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Associations between Self-Esteem, Partner Communication, and Consistent Condom Use: A Mediation Model for Reducing HIV/STI Related Risk Behaviors

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University of North Carolina at Chapel Hill
2010

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Abstract

Associations between Self-Esteem, Partner Communication, and Consistent Condom Use: A Mediation Model for Reducing HIV/STI Related Risk Behaviors
By Danielle N. Lambert

Introduction: HIV is a serious pandemic and public health issue, affecting more than 34 million people worldwide. Large disparities exist among African Americans, women, and adolescents with regards to infection rates. **Objective:** The purpose of this study is to assess whether a relationship exists between self-esteem, partner communication, and consistent condom use in order to reduce HIV/STI related risk behaviors. **Methods:** This study utilized a cross-sectional design to survey African American adolescent females, ages 14-20 years, accessing three sexual health clinics in Atlanta, GA. **Results:** No significant associations were found between self-esteem and consistent condom use at last sex (p=.056), in the last 90 days (p=.43), or in the last 6 months (p=.22). Significant associations were seen though between self-esteem and communication self-efficacy (p<.001), partner communication frequency (p<.05), and refusal self-efficacy (p<.001). Mediation analyses were conducted for last sex under assumptions of marginal significance. No mediation was found to be present. Ad hoc analyses showed no significant association between self-esteem and proportion condom use at any time point. **Conclusions:** Results supported previous literature with regards to associations between self-esteem and partner communication. Further research is needed specifically among African American adolescent females with low self-esteem to examine effects on risky sexual behaviors, specifically consistent condom use. Future studies should also take into account other constructs of "self" such as body image and ethnic identity.

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Chapter I: Background and Significance

Engagement in risky sexual behavior has a number of unintended health outcomes including the transmittance of sexually transmitted infections (STIs), human immunodeficiency virus (HIV), and unplanned pregnancy. Although condoms have been shown to effectively protect against these outcomes (Darrow, 1989; Holmes, Levine, & Weaver, 2004), youth especially still do not adhere to regular usage. Although they represent only 25% of the US population that has engaged in sexual activity, this age group is at an increased risk of facing these adverse health outcomes (Centers for Disease Control and Prevention, 2011c). Of the 19 million new cases of STIs each year, 50% occur among young people age 15-24 years (Centers for Disease Control and Prevention, 2011c; National Center for HIV/AIDS Viral Hepatitis STD and TB Prevention, 2011). During 2009 approximately 8,300 new cases of HIV were reported for those 13-24 years, a number which rose to 12,200 new cases in 2010 (Centers for Disease Control and Prevention, 2012b; National Center for HIV/AIDS Viral Hepatitis STD and TB Prevention, 2011).

Preventing the spread of HIV is of particular importance since it is estimated that over one million people have contracted HIV in the United States, 21% of those infected are unaware of their positive status (Centers for Disease Control and Prevention, 2009, 2012a; Hall et al., 2008). These statistics are particularly devastating when considering that only 12.7% of all high school students (grades 9-12) nationwide have ever been tested at least once for HIV, thus increasing the likelihood of unknowingly transmitting the disease to a partner (Centers for Disease Control and Prevention, 2010). The CDC estimates that half of all new HIV infections that occur each year in the United States are

among adolescents under the age of 25, ranking 6th among leading causes of death for those ages 15-24 years (CDC, 2009).

African Americans are disproportionally affected by HIV infection, representing 46% of the total HIV positive population but only 12-14% of the total United States population (Centers for Disease Control and Prevention, 2013; National Center for HIV/AIDS Viral Hepatitis STD and TB Prevention, 2008). African American women in particular are at a much higher risk of infection compared to other ