance, will have a direct effect on interpersonal power.

In order to test the effects of the cultural variables on interpersonal control, the direct and indirect estimates of the structural equation model were examined. The results demonstrated that femininity and financial independence did not have significant direct effects on interpersonal control (refer to Table 11), and the construct sex ratio imbalance was excluded from analyses in the early phase of data analysis due to measurement problems in the SEM model.

Traditional feminine roles did not have a direct effect on interpersonal control. The standardized regression weight was .00 ($z = .01$, $p = .99$). Financial independence did not have a direct effect on interpersonal control. The standardized coefficient was -.04 (z

= -.44, p =.66). Although non significant, contrary to the hypothesized direction, individuals who reported higher levels of financial independence had lower levels of interpersonal control in their relationship as expected. As noted, the construct of sex ratio imbalance was excluded from further analysis in the structural equation model due to measurement problems; therefore, the relationship between perceived sex ratio imbalance and interpersonal control was not examined.

HYPOTHESIS: Higher levels of interpersonal power will predict higher levels of protective behaviors.

In order to test the second hypothesis of a direct relationship between interpersonal control and HIV protective behavior, the direct and indirect estimates of the structural equation model were examined. The results demonstrated that there was no direct relationship between interpersonal control and HIV protective behavior (∃= .08, p = .67) (refer to Table 11).

Most of the conceptual and some of the empirical research on women and HIV have strongly supported a relationship between interpersonal power and HIV protective behavior. The construct of HIV protective behavior was examined as condom frequency as done in most HIV prevention studies, however, in order to place condom use within an HIV specific context, an additional analysis with a newly created dichotomous variable was utilized.

Logistic Regression

A logistic regression was conducted in order to determine whether interpersonal relationship control would predict condom use specifically for HIV protective behavior. The dichotomous variable created by the self generated responses to the item, "how do

you protect yourself against HIV?" was used as the outcome variable (e.g., condom use yes/no). The effect of relationship control while controlling for perceived HIV risk was examined. The results of the logistic regression indicated that relationship control was significantly associated with condom use as an HIV protective behavior (Wald = 6.14, $p < .05$). In this model, women with higher interpersonal relationship control were nearly twice as likely to report condom use for HIV protection than women with lower relationship control (OR = 1.85).

Table 15

Summary of Logistic Regression Analysis for Interpersonal Relationship Control Predicting Condom Use as an HIV Protective Behavior (n=196)

	Condom Use for HIV Protection			
Predictor	B	*SE B*	*Odds Ratio*	*p value*
Block 1				
HIV Risk	-.07	.19	.92	.70
Block 2				
Relationship Control	.62**	.25	1.85	.01
Constant	-1.32			
χ^2	7.45			.02
Df	2			

HYPOTHESIS: Sexual self-efficacy will mediate the relationship between power and HIV protective behaviors.

To test the third hypothesis of whether condom self-efficacy mediated the relationship between interpersonal control and HIV protective behavior, the indirect effects of the structural equation model were examined (MacKinnon, Lockwood,

Hoffman, West, & Sheets, 2002). Condom self-efficacy did not demonstrate significant mediation of the relationship between interpersonal control and HIV protective behavior (condom frequency with the index of oral, anal, and vaginal intercourse). The direct effect of interpersonal control on condom self-efficacy is (∃=.14,p=27), the direct effect of condom-self-efficacy on HIV protective behaviors is (∃=.23, p<.05), and the indirect effect of interpersonal control on HIV protective behavior is (∃=.04, p= .14)

HYPOTHESIS: Three culturally relevant factors: optimistic bias, fatalism, and HIV knowledge, will have a direct effect on perceived risk.

To test the hypothesis of whether three culturally relevant factors (optimistic bias, fatalism, and HIV knowledge) have a direct effect on perceived HIV risk, the direct and indirect effects of the structural equation model were examined. Two of the three hypothesized relationships were supported.

As predicted, a direct, negative relationship was demonstrated between sexual optimistic bias and perception of HIV risk. The standardized regression weight was -.61(z= -3.40, p < .05). Individuals who reported higher levels of sexual optimistic bias reported lower levels of perceived HIV risk. A direct, negative relationship was also demonstrated between general fatalism and the perception of HIV risk .The standardized regression weight was -.31 (z = -2.75, p < .05). Individuals with higher levels of general fatalistic attitudes were more likely to report lower levels of perceived HIV risk. HIV knowledge did not have a significant direct effect on perceived HIV risk. The standardized regression weight was .00 (z = .86, p = .39).

HYPOTHESIS: Perceived HIV risk will moderate the relationship between interpersonal power and protective behaviors. Specifically, the relationship between interpersonal power and protective behaviors will only exist in the presence of perceived risk.

To test the hypothesis of whether perceived HIV risk moderated the relationship between interpersonal control and HIV protective behaviors, a multiple linear regression (MLR) was conducted to test Baron and Kenny's (1986) criteria for a moderating variable. The results did not detect any significant main effects, [F (2, 193) = 1.40; p = .25] or interactions, [F (3, 193) = .18; p = .68]. Perceived HIV risk did not significantly moderate the relationship between relationship control and HIV protective behaviors (refer to Table 16).

Table 16

Moderated hierarchical regression analysis: HIV risk as a moderator of the effect of relationship control on condom frequency with oral, anal, and vaginal intercourse (N=196).

Variable	B	SE B	β	p-value	)R^2	)F	p-value
Block 1 – main effects					.01	1.4	.25
HIV Risk	-.07	.09	-.06	.45			.45
Relationship Control	.15	.11	.09	.20			.19
Block 2 – main plus interaction effect					.00	.18	.68
HIV Risk	-.08	.09	-.06	.41			.41
Relationship Control	-.15	.12	.10	.19			.19
Interaction	-.05	.13	-.03	.68			.68

R^2 = .00

Additional Analyses on Subsample

Additional MLR analyses were conducted in order to examine the role of interpersonal power on a subsample of (n=69) participants for whom the proposed relationships were hypothesized to be more relevant. This subsample consisted of

participants who reported perceiving some level of HIV risk, did not indicate being in a monogamous relationship or using monogamy as an HIV protective behavior, and whose partner had less favorable attitudes toward condom use. Interpersonal relationship control did not significantly predict HIV protective behavior after controlling for perceived HIV risk (∃=.18, p = .14). However, in this small sample the relationship approached a trend level. A power test indicates that increased power to find an effect of this size significant for a two-tailed p < .05, would require a sample size of 233. This finding suggests that relationship control may be more relevant for a subsample of individuals who perceive themselves to be at risk, are possibly confronted with resistance when negotiating condom use (partner's negative attitude), and do not use monogamy as an HIV protective behavior (refer to Table 17).

Table 17

Relationship control as a predictor of HIV protective behavior (condom frequency with oral, anal, and vaginal intercourse), while controlling for perceived risk (N=69).

Variable	B	SE B	β	p-value	)R^2	)F	p-value
Block 1 – Control variable					.03	1.74	.19
HIV Risk	-.19	.14	-.16	.37			.19
Block 2 – plus Relationship control					.03	2.21	.14
HIV Risk	-.13	.15	-.11	.37			.37
Relationship Control	.28	.19	.18	.14			.14

R^2 = .03

DISCUSSION

The purpose of this study was to propose an integrated model of HIV protective behavior for low-income African American women. Racial and ethnic minorities have been disproportionately affected by HIV/AIDS since the beginning of the epidemic, and now represent the majority of new AIDS cases (CDC, 2004). Though heterosexual transmission has risen for all women, African American women continue to account for the vast majority of new HIV cases among women of all ethnicities. The changing face of the epidemic continues to challenge researchers and service providers to develop new methods and strategies for curbing the increasing rates among specific "high risk" populations. A new line of HIV prevention research that accounts for the contextual factors which place particular groups at increased risk for contracting HIV promises to provide useful information that can inform prevention strategies for African American women.

The model combined traditional models of health behavior with contemporary health models that include culturally relevant variables. More specifically, the proposed model took a gender and culture specific approach to examining the relationship between interpersonal relationship power and HIV protective behavior. As suggested by the current research literature, the cultural context in which this relationship occurs was explored.

As suggested by the theoretical literature, the specific cultural constructs that were purported to influence interpersonal relationship power and perceived HIV risk were investigated. In the proposed model, the hypothesized cultural predictors of interpersonal power included: gender roles, financial independence, and perceived sex ratio imbalance.

The cultural predictors of perceived risk included: fatalism, optimistic bias, and HIV knowledge. The findings from this study demonstrated that the data were a good fit for the proposed model, suggesting that the theoretical model provided a reasonable framework for examining HIV protective behavior for low income, African American women. However, some of the specific hypothesized relationships were not supported in the proposed model.

The cultural constructs of optimistic bias and fatalism were significant predictors of HIV risk perceptions, while HIV knowledge was not. The importance of one's worldview over traditional cognitive behavioral factors influenced by culture has considerable implications for intervention and warrants further investigation. The proposed relationships between interpersonal relationship power, perceived HIV risk, and HIV protective behaviors were not significant in the model analysis. However, subsequent additional analyses yielded support that the model and hypothesized relationships may be more relevant under specific circumstances and for a specific subset of the sample. The model findings in addition to the descriptive findings for the entire sample will be discussed below.

The Proposed Integrated Model

Interpersonal Power and HIV Protective Behavior

The proposed integrated model in the current study goes beyond the individualistic cognitive behavioral approaches to consider the role of culture and relationship dynamics in the HIV protective behavior of low-income African American women. Gender based inequalities that result in power differentials within intimate interpersonal relationships can place some women at an increased susceptibility for HIV

infection. More specifically, the gender specific HIV literature purports that women who have certain levels of power, operationalized as control and decision-making, within their intimate relationships are able to employ the necessary HIV precautionary behaviors when warranted (Amaro & Gornemann, 1992; Gomez & Marin, 1993; Mantell et al, 1995; Timmons et al., 1998). This study examined an integrated model to test the hypothesis that interpersonal relationship power, operationalized as control in relationships, would predict HIV protective behavior, operationalized as condom use frequency. In the model, the relationship between interpersonal control and HIV protective behaviors was not supported. In the structural equation model, the level of relationship control reported by women did not significantly predict their HIV protective behavior. This finding is inconsistent with much of the theoretical literature on gender related factors and HIV protective behaviors (Amaro, 1995; Amaro & Raj, 2000; Wingood & DiClemente, 2000). However, this finding is not surprising in light of the interpersonal relationship power literature, Amaro and Raj (2000) discuss the difficulty of assessing relationship power and its relationship with HIV protective behavior.

There are a number of factors that may have influenced the relationship between interpersonal power and HIV protective behavior in the current model, including the difficulty of empirically examining the construct of power. Power has been conceptualized and operationalized in a number of different ways, and the HIV prevention field has yet to reach a consensus on a definition. This study utilized a definition of power from the social psychological literature, where power is conceptualized as control and decision making, specifically at the interpersonal level.

The methodological challenges (low coefficient alpha) of attempting to measure a complex construct such as interpersonal power may have contributed to the inability to detect a significant relationship between power and HIV protective behavior. In addition, the construct of power was examined only from the women's perspective. While the women's perspective is critical for understanding the motivation behind particular HIV protective behaviors, the study of dyadic relationship factors may need to consider the other member of the dyad's perspective on power within their relationship.

Additional analyses on the relationship between interpersonal relationship power and HIV protective behaviors.

Because the model failed to support the well-substantiated relationship between interpersonal relationship power and HIV protective behavior, two additional analyses were conducted to further examine this relationship. The first used a subset of the sample for whom the relationship between interpersonal power and HIV protective behavior may be more relevant. The second utilized a different outcome measure of HIV protective behavior.

Consistent with the HIV prevention literature, the current study operationalized the outcome variable of HIV protective behavior as the frequency of condom use. The specific motivation behind this condom use or nonuse was not identified (e.g., birth control, STD prevention, monogamous and unnecessary). Since condom use requires the cooperation of both partners, it was important to account for the influence of partner attitudes toward condom use. Therefore, a subset of the sample for whom interpersonal relationship power would be more relevant to the use of condoms was identified. The women in this subset reported not using monogamy as a form of HIV protective behavior

(implying that condom use was perhaps relevant), having a primary partner with negative attitudes toward condom use (implying that she would have to use power to negotiate with a resistant partner) and perceiving themselves to be at some level of risk for HIV (implying that she had a motivation to engage in HIV protective behavior).

In the first analysis, a multiple linear regression was utilized to examine the effect of interpersonal relationship control on HIV protective behavior (condom frequency) while controlling for perceived HIV risk on the subsample. Since the subsample was selected because they did perceive themselves to be at risk, the interaction between power and HIV risk was removed from the analysis. In this subset, interpersonal power was a stronger predictor of HIV protective behavior. Given the small sample size, the probability value of .14 is suggestive of a relationship between interpersonal relationship control and HIV protective behavior.

In a second analysis a different outcome variable was used. One item on the survey asked women to self-identify how they protected themselves against HIV. From this item, a dichotomous (i.e., identified/did not identify condom use as an HIV protective behavior they engaged in) outcome variable was created. Approximately one quarter of the sample identified condom use as at least one strategy that they used to protect themselves against HIV.

A logistic regression was conducted on the entire sample to examine the relationship between interpersonal power and condom use as a self-identified HIV protective behavior using this newly created dichotomous outcome variable. The findings demonstrated that interpersonal relationship control was a significant predictor of condom use ($p < .05$). It is unclear why the relationship was significant with this outcome

variable and not with the condom frequency outcome variable. It may be because interpersonal control plays a more important role when condom use is specifically for the purposes of HIV protective behavior. It may also be due to the fact that the outcome variable used in the logistic regression required the women to independently generate their own responses. This may have minimized a positive response bias to report that they were using condoms to protect themselves.

This dichotomous outcome variable was not used in the model or subsequent analyses because of the measurement problems it would introduce due to the violation of multivariate normality in the structural equation model and the overall limitations of dichotomous variables. The significant result of the logistic regression further demonstrates the complexity of the relationship between interpersonal power and HIV protective behavior along with the need to understand the contextual conditions under which this relationship occurs.

Cultural Contextual Factors in the Proposed Model

In addition to examining the relationship between interpersonal power, HIV protective behavior and traditional cognitive behavioral health factors, this study also examined the cultural factors that influence these relationships. Cultural variables that were hypothesized to have a direct effect on perceived HIV risk and interpersonal relationship control were included in the model. Most of the literature on these constructs is conceptual rather than empirical. The cultural constructs that were hypothesized to have a direct effect on perceived risk included: optimistic bias, fatalism, and HIV knowledge. The cultural constructs that were hypothesized to have a direct effect on

interpersonal control included: traditional feminine gender roles, financial independence, and perceived sex ratio imbalance.

The Role of Perceived HIV Risk

Both traditional and contemporary health theories acknowledge the importance of perceived risk in the role of precautionary health behaviors. This study hypothesized that perceived HIV risk would moderate the relationship between interpersonal control and HIV protective behaviors. This hypothesis was not directly supported in the model analysis; however, additional analyses on the aforementioned subset of the sample (for whom risk was present and therefore power was relevant), demonstrated that interpersonal control became a stronger predictor of HIV protective behavior, as demonstrated by the larger regression coefficients. While perceived HIV risk significantly predicted HIV protective behaviors, as expected from previous analysis, neither interpersonal control nor the interaction between perceived risk and interpersonal control was significant in the model.

Consistent with the research literature, the women in this study overall did not perceive themselves as being at risk for HIV (Cochran & Mays, 1993; Estrada & Quintero, 1999; Hobfall et al., 1993). The perception of risk has been examined in a number of different health contexts; however, there has been relatively little empirical examination of the cultural predictors of perceived risk within the context of HIV for African American women.

Cultural Predictors of Perceived Risk

This study examined three culturally relevant predictors of perceived HIV risk. One predictor, HIV knowledge, was a traditional behavioral health predictor of perceived

risk. However, it was examined as a cultural predictor in this context due to the influence that lack of access to health services (Cochran & Mays, 1993) and distrust of government and mainstream institutions by low-income African American women have on HIV knowledge (Klonoff & Landrine, 1997). Two additional cultural influences on perceived risk suggested by the literature were included: fatalism and optimistic bias. The results from this study are consistent with the literature on the cultural influences of risk. As hypothesized, both sexual optimistic bias and a perceived sense of general fatalism had a direct effect on an individual's HIV risk perceptions in the model. Interestingly, HIV knowledge did not have a direct effect on perceived risk in the model.

HIV Knowledge. The majority of women in this study reported previously receiving some form of HIV education and were fairly knowledgeable about the transmission of HIV. However, the women were slightly less knowledgeable about the high rate of HIV transmission within the African American community. This lack of knowledge about African American transmission rates may perhaps be related to an underestimation of their own risk. Although HIV knowledge did not have a direct effect on perceived risk, after accounting for the effects of other influencing factors (e.g., sexual optimistic bias and fatalism), the correlation matrix demonstrated that general HIV knowledge was significantly related to perceived risk ($r = .21, p < .05$). The women who had higher levels of knowledge also had higher levels of perceived HIV risk. The lack of a direct effect of HIV knowledge on perceived risk is indicative of other influential factors more specific to African Americans.

Optimistic Bias and Fatalism. Optimistic bias is the tendency to view oneself as invulnerable (or less likely than others) to experiencing negative life events, while

fatalism has been characterized as viewing life events as being "out of one's control." Both optimistic bias and fatalism have been linked with spirituality or belief in a higher power. Although the specific level of religiosity or spirituality was not assessed, the majority of women in this study reported having some type of religious affiliation.

Optimistic bias. Optimistic bias is characterized by the belief that other people, but not one's self, will develop a disease, or experience other negative effects (Brannon & Feist, 2003). In the current study, psychometric analyses suggested that optimistic bias was comprised of two dimensions, sexual optimistic bias and a single item indicator of general optimistic bias. The exploratory measurement model suggested that sexual optimistic bias would be more parsimonious in the final structural model. Therefore a single item indicator of general optimistic bias was excluded from examination in the final structural model. The results of the model demonstrated that sexual optimistic bias had a direct effect on perceived risk. Overall, the current sample had high levels of sexual optimistic bias and low levels of perceived HIV risk. Otherwise stated, the women felt that the consequences of sexual behavior would not happen to them and they were not at risk for HIV. Some additional reinforcement for the high rates of sexual optimistic bias may include the finding that the majority of women and virtually all of their primary partners had tested negative for HIV. In addition, although the African American HIV/AIDS incidence (60%) and prevalence (58%) rates are comparable to that of the national rates, Michigan does not receive the widespread prevention campaigns often seen in other larger disease epicenters (e.g., New York, Los Angeles), which may also contribute to the lowered knowledge of HIV within the African American community. This may also contribute to an increased optimistic bias.

Fatalism. The literature asserts that African American women generally feel that their lives are guided by a higher power and their life circumstances are beyond their control (Powe, 1996). Psychometric analyses in the current study suggested that fatalism was comprised of two dimensions, general fatalism and a single item indicator of HIV fatalism. The exploratory measurement model suggested that general fatalism would be more parsimonious in the final structural model therefore; the single item indicator of HIV fatalism was excluded from examination in the final structural model. Overall, the women in this study felt that various life events were out of their control.

Implications of Optimistic Bias, General Fatalism, and HIV Knowledge

While conceptually different, the constructs of sexual optimistic bias and general fatalism intertwined with one another to yield interesting findings about this sample. The women in this study felt that general life events were out of their control. However, in terms of sexual behavior and despite high levels of HIV knowledge, the women were optimistic that they would not have to deal with the unwanted or negative consequences of sexual behavior.

The Role of Interpersonal Relationship Power

Interpersonal relationship power was operationalized as control and decision-making and measured as interpersonal relationship control. As previously noted, the well substantiated relationship between interpersonal relationship power and HIV protective behaviors was not supported in the model, but was significant in the logistic regression using an alternate outcome measure of HIV protective behavior. The lack of support for this relationship in the model was perhaps due to a number of methodological issues including measurement limitations. Researchers have argued that interpersonal power is

not examined within various cultural contexts (Amaro & Raj, 2000). However, there has been little discourse on exactly what a cultural context of power for African American women would entail. The findings from the proposed model did not support the hypothesis of the three cultural predictors of interpersonal control. Traditional feminine gender roles and financial independence did not have significant direct effects on interpersonal control. There are several possible reasons for the lack of significance found among these cultural variables on interpersonal control.

Cultural predictors of Interpersonal Relationship Power

Financial independence. Overall, the women in this study reported high levels of financial independence. The construct of financial independence predicting power in relationships is not unique to African American women. However, historically African American women have generally been viewed as having higher levels of interpersonal control within their relationships specifically due to their financial contribution to the household in comparison with their White and Latina counterparts (Bowleg, 1998). This history of sharing financial responsibilities or being the main breadwinner in a household has had lasting implications (Hill, 2002). It has been suggested that lack of financial independence is particularly disempowering for African women because of the significance of finances within these relationships, particularly for low-income women. While the structural equation model did not yield any direct effects on interpersonal control, the correlation matrix for the dependent and independent variables did demonstrate a positive trend level finding between financial independence and relationship control (r= .13, p = .06). Women who had higher levels of financial independence had higher levels of interpersonal control in their relationships.

Femininity. Another hypothesized cultural predictor of interpersonal relationship control was traditional feminine gender roles. The women in this study reported overall high levels of traditional feminine gender roles. However, research has demonstrated that Eurocentric conceptualizations of gender roles may not be generalizable to low-income African American women (Hill, 2002). Prescribed cultural scripts dictate that African American women adhere to more traditional gender roles within the context of intimate relationships. However, research has viewed African American women as taking on more androgynous and masculine gender roles in society as the primary caretaker in her family (Hill, 2002). Increased research is needed to understand the duality of women's gender roles and how they play out within the dynamics of intimate relationships and HIV protective behaviors.

Sex ratio imbalance. Another hypothesized cultural predictor of interpersonal relationship control was a perceived sex-ratio imbalance. One of the criteria for participating in this study was the existence of a present or recent sexual relationship with a male partner. Although all of the women included in the study met this criterion, somewhat surprisingly, the consensus among the women was a high sex ratio imbalance of African American women to African American men. Despite this perceived sex ratio imbalance, the majority of women felt confident about their ability to find a partner if they wanted to. The lack of variability and a very low coefficient alpha ($\forall$=.35) for this construct posed measurement problems in the model and was excluded from further analysis in the model. In addition, the correlation matrix did not yield any relationships between sex ratio imbalance and interpersonal control.

The role of violence. Researchers have found that violence within the context of intimate relationships plays a significant role in the HIV protective behavior of women in general and requires specific and direct attention in the field of HIV (Wu, El-Bassel, Witte, Gilbert, & Chang, 2001). While the proposed model examined very general notions of relationship power, the role of violence in relationships was acknowledged, specifically in the descriptive data. In the current study, there were a relatively small proportion of women (10%, n=19/196) who reported perceiving themselves as being at risk for violence if they were to initiate condom use with their primary partner. Data on intimate partner violence show that African American women experience intimate partner violence at a rate 35% higher than that of White females, and about two times the rate of women of other races (US Dept of Justice, 2002). Descriptive analysis in the current study demonstrated trend level findings that the women who did perceive themselves as being at risk for HIV were more likely to perceive their partner as becoming violent (r= -.12, p= .08) if they initiated condom use and in turn were less likely to feel efficacious about condom use behaviors (r= -.16, p< .05). Due to the fact that male perpetuated violence against women is the leading cause of injury to women in the US (US Dept of Justice, 2002), violence against women has been considered to be a critical factor in the ability of women to negotiate safer sex behaviors. The women in this study who perceived their partner as becoming violent if they (the woman) initiated condom use, were more likely to have negative attitudes toward condom use, making condom use a less desirable option due to its perceived harmful consequences.

Intimate partner violence is representative of control in intimate relationships. While violence was not specifically used as a proxy for control in the current study, the

data demonstrated a trend level correlation between perceived violence (r= -.12, p= .08) and interpersonal relationship control. Male perpetuated violence within the context of intimate relationships is one method that is used to control, keep women subordinate and is viewed as a "manifestation of gender inequality" (Koss et al., 1994, p. 4) and warrants further in depth investigation in the HIV field.

The complexity of traditional behavioral constructs and their relationships within specific cultural contexts was demonstrated in the proposed model. The descriptive analysis of the data from the current study allowed for a more detailed description of the target population for whom these relationships were modeled.

The Sample: Low-Income African American Women

A significant proportion of the of HIV research literature on low-income African American is comparative in nature with their White and Latina counterparts and fails to empirically examine culture and gender specific models based on inherent cultural antecedents. In addition, most of the published literature; on low-income African American women is based on outdated assumptions and treats this group as homogenous. Very little is known about the within group differences in terms of dyadic relationships and HIV protective behaviors. This sample of participants were purposively selected for this study because they reflect a segment of the population who have been identified by researchers and interventionists as being at increased risk for HIV, due to lower levels of education, socioeconomic status, the practices of potential partners within their "sexual partner pool," and in turn, a marginalized status in the dominant society. This marginalized status has been purported to result in a compromised sense of empowerment in general and more specifically within intimate relationships (Timmons & Sowell,

1998). All of the women in the study were considered economically disadvantaged, or low-income, but did not specifically fit the presumed stereotypes for low-income minority women.

Similar to other studies, the women in this sample were recruited primarily from health or social service agencies from medium to large urban areas. The average level of education was a little higher than typically reported in the research literature, however, the rate of unemployment and income levels were comparable to other studies (Bowleg et al., 2000; Dancy, Marcantonio, & Norr, 2000; Ehrhardt et al., 2002). Inconsistent with previous studies, the women in this sample had relatively high levels of HIV knowledge and were overall confident in their ability to engage in HIV protective behavior (Carey et al., 1997; Landrine & Klonoff, 1997). Despite the fact that the majority of new HIV cases occur within heterosexual relationships among African American women, little is known about the male-female relationships within the African American community.

Description of intimate relationships

As one of the criteria for participating in this study, all of the women were in a current or recently ended, sexual relationship. The majority of women in this study had children and nearly half of the women lived with their primary partner and shared or pooled their finances with their primary partner. The majority of the women reported being in a "monogamous" or "serious" relationship with approximately equal levels of commitment to the relationship by the women and their partner. On average, the women in this study reported being in egalitarian relationships, where they shared control and decision making with their primary partners.

Despite low levels of perceived HIV risk, nearly half the women in this study reported that their primary partner had sexual relations with someone else during some point in their relationship. A smaller proportion of women reported having had sexual relations with someone other than their primary partner in the past three months. In some circumstances sexual relations with a second partner occurred while the women were in relationships with a primary partner. The presence of multiple sexual partners places these women at increased risk for HIV.

HIV risky behaviors. Traditional health research assumes that perceived susceptibility to any condition or disease is the primary motivation for the avoidance of risky behavior and the initiation of precautionary behavior. Behavior is thought to be directed toward the goal of sustaining or improving one's health. However, this involves a personal evaluation of the required behavior, and in turn one's attitude toward their own perceived susceptibility or risk. For the purposes of this study and in accordance with the guidelines set forth by the Centers for Disease Control and Prevention as done in most HIV prevention studies, HIV protective behaviors was defined as consistent condom use. Inconsistent condom use and/or sexual relations with multiple partners increases the risk of HIV transmission and despite a relatively good level of knowledge about general HIV transmission, and reportedly high levels of condom self-efficacy, condom use remained variable with primary partners and was slightly more consistent in the presence of a second partner.

Condom use among African American women has demonstrated to be more often commonly associated with STD/HIV protection rather than contraceptive use (Amaro et al., 2002). Condom use was variable in this population. While the majority of women

endorsed condom use as the method they used to protect themselves against HIV, nearly half of the women in this sample reported not using condoms in the past three months with their primary partner. The other half of the women varied in the consistency of condom use over the past three months with their primary partner. Less than one fourth of the women reported always using condoms in the past three months.

The majority of the women in this study reported that neither they and their partners "never" refused to use condoms implying that they mutually agreed whether or not condoms were used. If condoms were used, the woman reported being the one who was most likely to initiate the behavior, placing the onus of condom use and negotiation on her. Interestingly, it was the partner's, not the participant's, attitude toward condom use that was related to the outcome variable of HIV protective behaviors (condom use frequency), though not in the expected direction. Women in this study who perceived their primary partner as having a negative attitude toward condom use were surprisingly more likely to use condoms (r= -.16, p< .05). Perhaps this was because the women were aware that their partner negatively evaluated condoms, which may decrease the likelihood of him using condoms with a second partner, thereby placing her at increased risk. This finding suggests that the women in the current study played a significant role in the decision of whether or not condoms were used.

It is important to note that studies have found that African American women who use condoms consistently are more than seven times more likely to perceive themselves as having high self efficacy over using condoms and having greater control over their partner's use of condoms (Wingood & DiClemente, 1997). Higher rates of condom self-

efficacy were significantly related to higher rates of HIV protective behavior (r= .21, p=.05) in the current study.

Condom self-efficacy. The hypothesis of condom self-efficacy mediating the relationship between interpersonal relationship control and HIV protective behaviors was not supported in the model due to the earlier finding of interpersonal control failing to predict HIV protective behavior. While the hypothesis of condom self-efficacy as a mediator in the model was not supported, there were a number of interesting relationships.

First, condom self-efficacy was significantly related to relationship commitment (r= .18, p< .05). The women in this study who felt more committed to their relationship in comparison with their partner, reported higher levels of confidence in their ability to engage in the behaviors related to condom use, condom self-efficacy. Less commitment by the women's partner was perhaps associated with feelings of possible partner infidelity and may have motivated the women to feel more efficacious in terms of condom use. This finding is further supported by the significant correlation between relationship commitment and perceived HIV risk (r= .20, p< .05). The women in this study who reported higher levels of relationship commitment than their partners, perceived themselves to be at greater risk for HIV in comparison with the women who reported that their partner was more committed to their relationship than they were.

The combination of individual and perception of partner related factors that are associated with condom self-efficacy further demonstrates the importance of looking at the role of the partner in HIV protective behavior.

Relationship Status and HIV Protective Behavior

The HIV literature suggests that the perception of one's relationship (monogamous or not) is currently one of the most salient predictors of HIV protective behavior among women of color in the research literature (Hobfall et. al., 1993; Kelly & Kalichman, 1995; Logan et al., 2002; Sobo, 1993; Weeks et al., 1995). Research demonstrates that relationship status or length can inhibit perceived HIV risk and protective behaviors. The descriptive data from the current study demonstrate that the women in this study perceived themselves to be at low risk for HIV infection, based on their own and their partner's behavior. In some instances this finding may have been accurate however, as noted, over half of the women in this sample reported that their partner or they had sexual relations with someone else during some point in their relationship.

Some literature suggests that condom use is stigmatized among African Americans as a sign of casual relationships (Catania et al, 1994; Carovano, 1991; Fullilove et al., 1990). Consistent with the research literature, descriptive analyses of the current study demonstrated a significant finding that women who indicated being in a casual or open relationship were more likely to use condoms (M=2.02, SD=1.04) in comparison with the women who reported being in monogamous relationship (M=1.67, SD =.88) $t(91) = -1.95$, $p < .05$. One possible explanation for this finding is that monogamous women may not believe themselves to be at risk for HIV because they feel a sense of security from having one sexual partner, and as demonstrated, may not feel the need to use condoms because they do not perceive a valid threat.

As demonstrated by this and other study findings, there are a myriad of individual, partner, cultural, and gender related factors that contribute to the decision of whether or not to use condoms. It would be erroneous to assume that the motivation behind this decision is the same for all members of a particular group therefore, an increased understanding of particular at risk groups is critical in curtailing the HIV epidemic.

Limitations of the Current Study

There are a number of methodological limitations of this study. A number of these limitations reflect the new generation of gender specific HIV prevention research. The increasing number of human sexuality studies have been initiated in response to the HIV epidemic, yet methodological developments in the field of sex research have been slow in meeting the demands of these complex investigations (Cantania et al., 1990). Efforts to study the HIV-related sexual behavior of minority populations are hampered by the fact that most of the methodological work in sex research has been conducted with White, middle-class college students and are unlikely to be generalizable to low-income African American women.

First, many of the measures used in this study had a low internal consistency. However, this is not uncommon with HIV research and low-income populations with limited education levels. Given the nature of sexuality research moderate coefficient alphas are acceptable in this particular domain due to the challenges of measuring such complex constructs. However, they may still limit the ability to detect significant relationships.

Second, research has demonstrated that measures within the sexual domain may invoke socially desirable responses, especially in self-report, face-to-face interviews (Cantantia et al., 1990). The women in this study may have been reluctant to rate their behaviors unfavorably or admit that they are indeed engaging in HIV risk behavior.

Third, instead of assessing actual partner behavior, women's perceptions of their partner's behavior was assessed and may not provide true measures of partner characteristics. However, these perceptions do serve as valuable indicators of participants behaviors in relation to her perceptions about her partner. This was also evident for the interpersonal relationship control construct. Relationship control occurs within a dyadic relationship, yet only one person in the dyad's perception was evaluated. A more accurate appraisal of relationship control may include both individual's perspectives.

Fourth, the findings from this study may be generalizable only to low-income African American women of a certain behavioral risk profile and not applicable to African American women of other socioeconomic statuses or other behavioral risk profiles (e.g., substance use, trading sex for money). While there is some overlap, the factors examined in this study only pertain to heterosexual HIV transmission and do not adequately address the factors related to substance use or trading sex for money.

Lastly, the majority of participants were somewhat homogenous in their perception of HIV risk. Overall, the perception of HIV risk was low. Given this low level of perceived risk, issues of negotiating HIV protective behavior become less relevant. The proposed model and hypothesized relationships may have been more applicable, given a more diverse sample in terms of HIV risk perception.

Strengths of the Current Study

This is the first known study to empirically model the suggested culture and gender specific variables related to HIV protective behavior for low-income African American women, as guided by the current theoretical literature. Although there is support for the inclusion of these variables in the literature, there are very few studies that have empirically examined these complex relationships. The current study's findings support the influential role of culturally relevant factors on traditional behavior constructs, specifically for perceived HIV risk, which is the basis of most behavior change models.

There remains a need for more empirical research on low-income African American women. This group has been identified as a "difficult to reach" population and much of what is known about the cultural context of African American women in terms of HIV behavior is conceptual. This study was able to recruit a moderate sized sample of African American women who reflect the characteristics of the population that is experiencing increasing incidence rates of HIV in Michigan and throughout the United States. Research often examines this group as homogenous in terms of risk and behaviors, however, this study identifies specific subgroups who require distinct attention. The current study highlights the importance of developing more gender and culture specific models to understand the array of complex relationships identified by the research literature. In addition, it points to the importance of examining the influence of partner related factors on these relationships, including the role of violence in relationships. This study contributes to the research literature on low-income African American women by providing descriptive information about their perceptions,

behaviors, and attitudes, which support and add new perspectives to the current literature. Furthermore, some of the hypothesized cultural predictors of traditional cognitive behavioral constructs demonstrated to be just as important or stronger in the overall model as the conventional well substantiated predictors. These findings provide further merit for the importance of culture when examining risk-reducing behaviors.

Implications for Interventions

The results of this study yield several important implications that may inform HIV risk reduction interventions for low-income African American women. First, theoretical models pertaining to HIV protective behaviors must be specific to the circumstances of the women's relationships. Although identified as one of the fastest growing risk groups, all low-income African American women are not at risk for contracting HIV. While prevention messages have stated that reducing the number of sexual partners may be an effective method of lowering one's risk of HIV infection, only a quarter of the women in this study reported mutual monogamy as a method they used to protect themselves against HIV. The majority of women in this study reported condom use as the method they used to protect themselves against HIV, yet their self-reports of their actual condom use was variable indicating that the women know how to protect themselves, but are choosing not to do so in the presence of a valid risk.

This particular proposed model in the current study may not be applicable to women who are in mutual monogamous heterosexual relationships with a seronegative partner in which both partners are abstaining from HIV risk behaviors. Instead, this model is more applicable to women who perceive themselves as being at risk for HIV infection. This current study identified at least four subgroups of women that are not

explicitly identified or distinguished in the research literature on low-income African American women. These groups include: 1) women who accurately perceive themselves to be at low risk for HIV and for whom power is less consequential, 2) women who inaccurately perceive themselves to be at low risk for HIV and for whom power is inconsequential because they do not see the need to use it, 3) women who accurately perceive themselves to be at high risk for HIV and are too disempowered to employ HIV protective behavior, and 4) women who perceive themselves to be at high risk for HIV and have the power to employ HIV protective behaviors. By clearly identifying which group is being targeted at a specific point in time, specific strategies may be deemed more effective.

While low-income African American women are disproportionately overrepresented in the HIV/AIDS epidemic, it is imperative to understand which group the women who are being targeted for risk reduction services, generally fit into with the understanding that women could easily move from one group to another in a given time period, given a change in relationship status. The three-month effect of most HIV interventions indicates that some interventions need to be as dynamic as the changing contexts of some, not all, members of the target populations. Interventions must be individually tailored for the specific groups and current circumstances accordingly.

Second, perceived HIV risk tends to be low in this population. Given the prevalence of HIV in this population, it appears that the overall perceptions of African American's risk may be underestimated or inaccurate. If one does not perceive there to be a valid risk present, they are unlikely to engage in precautionary behaviors. Accurate knowledge is at the core of most if not all risk reduction HIV interventions. If knowledge

is theoretically supposed to increase an individual's accuracy of assessing their risk, the finding of cultural factors predicting perceived risk over HIV knowledge is intriguing. Consistent with the critiques of the traditional health models, knowledge alone is not enough to motivate individuals to engage in health protective behaviors and cultural cognitive factors must receive more than the cursory "culturally competent" attention to improve accurate risk assessment.

Lastly, while perceived violence prompted by condom initiation was reported by a small segment of the sample, the prevalence of violence within these relationships is still unknown. There remain significant and trend level relationships between violence and HIV related behaviors including condom self-efficacy, partner and participant attitudes toward condom use, and perceived risk. The deterrent of precautionary behavior, including the perception of violence, must be properly accounted for in the development of HIV risk reduction interventions that stress condom negotiation within the contexts of intimate relationships. Failure to account for the role of violence will fail to target those factors that may place women at increased risk for infection.

Future Directions

This study's findings support the need to develop and empirically examine culture and gender specific models of HIV protective behavior with all groups, while, tailoring the research questions to the boundaries of that group. Most of the cultural relationships examined in this current study have never been empirically modeled in an HIV protection model for low-income African American women, and have mostly conceptual support for their investigation. In order to further understand some of the conceptual relationships in a relatively understudied population like low-income African American women,

qualitative research techniques are suggested. These techniques can better inform the necessary quantitative methods and the operationalization of constructs such as interpersonal power, which will in turn engender the development of more rigorous group specific models. While this study was specifically developed for the purposes of examining the experiences of African American women, the proposed model lends support for the development of models that address within and between group differences.

In the future, this study will be replicated with the inclusion of partners to truly examine the dyadic nature of relationships which are the context of HIV infection for most African American women. Future investigations can utilize the findings of traditional research, however, researchers must continue to examine these relationships within their specific ecological cultural contexts and not assume homogeneity within groups.

CONCLUSIONS

This study provides further descriptive information on the HIV related behaviors, attitudes, and perceptions of low-income African American women in addition to testing a new model of HIV protective behavior for low-income, African American women. While only some of the specific hypotheses were supported in the model, further analyses (e.g., correlation and regression) suggest that the model is worthy of further investigation with relevant populations and that the hypothesized relationships between variables may need to be further conceptualized. The relationship between perceived risk and HIV protective behaviors can be misunderstood without a cultural context and understanding of the motivation and resources to engage in protective behaviors once actual risk is

perceived. There has been a lack of success of HIV interventions in the African American community, evidenced by the increasing rates of HIV infection, while rates have decreased in other populations. This lack of success may be the direct result of lack of interventions that are specifically tailored for the unique needs of this group.

The sample in the current study differed somewhat from the samples collected in other studies of low-income African American women. This sample had slightly higher levels of education, HIV knowledge, and relationship power than reported in related studies (Carey et al., 1997; Dancey et al., 2000; Murphy et al., 2001; Sterk, Klein, & Elifson, 2003;Timmons & Sowell, 1998). Unlike other studies, the majority of women in this sample perceived themselves as possessing the necessary knowledge and skills to protect themselves against HIV, yet did not feel that they were at risk. The majority of the women did not have the need to use interpersonal power to protect themselves against HIV because they did not feel that there was a risk present. It is those women who perceived themselves to be at risk for contracting HIV, had less interpersonal control in their relationships, and were more likely to experience a violent reaction from their partner if they initiated condom use, who are of most interest and need to be specifically targeted for HIV interventions.

The existing HIV risk reduction models have been largely based on individual cognitive behavioral approaches while ignoring the dynamics of intimate relationships (Amaro & Raj, 2000). While the proposed model indirectly examined partner related factors on the women's attitudes and behaviors (e.g., perceived risk, condom self-efficacy), more specific perceived partner related factors were further examined in the additional descriptive analyses and yielded a wealth of rich data about this population.

These data provide important new insights into low-income African American women's risk for HIV infection, in particular, the specific barriers to consistent condom use and the factors that are relevant to women's interpersonal relationships.

Among economically disadvantaged African American women, HIV is simply one more risk with which to be concerned (Mays & Cochran, 1988). The behavioral response to HIV is contingent on one's perception of the disease's danger relative to the hierarchy of other risks present and the existence of resources available to act accordingly. Competition for low-income women's attention may include more immediate survival needs such as housing, children, personal safety, financial stability, and competition for male companionship when a sex ratio imbalance is perceived. Additionally, low-income African American may still view HIV/AIDS as a gay White male disease rather than a threat to their own communities (Cochran & Mays, 1993).

While interpersonal relationship power and perceived risk are global constructs, the influence of African American cultural antecedents on both of these constructs is important. As noted, the significant predictors, optimistic bias and fatalism are related to religiosity or spirituality in the African American community and have been historically used as coping mechanisms to deal with the difficulties of a marginalized status in mainstream society (Jaggers, 2000). This high levels of optimism found in this community are consistent with the desire of most individuals, who aspire to increase or sustain their well-being. This aspiration is what makes interventions to decrease the transmission of HIV possible.

APPENDICES

APPENDIX A

Table 1

Recruitment Strategies

Location	On-site Recruitment Service Organizations	Community Organizations	Snow-balling	Number of screened ineligible participants	Participant Rejection Rate
Lansing[1]	(n=19)	(n=10)	(n=9)	(n=9)	
Flint[2]	(n=120)		(n=9)	(n=24)	(n=6)
Saginaw[3]	(n=25)		(n=7)	(n=7)	(n=3)
Grand Rapids[4]		(n=12)			
TOTALS	(N=164)	(n=22)	(n=25)	(n=40)	(n=9)

[1] Baker Donora Community Center
Lansing Community
[2] Genesee County Health Department, Women Infant and Children (WIC)
Work First Program-Flint
[3] Janes Street Health Clinic Women Infant and Children (WIC)
[4] Grand Valley State Health Conference

Table 2
Demographic characteristics of participants

Data Collection Sites		**Age**	**Education**	**Yearly Income**
Sub samples				
Lansing	20% (n=39)	M = 29.91 SD = 9.50	M = 13.92 SD = 2.33	M = $8,584 SD =$9,062
Saginaw	15% (n=29)	M = 34.67 SD = 11.38	M = 12.14 SD = 1.20	M = $4,337 SD =$6,045
Flint	65% (n=128)	M = 29.56 SD = 8.57	M = 12.16, SD = 1.60	M = $5,005 SD =$7,730
Entire Sample	100% (N=196)	M=30.38 SD ±9.34	M=12.51 SD ± 1.95	M=$5,619 SD ± $7,900

	Yes	**No**	**Mean**
*Married	3% (n=5)	97% (n=191)	
Live w/ partner	36% (n=70)	64% (n=126)	
Share/pool finances w/ partner	43% (n=84)	57% (n=112)	
Eligibility for Public Assistance	86% (n=169)	14% (n=27)	
Have Children	86% (n=169)	14% (n=27)	M = 2.85 SD ± 1.75
Religious Affiliation	72% (n=141)	27% (n=53)	
**Avg # of people living in the home			M = 3.69 SD ± 1.85
Length of time with partner			M = 4.39 *(years)* SD ± 4.59

	Full-Time Work	Part-Time Work	Home maker	Student	Not working	Other
Employment Status	14%(n=27)	28 (14%)	14 (7%)	26 (13%)	72 (37%)	25 (13%)

*Separated for at least 3 months
**Including the participant

Table 3

Relationship Descriptives

	Monogamous	**Serious**	**Casual**	**Open**
Participants' description of their relationship	7% (n=12)	61% (n=120)	23% (n=46)	7% (n=14)
	YES	**NO**		
Current sexual relationship	82% (n=161)	*18% (n=35)		
Current birth control use	55% (n=107)	45% (n=89)		
Previous HIV education received	70% (n=137)	30% (n=58)		
Previous HIV Test	88% (n=172)	12% (n=24)		
Partner Previous HIV test	66% (n=129)	10% (n=20)		
	Positive	**Negative**	**Don't Know**	
Results of Partner's test	.5% (n=1)	64% (n=126)	1% (n=2)	
	YES	**NO**	**MEAN**	
Sexual relations w/ a second partner during the last 3 months	20% (n=39)	80% (n=156)	M =1.58 SD ± 1.45	
	Male	**Female**		
Gender of Second partner	19% (n=37)	2% (n=3)		
	YES	**NO**	**Don't Know**	
Sexual relations w/ second partner while in a relationship w/ primary partner	13% (n=26)	7% (n=14)	----------	
	YES	**NO**	**Don't Know**	
Partner's sexual relations outside of the relationship	47% (n=93)	42% (n=82)	11% (n=21)	
	Male	**Female**	**Don't Know**	
Gender of partner's secondary partner	------	93% (n=95)	7% (n=7)	
	Participant	**Partner**	**Both**	**Neither**
Who is most likely to initiate condom use?	56% (n=110)	12% (n=24)	17% (n=33)	6% (n=12)

*Were in a sexual relationship w/in the past 3 months of taking the survey

Table 4

Types of Birth Control Used

	Count
Condoms	4% (n=7)
Depo (Shot)	13% (n=26)
Patch	5% (n=10)
IUD/Norplant	2% (n=3)
Oral Contraceptives "Pill"	7% (n=14)
Hysterectomy	2% (n=4)
Tubul Ligation	16% (n=32)
Sterile	.5%(n=1)

Table 5

Please list all the ways that you protect yourself from getting HIV/ AIDS?

	Count
Condoms	65% (n=127)
Practice Mutual Monogamy	25% (n=49)
Regularly get an HIV test	13% (n=25)
Douche/wash after sexual intercourse	10% (n=19)
Know your partner is negative	10% (n=19)
Take birth control	5% (n=10)
Partner pulls out before ejaculation	4% (n=7)
Practice oral/anal intercourse	.5% (n=1)

Table 6

Psychometric properties of final measures: Means, standard deviations, and range

Measure	Dimensions	*M*	*SD*	Possible Range	Cronbach Alpha	Skew	Kurtosis
Gender Roles							
	Femininity	4.24	.57	1-5	.74	1.18	2.43
Partner Dependency							
	Financial Independence	1.15	.22	1-4	.62	-2.05	4.37
Interpersonal Power							
	Control	3.39	.65	1-5	.64	-.57	1.64
	Relationship Commitment	3.37	1.00	1-4	.80	-.10	-.17
Attitudes towards Condoms							
	Positive Partner Attitudes	2.38	.59	1-4	.75	.74	-.06
	Positive Participant Attitudes	2.79	.49	1-4	.67	-1.09	2.27
Protective Behaviors							
Frequency of Condom Use							
	w/ primary partner	1.92	1.00	1-3	N/A	I	I
	w/ second partner	2.73	1.06	1-3	N/A	I	I
	w/ all partners	1.97	.99	1-3	N/A	I	I
Condom Self-Efficacy		1.71	.36	1-5	.64	1.41	1.28
Sex Ratio Imbalance		4.09	.77	1-5	.35	-.90	1.09
HIV Perceived Risk		1.77	.81	1-5	.67	.94	.12
Fatalism							
	General Fatalism	3.87	1.01	1-5	.64	-.83	-.05
	HIV Fatalism	1.31	.82	1-5	S. Item	SI	SI
Optimistic Bias							
	General Optimistic Bias	2.27	1.07	1-5	S. Item	SI	SI
	Sexual Optimistic Bias	3.21	.62	1-5	.69	-.23	.28
HIV General Knowledge		.82	.12	0-1	.63	.33	6.65
HIV African American knowledge		.77	.26	0.1	.63	.89	-.07

I Condom frequency index
SISingle Item Indicator

Table 7

HIV Knowledge Frequency of Correct Responses

HIV KNOWLEDGE ITEMS	Correct (*N*=196)
Having sex with more than one partner can increase a person's chance of being infected with HIV.	99% (n=194)
A person will NOT get HIV if she or he is taking antibiotics.	97% (n=191)
Using Vaseline or baby oil with condoms lowers the chance of getting HIV.	96% (n=189)
A person can get HIV by sitting in a hot tub or a swimming pool with a person who has HIV.	94% (n=184)
There is a vaccine that can stop adults from getting HIV.	91% (n=179)
Showering or washing one's genitals/private parts, after sex keeps a person from getting HIV.	90% (n=176)
A person can get HIV from oral sex.	90% (n= 176)
A woman can get HIV if she has anal sex with a man	89%(n=175)
A woman cannot get HIV if she has sex during her period	89%(n=175)
A natural skin condom works better against HIV than does a latex condom.	89% (n=175)
The leading cause of HIV infection among African-American women is heterosexual contact, followed by injection drug use.	89% (n=175)
Pulling out the penis before a man climaxes /cums keeps a woman for getting HIV during sex	88% (n=173)
African Americans accounted for over half of the new HIV diagnoses reported in the United States	81% (n=159)
A person can get HIV by sharing a glass of water with someone who has HIV	79% (n=155)
People who have been infected with HIV quickly show serious signs of being infected	76% (n=148)
Taking a test for HIV one week after having sex will tell a person if she or he has HIV	72% (n=142)
There is a female condom that can help decrease a woman's chance of getting HIV	69% (n=135)
People are likely to get HIV by deep kissing, putting their tongue in their partner's mouth, if their partner has HIV.	62% (n=122)
African American women are twice as likely as White women to get HIV.	61% (n=120)
Coughing and sneezing Do Not spread HIV	59% (n=115)
All pregnant women infected with HIV will have babies born with AIDS	46% (n=91)

Table 8
Correlations of Independent and Dependent Variables

Subscale	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Femininity	—													
2. Financial Independence	.05	—												
3. Sex Ratio Imbalance	.14	.11	—											
4. General Fatalism	.05	.11	-.04	—										
5. HIV Fatalism	-.12	-.10	-.13	-.04	—									
6. General Optimistic Bias	-.03	-.01	-.19**	-.04	.06	—								
7. Sexual Optimistic Bias	-.03	.12	.10	.49**	.30**	-.01	—							
8. HIV Knowledge	-.22**	.04	.23**	-.33**	-.10	.02	.03	—						
9. Interpersonal Control	.02	.13	.05	-.02	.09	.04	.01	-.06	—					
10. HIV Risk	-.11	-.21**	-.09	-.30**	-.03	.01	-.17*	.21**	-.22**	—				
11. Condom Self-Efficacy	.12	.23**	.13	.02	-.07	-.07	.08	.17*	.15*	-.15*	—			
12. Violence	.03	-.22*	-.05	-.00	.03	.05	-.19**	-.12	-.12	.03	-.16**	—		
13. Relationship Commitment	.21**	-.10	.10	-.02	-.04	.12	-.01	.09	-.08	.20**	.18**	.09	—	
14. Partner Reactions	-.04	.07	.13	.05	.06	-.03	-.07	-.06	-.09	.02	-.02	.14	.05	—
15. Participant Reactions	-.11	.23**	.15**	-.04	.02	-.14*	.04	.14*	.08	.01	.33**	-.21**	-.01	.06

Table 8

Correlation table of all variables cont.

Subscale	1	2	3	4	5	6	7.	8	9	10	11	12	13	14	15
16. Vaginal Condom Use w/ Primary Partner	-.11	.11	-.06	-.07	-.08	-.01	.01	.19**	.09	-.02	.13	-.07	.03	-.16*	.11
17. Vaginal Condom Use w/ Second Partner	-.06	.02	.26	-.04	-.13	-.29	.02	.35*	.05	.01	.26	.17	.03	-.08	.07
18. Oral, Vaginal & Anal Condom Use w/ Primary	-.11	.13	-.06	-.04	-.10	-.02	.03	.16*	.11	-.08	.21*	-.08	.02	-.16*	.12
19. Oral, Vaginal & Anal Condom Use w/ Second	.09	.10	.19	.25	-.13	-.19	.19	.11	-.02	-.20	.31	.18	.03	-.20	.05

1.Femininity 2. Financial Independence 3. Sex-Ratio Imbalance 4. General Fatalism 5. HIV fatalism 6.General optimistic bias 7. Sexual optimistic bias 8. HIV knowledge 9.Interpersonal Control 10. HIV Risk 11. Condom self-efficacy 12. Violence 13. Relationship Commitment 14. Partner attitudes toward condoms 15. Participant attitude towards condom use 16. vaginal condom use with primary partner 17. vaginal condom use with second partner 18. oral,vaginal, anal condom use with primary partner 19. oral, vaginal, and anal condom use with second partner.

*Correlation is significant at the 0.01 level (2-tailed).

**Correlation is significant at the 0.05 level (2-tailed).

Table 9

Skew and Kurtosis values for log transformed variables

	Pre- Transformation		Post Transformations	
	Skew	Kurtosis	Skew (SE)	Kurtosis (SE)
Condom Self-Efficacy	-2.27	6.52	1.28	.90
Violence	3.50	11.40	3.13	8.49
HIV Fatalism	3.36	11.58	2.41	5.169
Financial Independence	-2.05	4.37	-1.48	1.72
Femininity	-1.18	2.42	-.26	-.24
	Individual Item Transformations			
Financial Independence 20A	-3.258	10.866	2.518	5.610
Financial Independence 20B	-1.536	1.591	1.144	.399

Table 10

Correlations Among Exogenous and Error Terms Variables in the SEM Model

Exogenous Variables			Estimated Correlations
Femininity	<-->	Financial_Independence	-.081
Sexual_Optimistic Bias	<-->	General_Fatalism	.181
*Financial_Independence	<-->	General_Fatalism	-.272
Sexual_Optimistic Bias	<-->	Financial_Independence	-.140
Femininity	<-->	General_Fatalism	.145
Sexual_Optimistic Bias	<-->	Femininity	.003
*HIVKNOW2	<-->	General_Fatalism	-.392
HIVKNOW2	<-->	Sexual_Optimistic Bias	-.147
HIVKNOW2	<-->	Financial_Independence	-.043
*HIVKNOW2	<-->	Femininity	-.207
Error Terms			
*Efemo (error terms)	<-->	Efemu (error terms)	.298
ERCd (error terms)	<-->	ERCe (error terms)	.187
ERCc (error terms)	<-->	ERCd (error terms)	-.141
*Eriskb (error terms)	<-->	Eriskc (error terms)	.456
Eriskc (error terms)	<-->	Eriske (error terms)	-.142

**Correlation is significant at the 0.05 level (2-tailed)

Table 11

Standardized Indirect Effects of SEM Model

	Relationship Control	HIV Risk	Condom Self-Efficacy	Sex with Primary Partner
General Fatalism	.00	.00	.00	.00
Financial Independence	.00	.00	-.01	.00
Femininity	.00	.00	.00	.00
Sexual Optimistic Bias	.00	.00	.00	.04
HIV KNOW	.00	.00	.00	.00
Relationship Control	.00	.00	.00	+.04
HIV Risk	.00	.00	.00	.00
Condom Self-Efficacy	.00	.00	.00	.00

**Correlation is significant at the 0.05 level (2-tailed)

+ = .14 **Correlation is significant at the 0.05 level (2-tailed).

Table 12

Standardized Direct Effects

	Relationship Control	HIV Risk	Condom Self-Efficacy	Sex with Primary Partner
General Fatalism	.00	-.31**	.00	.00
Financial Independence	-.04	.00	.00	.00
Femininity	.00	.00	.00	.00
Sexual Optimistic Bias	.000	.00	.00	.00
HIV KNOW	.00	.07	.00	.00
Relationship Control	.00	.00	.00	-.06
HIV Risk	.00	.00	.00	.25
Condom Self-Efficacy	.00	-.31	.00	.00

**Correlation is significant at the 0.05 level (2-tailed)

Table 13
Unstandardized and Standardized,Measurement Coefficients 3 (N = 196)

Items	Variables	B	∃	S.E.	C.R.	P
QUES14G	femininity	1.000	.558			
QUES14H	femininity	.740	.441	.155	4.778	***
QUES14I	femininity	.668	.567	.117	5.716	***
QUES14L	femininity	1.081	.720	.166	6.508	***
QUES14O	femininity	.659	.455	.136	4.848	***
QUES14U	femininity	.758	.549	.136	5.572	***
QUES14V	femininity	1.014	.640	.165	6.150	***
QUE20B44	Financial_Independence	1.000	.471			
QUE20A44	Financial_Independence	1.690	.941	.794	2.127	.033
QUESS22B	Relationship_Control	.494	.360	.134	3.695	***
QUES22C	Relationship_Control	.558	.396	.144	3.878	***
QUES22D	Relationship_Control	.664	.420	.176	3.775	***
QUES22E	Relationship_Control	.747	.528	.162	4.623	***
QUES23A	Relationship_Control	.783	.518	.165	4.762	***
QUES23C	Relationship_Control	1.000	.639			
QUES32G	Condom_Self-Efficacy	1.000	.584			
QUES32F	Condom_Self-Efficacy	1.070	.537	.345	3.103	.002
QUES32C	Condom_Self-Efficacy	.770	.410	.250	3.076	.002
QUES34A	HIV_Risk	1.000	.497			
QUES34B	HIV_Risk	.391	.402	.093	4.196	***
QUES34C	HIV_Risk	.493	.487	.105	4.708	***
QUES34D	HIV_Risk	1.198	.728	.203	5.900	***
QUES34E	HIV_Risk	1.032	.631	.187	5.521	***
QUES35A	General_Fatalism	1.000	.521			
QUES35B	General_Fatalism	1.462	.690	.277	5.275	***
QUES35C	General_Fatalism	1.435	.635	.276	5.204	***
QUES36B	Sexual_Optimistic Bias	1.000	.314			
QUES36D	Sexual_Optimistic Bias	2.384	.888	.568	4.195	***
QUES36E	Sexual_Optimistic Bias	2.275	.861	.542	4.200	***

Table 13 continued
Unstandardized and Standardized Structural Coefficients

Variables	Variables	B	∃	S.E.	C.R.	P
Financial Independence	Relationship_Control	-1.236	-.04	2.757	-.448	.654
femininity	Relationship_Control	-.007	-.01	.119	-.059	.953
Relationship Control	Condom Self-Efficacy	.096	.14	.084	1.133	.257
General Fatalism	HIV Risk	-.401	-.31	.146	-2.752	.006
HIVKNOW2	HIV Risk	.437	.07	.510	.857	.392
Sexual Optimistic Bias	HIV Risk	-1.250	-.61	.368	-3.395	***
Condom_Self-Efficacy	SEXWPR_A	.463	.23	.217	2.133	.033
HIV Risk	SEXWPR_A	-.068	-.06	.099	-.684	.494
Relationship Control	SEXWPR_A	.082	.06	.120	.683	.495

Note: $\chi^2(395) = 463.94, p < .05$; SRMR = .07; IFI = .96; RMSEA = .03

Table 14

Measurement and Structural Model Comparison Table

Model	ι^2	DF	SRMR	RMSEA	IFI
Core Measurement Model	214.87	84	.06	.03	.93
Core Structural Model	100.64	180	.05	.03	.96
			p		
LR Chi Sqaure Diff Test	114.23	96	*P*<.05		
Final Measurement Model	423.37	395	.06	.02	.98
Final Structural Model	463.94	412	.06	.03	.96
			p		
LR Chi Sqaure Diff Test	39.63	17	*p*=ns		

APPENDIX B

Consent Form

HEALTH and RELATIONSHIPS STUDY

Purpose of the Study: You are being asked to participate in a study that examines the influence of culture on relationships and the affect they have on women's health protective behaviors.

Procedures: You will be asked to complete a 60-minute questionnaire, which asks questions about your cultural beliefs, present and previous relationship(s), and your sexual behavior.

Compensation: You will be given $10.00 for completing the questionnaire.

Risks: There are no physical, legal or economic risks to participating in the study. It is possible that you might experience uncomfortable or adverse feelings from completing a questionnaire that asks questions about sensitive issues regarding personal beliefs, experiences, relationships and sexuality.

Benefits: This study will increase our understanding of the health practices of African American women, help to identify factors that increase protective behaviors among African American women, and possibly assist in the development of interventions to decrease the number of new HIV infections in this population. By participating you will be contributing to the understanding of women, relationships and healthy behaviors.

Confidentiality: "Your privacy will be protected to the maximum extent allowable by law." The survey is completely confidential. You will *not* be asked to put your name on a questionnaire and no one, including the researcher, will be able to associate your responses or other data with your name. Only the researchers and research staff will have access to data, except in rare circumstances in which a researcher may be compelled to break the confidentiality of subjects (e.g., in response to a subpoena or at the request of University Committee on Research Involving Human Subjects (UCRIHS), no absolute guarantees to privacy are possible.

Withdrawal: Participation in this study is voluntary. You have the right to discontinue participation in the study at any time. There are no penalties to you if you choose not to participate in this study or if you choose to withdraw or discontinue your participation

"If you have any questions about this study, please contact the investigator- Sinead Younge, (517) 353-9965, youngesi@msu.edu. If you have questions or concerns regarding your rights as a study participant, or are dissatisfied at any time with any aspect of this study, you may contact – anonymously, if you wish – Peter Vasilenko, Ph.D., Chair of the University Committee on Research Involving Human Subjects (UCRIHS) by phone: (517) 355-2180, fax: (517) 432-4503, e-mail: ucrihs@msu.edu, or regular mail: 202 Olds Hall, East Lansing, MI 48824. "

Your signature below indicates your voluntary agreement to participate in this study.

_____ ___/___/___

Participant's Signature Date

APPENDIX C

HEALTH AND RELATIONSHIPS QUESTIONNAIRE

Before we start I want to make sure that you know that all of the information that you provide is **confidential (your name will not be attached to it and no one but members of the MSU research team will see the answers that you provide).** This study is not affiliated with _____ (current service provider) or any other service providers. No one here or at any other place where you receive services will see your answers.

1. What ethnic or racial group do you feel you most closely identify with? _____

2. What is your date of birth? _/_____/_____ ***Ineligible if born after _/86**

3. Are you married? ☐No ☐Yes ***Ineligible if they are currently married**

4. During the past 3 months (e.g., August, 2004) have you been involved in a sexual relationship with a male partner? *By this I mean someone who you have had sexual intercourse with (with penetration), on more than two occasions.* ☐No ☐Yes

   ***Ineligible if they have not been in a sexual relationship in the past 3 months**

5. Are you currently trying to become pregnant? ☐No ☐Yes

   ***Ineligible if they are trying to become pregnant.**

6. Have you ever been tested for HIV, the virus that causes AIDS?
   ☐No **if no skip to question #9** ☐Yes

7. **If yes,** when was your last HIV test? _____ Month_____ Year

8. What was the result of your last (i.e., most recent) HIV test?

   ☐Positive ☐Negative ☐I don't know ***Ineligible if they are HIV positive**

9. What is you yearly income? _____ ***Ineligible if more than $40,000 per year**

10. Do you have any children? ☐No ☐Yes, How many? _____What are their ages? _____

11. Including yourself, how many individuals live in your household? _____

12. To the best of your knowledge, are you *eligible* for any public assistance? (e.g. Ingham county health plan, WIC, food stamps)?
    ☐No ☐Yes

12a. Are you *receiving* any public assistance (e.g., food stamps, AFDC, Medicaid, etc.)?

    ☐No ☐Yes (please specify) _____

**********End of screening**********

INELIGIBLE: "Thank you for your time and cooperation. At this time you do not fit the selection criteria for participation in this study. If you would like more information about health and African American women, we have some contact information that we would be happy to provide you with. Thank you again and have a great day!"

ELIGIBLE: "Thank you for your time and cooperation. You fit the selection criteria for participation in the study. If you would like to continue, there is a questionnaire that takes approximately 45 minutes to complete. After completing the questionnaire you will receive $10.00 cash for your participation.

* "If you are not able to participate at this time but would like to at a later date, we can schedule a future appointment."

13. Many of the questions I will be asking you will be about your relationship with the person who was your main sexual partner in the last 3 months. If you had a sexual relationship with more than one person during the past 3 months, this would be the person who you felt more involved with or committed to than anyone else. Please tell me the initials of that person_____.

Are you currently in a sexual relationship with ? _____ 9 No 9 Yes

If no, when did you stop seeing him? _____

PART 1: ABOUT YOU

The items below ask you about what kind of person you think you are. Each item consists of a pair of terms, with the letters A-E in between. For example:

Not at all good at sports	A	B	C	D	E	Very good at sports

For each of the pairs of words below, please choose the letter which describes where *you* fall on the scale. In the example above, if you think that you are not at all good at sports, you would choose A. If you think that you are pretty good at sports, you might choose D. If you are only medium, you might choose C and so on.

14. Using the scale below, please **circle** the letter that best describes what kind of person you think you are for each of the items. *Please circle only **one** letter for each item.*

a.	Not at all aggressive	**A**	**B**	**C**	**D**	**E**	Very aggressive
b.	Not at all independent	**A**	**B**	**C**	**D**	**E**	Very independent
c.	Not at all emotional	**A**	**B**	**C**	**D**	**E**	Very emotional
d.	Very submissive	**A**	**B**	**C**	**D**	**E**	Very dominant
e.	Not at all excitable in a MAJOR crisis	**A**	**B**	**C**	**D**	**E**	Very excitable in a MAJOR crisis
f.	Very passive	**A**	**B**	**C**	**D**	**E**	Very active
g.	Not at all able to devote my self completely to other people	**A**	**B**	**C**	**D**	**E**	Able to devote my self completely to other people
h.	Very rough	**A**	**B**	**C**	**D**	**E**	Very gentle
i.	Not at all helpful to others	**A**	**B**	**C**	**D**	**E**	Very helpful to others
j.	Don't like to compete with other people	**A**	**B**	**C**	**D**	**E**	Very much like to compete with other people
k.	Know a lot about the home	**A**	**B**	**C**	**D**	**E**	Know a lot about the world
l.	Not at all kind	**A**	**B**	**C**	**D**	**E**	Very kind
m.	Don't care about what other people say or think about me	**A**	**B**	**C**	**D**	**E**	Care very much what other people say or think about me
n.	Feelings not easily hurt	**A**	**B**	**C**	**D**	**E**	Feelings easily hurt
o.	Not at all aware of others' feelings	**A**	**B**	**C**	**D**	**E**	Very aware of others' feelings
p.	Can make decisions easily	**A**	**B**	**C**	**D**	**E**	Has difficulty making decisions
q.	Give up very easily	**A**	**B**	**C**	**D**	**E**	Never give up easily
r.	Never cry	**A**	**B**	**C**	**D**	**E**	Cry very easily
s.	Not at all self-confident	**A**	**B**	**C**	**D**	**E**	Very self-confident
t.	Feel very inferior	**A**	**B**	**C**	**D**	**E**	Feel very superior
u.	Not at all understanding of others	**A**	**B**	**C**	**D**	**E**	Very understanding of others
v.	Very cold in relations with others	**A**	**B**	**C**	**D**	**E**	Very warm in relations with others
w.	Very little need for security	**A**	**B**	**C**	**D**	**E**	Very strong need for security
x.	Falls apart under pressure	**A**	**B**	**C**	**D**	**E**	Stand up well under pressure

21. Now, I'd like to ask you a few questions about how your relationship with ***(main partner's initials)*** _____ works. Using the scale below, please describe how much you agree with the following statements:

1	2	3	4
Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree

22. Now, I'd like to ask you a few questions about how your relationship with ***(main partner's initials)*** _____ worked. Using the scale below, please **circle** the number to the right of each statement that best describes your answer:

a.	My partner does not have any input into my financial affairs.	1	2	3	4
b.	Without the financial assistance of my partner, I am not able to get by.	1	2	3	4
c.	My partner controls my financial spending.	1	2	3	4
d.	My partner depends on me to provide him with financial assistance.	1	2	3	4

1	2	3	4	5
Your Partner Completely	Your Partner Somewhat	Both of You Equally	You Somewhat	You Completely

a.	Who has more to say about whose friends you go out with?	1	2	3	4	5
b.	Who has more to say about what you do together?	1	2	3	4	5
c.	Who has more to say about how often you see one another?	1	2	3	4	5
d.	Who has more say about when you talk about serious things?	1	2	3	4	5
e.	Who has more say in making important decisions in your relationship?	1	2	3	4	5

23.

1	2	3	4	5
Your Partner Completely	Your Partner Somewhat	Both of You equally	You Somewhat	You Completely

a.	Who has more control of what your relationship is like	1	2	3	4	5
b.	Who gets their way when you and your partner disagree	1	2	3	4	5
c.	Who has more control of where your relationship is going in the future	1	2	3	4	5
d.	Who is more committed to your relationship	1	2	3	4	5
e.	Who tries harder to make your relationship work	1	2	3	4	5
f.	Who cares more about the relationship	1	2	3	4	5

PART 3: About Your Sexual Behavior

In this section, I would like to ask you some questions about your sexual relationship with ***(insert main partner's initials)*** _____. Some people may find the questions to be of a sensitive nature, therefore you may complete this section on your own if you so desire. My purpose in asking these questions is to learn about women's sexual relationships. Please remember, all information that you provide is **anonymous** and **confidential** **(that is no one but members of the MSU research team will see the answers that you provide).**

24. How often did any of the following behaviors occur with *(main partner's initials),* _____ within the past *3 months.* Using the scale below, please circle the correct response.

1	2	3	4
None of the time	Some of the time	Most of the time	All of the Time

a.	Had oral sex with a condom or dental dam.	**1**	**2**	**3**	**4**	**Didn't have oral sex**
b.	Had vaginal sex with a condom or other latex barrier	**1**	**2**	**3**	**4**	**Didn't have vaginal sex**
c.	Had anal sex with a condom or other latex barrier	**1**	**2**	**3**	**4**	**Didn't have anal sex**
d.	My partner refused to use any form of protection	**1**	**2**	**3**	**4**	
e.	I refused to use any form of protection.	**1**	**2**	**3**	**4**	

24a. Thinking about your relationship with _____, who is most likely to initiate condom use?

_____

25. Now, I'd like to ask you some questions about how you and **(*insert main partner's initials*)** _____ feel about condom use. Circle the appropriate answer:

1	2	3	4
Strongly Disagree	Somewhat disagree	Somewhat Agree	Strongly Agree

a.	Using a condom makes sex less enjoyable for me.	**1**	**2**	**3**	**4**
b.	If I asked my partner to use a condom, he would think that I am trying to protect our health.	**1**	**2**	**3**	**4**
c.	If I asked my partner to use a condom, he would get angry.	**1**	**2**	**3**	**4**
d.	Using a condom makes sex less enjoyable for my partner.	**1**	**2**	**3**	**4**
e.	If I asked my partner to use a condom, he would think that I'm having sex with other people.	**1**	**2**	**3**	**4**
f.	If I asked my partner to use a condom, he would agree.	**1**	**2**	**3**	**4**
g.	If my partner asked me to use a condom, I would get angry.	**1**	**2**	**3**	**4**
h.	If my partner asked me to use a condom, I would think that he is having sex with other people.	**1**	**2**	**3**	**4**
i.	If my partner asked me to use a condom I would agree.	**1**	**2**	**3**	**4**
j.	If I asked my partner to use a condom, he would get violent.	**1**	**2**	**3**	**4**
k.	If my partner asked me to use a condom, I would think that he is trying to protect our health.	**1**	**2**	**3**	**4**

26. Do you think ***(insert main partner's initials)***_____ has had sexual activities with another person at any time during your relationship?

9No 9 Yes 9 I don't know

26a. If yes was this individual (please check all that apply)

9 Male 9Female 9 Don't Know

27. Within the past 3 months, have ***you*** had sexual relations with someone other than your main partner?

9No (***If no please skip to question #31)*** 9 Yes ***(how many people excluding your main partner?)***

_____

28. If yes, was this individual(s)

9 Male 9 Female 9 Both Males and Females

****If you haven't had sex with someone other than your main partner in the past 3 months skip to question #31****

29. Thinking about any and/or all other individual(s) who you have had sexual relations with in the *past 3 months*, excluding (_____) your main partner, how often did any of the following behaviors occur, within the *past 3 months*? NOTE: We are interested in knowing about individual(s) *other* than *(main partner's initials* _____). Using the scale below, please circle the correct response.

1	2	3	4
None of the time	Some of the time	Most of the time	All of the Time

a.	Had oral sex with a condom or dental dam.	**1**	**2**	**3**	**4**	**Didn't have oral sex**
b.	Had vaginal sex with a condom or other latex barrier	**1**	**2**	**3**	**4**	**Didn't have vaginal sex**
c.	Had anal sex with a condom or other latex barrier	**1**	**2**	**3**	**4**	**Didn't have anal sex**
d.	My partner refused to use any form of protection	**1**	**2**	**3**	**4**	
e.	I refused to use any form of protection.	**1**	**2**	**3**	**4**	

30. Were you in a relationship with _____ when any of the above behaviors occurred? ***(main partner's initials)***

9No 9 Yes

SKIPPED QUESTIONED END HERE BEGIN WITH NUMBER 31

31. Please list all the ways that *you* protect yourself from getting HIV/AIDS? ***Check all that apply***

9 Regularly use latex barriers (e.g. condoms, dental dams)
9 Practice Oral/Anal intercourse
9 Practice Mutual Monogamy
9 Douche/Wash after sexual intercourse
9 Partner pulls out before ejaculation
9 Take birth control (e.g., pill, shot, etc)
9 Know your partner is negative
9 Regularly get an HIV test
9 Other _____
_____

32. Thinking about your behaviors related to sexual practices, please answer how much you agree or disagree with the statements below.

1	2	3	4	5
Strongly Disagree	Disa gree	Neither Agree or Disagree	Agree	Strongly Agree

a.	I can buy condoms or dental dams without feeling embarrassed.	**1**	**2**	**3**	**4**	**5**
b.	I can carry condoms or other latex barriers around with me in case I have sex.	**1**	**2**	**3**	**4**	**5**
c.	I can discuss using condoms or other latex barriers with someone that I may have sex with.	**1**	**2**	**3**	**4**	**5**
d.	I cannot put a condom on a penis that is erect or hard.	**1**	**2**	**3**	**4**	**5**
e.	I cannot discuss HIV/AIDS precautions with a doctor or nurse.	**1**	**2**	**3**	**4**	**5**
f.	I can discuss with a partner the use of condoms for HIV/AIDS protection when I'm already using other types of birth control (e.g., the pill, Depo-Provera, etc.)	**1**	**2**	**3**	**4**	**5**
d.	I can ask a potential partner to put-off or postpone sex if we don't have condoms or latex barriers available at the time.	**1**	**2**	**3**	**4**	**5**

PART 4: Attitudes and Beliefs

Now, I would like to ask you some questions about your opinions and beliefs in different situations. There is no right or wrong answer. We would like to know how you feel. Using the following scales, please circle the answer that you most agree with.

33. The following questions ask about your opinions, please circle the answer that best describes how you feel.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

a.	The number of eligible African American women outnumbers the number of eligible African American men.	**1**	**2**	**3**	**4**	**5**
b.	If I wanted to, I could find a new partner.	**1**	**2**	**3**	**4**	**5**
c.	There are plenty of available partners for African American women.	**1**	**2**	**3**	**4**	**5**
d.	It is difficult to find a suitable partner.	**1**	**2**	**3**	**4**	**5**
e.	African American men have many options for available partners.	**1**	**2**	**3**	**4**	**5**

34.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

a.	My sexual experiences do not put me at risk for contracting HIV/AIDS.	**1**	**2**	**3**	**4**	**5**
b.	There is a possibility that I may have HIV.	**1**	**2**	**3**	**4**	**5**
c.	I may have had sex with someone who has HIV	**1**	**2**	**3**	**4**	**5**
d.	I am at risk for HIV/AIDS	**1**	**2**	**3**	**4**	**5**
e.	My sexual partner(s) behavior may place me at risk for HIV/AIDS	**1**	**2**	**3**	**4**	**5**

35.

1	2	3	4	5
Definitely True	Mostly True	Not Sure	Mostly False	Definitely False

a.	People die when it is their time and there is not much that can be done about it.	**1**	**2**	**3**	**4**	**5**
b.	We must live for the present, who knows what the future may bring.	**1**	**2**	**3**	**4**	**5**
c.	It is not always wise to plan too far ahead because many things turn out to be the way they are for better or worse anyway.	**1**	**2**	**3**	**4**	**5**
d.	If I practice certain behaviors, I can protect myself against HIV	**1**	**2**	**3**	**4**	**5**
e.	There is not much a person can do to avoid getting HIV	**1**	**2**	**3**	**4**	**5**

36.

1	2	3	4	5
Much Greater	Slightly Greater	About the Same	Slightly Less	Much Less

a.	Compared to other African American women, my chances of experiencing A tragic event are……..…...	**1**	**2**	**3**	**4**	**5**
b.	Compared to other African American women, my chances of accidentally becoming pregnant are…..	**1**	**2**	**3**	**4**	**5**
c.	Compared to other African American women, my chances of Experiencing positive life events are……	**1**	**2**	**3**	**4**	**5**
d.	Compared to other African American women, my chances of Contracting a sexually transmitted disease are……	**1**	**2**	**3**	**4**	**5**
e.	Compared to other African American women, my chances of Contracting HIV are……...	**1**	**2**	**3**	**4**	**5**

PART 5: About HIV

37. Now, I would like to ask you some questions about HIV, the virus that causes AIDS. Please indicate whether you believe the statement is True or False.

a.	Coughing and sneezing DO NOT spread HIV.	**T**	
b.	A person can get HIV by sharing a glass of water with someone who has HIV.	**T**	**F**
c.	Pulling out the penis before a man climaxes/cums keeps a woman from getting HIV during sex.	**T**	**F**
d.	A woman can get HIV if she has anal sex with a man.	**T**	**F**
e.	Showering or washing one's genitals/private parts, after sex keeps a person from getting HIV.	**T**	**F**
f.	All pregnant women infected with HIV will have babies born with AIDS.	**T**	**F**
g.	People who have been infected with HIV quickly show serious signs of being infected.	**T**	**F**
h.	There is a vaccine that can stop adults from getting HIV.	**T**	**F**
i.	People are likely to get HIV by deep kissing, putting their tongue in their partner's mouth, if their partner has HIV.	**T**	**F**
j.	A woman cannot get HIV if she has sex during her period.	**T**	**F**
k.	There is a female condom that can help decrease a woman's chance of getting HIV.	**T**	**F**
l.	African Americans accounted for over half of the new HIV diagnoses reported in the United States.	**T**	**F**
m.	A natural skin condom works better against HIV than does a latex condom.	**T**	**F**
n.	A person will NOT get HIV if she or he is taking antibiotics.	**T**	**F**
o.	The leading cause of HIV infection among African-American women is heterosexual contact, followed by injection drug use.	**T**	**F**
p.	Having sex with more than one partner can increase a person's chance of being infected with HIV.	**T**	**F**
q.	Taking a test for HIV one week after having sex will tell a person if she or he has HIV.	**T**	**F**
r.	A person can get HIV by sitting in a hot tub or a swimming pool with a person who has HIV.	**T**	**F**
s.	A person can get HIV from oral sex.	**T**	**F**
t.	African American women are twice as likely as White women to get HIV.	**T**	**F**
u.	Using Vaseline or baby oil with condoms lowers the chance of getting HIV.	**T**	**F**

PART 6: BACKGROUND INFORMATION

38. Have you previously received any HIV education/information?

9 No 9 Yes _____

When? _____ (e.g., 2 years ago)

(please specify)

39. How would you rate your HIV knowledge?

Poor	Fair	Average	Good	Excellent
9	9	9	9	9

40. Has your main partner been tested for HIV, the virus that causes AIDS?

9 No 9 Yes 9 I don't know

40a. **If yes,** what was the result of your main partner's HIV test?

9 I don't know 9 Negative 9 Positive 9 N/A

40b. **If you do not know** if your partner was tested, what is your best guess of your main partner's most recent HIV status?

9 Negative 9 Positive 9 N/A

41. Are you currently using any kind of birth control? 9No 9 Yes If yes, which kind do you use?:_____

42. Which of the following best describes your work situation *(Please check **all** that apply)*?

9 I work full-time
9 I work part-time
9 I do not work
9 Other _____
9 I am retired
9 I work full-time taking care of my home and/or children
9 I am a full-time student (college, university etc.)

43. What type of work do you do? _____

44. Do you have a religious affiliation/orientation? (e.g., Baptist, Methodist, Agnostic, etc.)

9 No 9 Yes, **If yes please specify** _____

45. What is the **highest** grade you have completed in school?

APPENDIX D
HIV Resource Guide

Facts about HIV

- The HIV virus is found in blood, semen, vaginal fluids & breast milk.
- HIV is transmitted through sexual intercourse, intravenous drug use, blood-to-blood contact, by birth from mother to child and by breast-feeding.
- HIV is ***NOT*** an airborne virus and cannot be caught by being in the same room as an infected person or even by casual contact, e.g. a hugging an infected person or shaking his or her hand.
- HIV is the virus that causes AIDS, but not every person that is HIV positive will contract the AIDS disease.
- Condoms help prevent the transmission of during sexual intercourse.

Statistics on HIV

- The World Health Organization estimates that about 90% of HIV infections are heterosexually transmissions.
- The Center for Disease Control estimates that among women with HIV 75% were infected through heterosexual intercourse and 25% through injection drug use. Of these women 64% are African American.
- African American women are 13% of the female population in this country, but were 63% of the new AIDS cases in 1999.
- About 800,000 to 900,000 people in the US have the HIV infection and 1/3 (250,000 to 300,000) of them are unaware that they are infected.

Know Your Status: Resources

Today HIV is most commonly tested by taking a sample of saliva. However, it can also be tested though a special blood test.

- There are many places in the Saginaw area that provide free, anonymous, and confidential HIV testing and counseling
- The Hearth Home, Health Delivery, Inc.
  732 Hoyt Avenue (located behind St. Mary's Medical Center)
  Saginaw (989) 753-9011
- Saginaw County Health Department 1600 N. Michigan Avenue
  Saginaw (989) 758-3880
- Michigan AIDS Hotline (800) 872-AIDS
- CDC National AIDS Clearinghouse (800) 458-5231

APPENDIX E

PSYCHOMETRICS OF FINAL SCALES

GENDER ROLE SCALE-PAQ

Femininity

#14	ITEMS	*Means*	SD	*Item Total Correlations*
g.	Not at all able to devote my self completely to other people	4.19	1.13	.48
h.	Very rough	4.06	1.06	.37
i.	Not at all helpful to others	4.66	.74	.48
l.	Not at all kind	4.37	.95	.61
o.	Not at all aware of others' feelings	4.23	.926	.45
u.	Not at all understanding of others	4.39	.87	.51
v.	Very cold in relations with others	4.11	1.00	.53

Means	*SD*	*Range of Scores*	*Possible Range*	*Cronbach Alpha*
4.24	.57	1.50-5	1-5	.76

DELETED ITEMS

c.	Not at all emotional	3.84	1.15	.07

Relationship Control Scale

#22	ITEMS	*Mean*	*SD*	*Inter Item Correlations*
22b	Who has more to say about what you do together?	3.22	1.032	.29
22c	Who has more to say about when you see one another?	3.14	1.06	.27
22d	Who has more say about when you talk about serious things?	3.28	1.19	.33
22e	Who has more say in making important decisions in your relationship?	3.49	1.06	.45
23a	Who has more control of what your relationship is like?	3.32	1.14	.40
23c	Who has more control of where your relationship is going in the future?	3.47	1.18	.48

Means	*SD*	*Range of Scores*	*Possible Range*	*Cronbach Alpha*
3.39	.65	1-5	1-5	.64

Deleted items based on factor analysis and reliability testing.

23e.	Who tries harder to make your relationship work
23f.	Who cares more about the relationship

#22/ 23	ITEMS	*Means*	*SD*	*Inter Item Correlat-ions*
22a	Who has more to say about whose friends you go out with?	3.43	1.31	.33
22b	Who has more to say about what you do together?	3.22	1.03	.37
22e	Who has more say in making important decisions in your relationship?	3.49	1.06	.37
23c	Who has more control of where your relationship is going in the future?	3.47	1.17 8	.35
22c	Who has more to say about when you see one another?	3.14	1.06	.20
22d	Who has more say about when you talk about serious things?	3.28	1.19	.34
23a	Who has more control of what your relationship is like?	3.32	1.14	.32
23b	Who gets their way when you and your partner disagree?	3.87	1.32	.21

Relationship Commitment Scale

#22/ 23	ITEMS	*Means*	*SD*	*Inter Item Correlat-ions*
23d	Who is more committed to your relationship?	3.34	1.18	.27
23e	Who tries harder to make your relationship work?	3.47	1.29	.12
23f	Who cares more about the relationship?	3.32	1.03	.21

Means	*SD*	*Range of Scores*	*Possible Range*	*Cronbach Alpha*
3.37	1.00	1-5	1-4	.80

Condom Self-Efficacy

#32	ITEMS	*Means*	*SD*	*Item Total Correlations*
32a	I can buy condoms or dental dams without feeling embarrassed	4.71	.91	.395
32b	I can carry condoms or other latex barriers around with me in case I have sex	4.39	1.22	.427
32g	I can ask a potential partner to put-off or postpone sex if we don't have condoms or latex barriers available at the time.	4.63	.88	.302

DELETED ITEMS

#32	ITEMS	*Means*	*SD*	*Item Total Correlations*	*Reverse Coded*
32c	I can discuss using condoms or other latex barriers with someone that I may have sex with.	4.62	.96	.549	
32d	I cannot put a condom on a penis that is erect or hard,	2.00	1.38	-.03	*R*
32e.	I cannot discuss HIV/AIDS precautions with a doctor or nurse.	1.37	.10	.03	*R*
32f	I can discuss with a partner the use of condoms for HIV/AIDS protection when I'm already using other types of birth control (e.g. the pill, Depo-Provera,etc,	4.51	1.02	.32	

Perceived HIV Risk

#34	ITEMS	*Means*	*SD*	*Item Total Correlat-ions*	*Reverse Coded*
34a	My sexual experiences do not put me at risk for contracting HIV/AIDS	2.52	1.63	.40	*R*
34b	There is a possibility that I may have HIV.	1.33	.79	.43	
34c	I may have had sex with someone who has HIV	1.32	.82	.433	
34d	I am at risk for HIV/AIDS	1.81	1.33	.55	
34e	My sexual partner(s) behavior may place me at risk for HIV/Aids	1.90	1.33	.45	

Means	*SD*	*Range of Scores*	*Possible Range*	*Cronbach Alpha*
1.77	.81	1-4.20	1-5	.67

Fatalism

General Fatalism

#35	ITEMS	*Means*	*SD*	*Item Total Correlations*
35a	People die when it is their time and there is not much that can be done about it.	4.21	1.20	.394
35b	We must live for the present, who knows what the future may bring.	3.94	1.33	.510
35c	It is not always wise to plan too far ahead because many things turn out to be the way they are for better or worse anyway	3.45	1.42	.466

Scale Means	*SD*	*Range of Scores*	*Possible Range*	*Cronbach Alpha*
3.87	1.01	1-5	1-5	.64

HIV Fatalism

#35	ITEMS	*Means*	*SD*	*Item Total Correlations*
35d	If I practice certain behaviors, I can protect myself against HIV	1.31	.84	-.05

Deleted item due to negative wording.

35e	There is not much a person can do to avoid getting HIV	4.39	1.23

Optimistic Bias

Sexual Behavior Optimistic Bias Scale

#36	ITEMS	*Means*	*SD*	*Item Total Correlations*
36b	Compared to other African American women, my chances of accidentally becoming pregnant are...	3.77	1.27	.306
36d	Compared to other African American women, my chances of contracting a sexually transmitted disease are...	3.95	1.07	.622
36e	Compared to other African American women, my chances of contracting a HIV are...	4.16	1.05	.638

Scale Mean	*SD*	*Range of Scores*	*Possible Range*	*Cronbach Alpha*
3.21	.62	1.33-5	1-5	.69

General Optimistic Bias ITEM 36C

#36	ITEMS	*Means*	*SD*	*Item Total Correlations*
36c	Compared to other African American women, my chances of experiencing positive life event are.....	2.27	1.07	.638

Deleted item due to negative wording

36a.	Compared to other African American women, my chances of experiencing A tragic event are.....

Financial Independence

#20	ITEMS	*Means*	*SD*	*Item Total Correlations*
20a	I am able to take care of myself financially whether or not I am in a relationship	3.73	.68	.45
20b	In general, I am able to handle my monthly financial expenses by myself	3.47	.79	.45

Scale Mean	*SD*	*Range of Scores*	*Possible Range*	*Cronbach Alpha*
1.15	.22	1-4	1-4	.62

Deleted Item

#20	ITEMS	*Means*	*SD*	*Item Total Correlations*
20c	I rely on the assistance of others to help me get by	3.99	1.03	.14

Partner Attitudes Toward Condom Use Scale

#25	ITEMS	*Means*	*SD*	*Item Total Correlations*	*Reverse Coded*
25c	If I asked my partner to use a condom, he would get angry	1.80	1.18	.22 (.12)	*R*
25e	If I ask my partner to use a condom, he would think that I'm having sex with other people.	2.18	1.34	.31 (-.05)	*R*
25f	If I asked my partner to use a condom, he would agree	3.16	1.14	-.37 (-.59)	

Scale Mean	*SD*	*Range of Scores*	*Possible Range*	*Cronbach Alpha*
2.38	.59	1-4	1-4	.75

Participant Attitudes Toward Condom Use Scale

#25	ITEMS	*Means*	*SD*	*Inter Item correlations*	*Reverse Coded*
25h	If my partner asked me to use a condom, I would think that he is having sex with other people	2.04	1.26	.32 (-.35)	*R*
25i	If my partner asked me to use a condom, I would agree	3.56	.92	-.24 (-.03)	
25k	If my partner asked me to use a condom , I would think that he is trying to protect our health	3.36	1.00	-.07 (.04)	

Scale Mean	*SD*	*Range of Scores*	*Possible Range*	*Cronbach Alpha*
2.79	.49	1-4	1-4	.67

DELTED *Attitudes toward condom use items*

#25	ITEMS	*Means*	*SD*	*Inter Item correlations*	*Reverse Coded*
25a	Using a condom makes sex less enjoyable for me.	2.27	1.19	.35	*R*
25b	If I asked my partner to use a condom. he would think that I am trying to protect our health	2.95	1.23	-.23	
25d	Using a condom makes sex less enjoyable for my partner.	2.43	1.18	.36	*R*
25g	I my partner asked me to use a condom, I would get angry	1.44	.90	.31	*R*

Single Item Violence Indicator

#25	ITEMS	*Means*	*SD*	*Inter Item correlations*
25j	If I ask my partner to use a condom he would get violent	1.19	.65	.07

Sex Ratio Imbalance Scale

#33	ITEMS	*Means*	*SD*	*Inter Item correlations*	*Reverse Coded*
33a	The number of eligible African American women outnumber the number of eligible African American men.	4.16	1.20	.05	
33b	If I wanted to, I could find a new partner.	4.19	1.30	.26	*R*
33c	There are plenty of available partners for African American women.	3.64	1.42	.10	*R*
33d	It is difficult to find a suitable partner.	4.04	1.24	.15	
33e	African American men have many options for available partners.	4.06	1.16	.30	

HIV Knowledge Scale

a.	Coughing and sneezing DO NOT spread HIV.	Reverse Coded
b.	A person can get HIV by sharing a glass of water with someone who has HIV.	*R*
c.	Pulling out the penis before a man climaxes/cums keeps a woman from getting HIV during sex.	*R*
d.	A woman can get HIV if she has anal sex with a man.	
e.	Showering or washing one's genitals/private parts, after sex keeps a person from getting HIV.	*R*
f.	All pregnant women infected with HIV will have babies born with AIDS.	*R*
g.	People who have been infected with HIV quickly show serious signs of being infected.	*R*
h.	There is a vaccine that can stop adults from getting HIV.	*R*
i.	People are likely to get HIV by deep kissing, putting their tongue in their partner's mouth, if their partner has HIV.	*R*
j.	A woman cannot get HIV if she has sex during her period.	*R*
k.	There is a female condom that can help decrease a woman's chance of getting HIV.	
m.	A natural skin condom works better against HIV than does a latex condom.	*R*
n.	A person will NOT get HIV if she or he is taking antibiotics.	*R*
p.	Having sex with more than one partner can increase a person's chance of being infected with HIV.	
q.	Taking a test for HIV one week after having sex will tell a person if she or he has HIV.	*R*
r.	A person can get HIV by sitting in a hot tub or a swimming pool with a person who has HIV.	*R*
s.	A person can get HIV from oral sex.	
u.	Using Vaseline or baby oil with condoms lowers the chance of getting HIV.	*R*

AFRICAN AMERICAN ITEMS

l.	African Americans accounted for over half of the new HIV diagnoses reported in the United States.
o.	The leading cause of HIV infection among African-American women is heterosexual contact, followed by injection drug use.
t.	African American women are twice as likely as White women to get HIV.

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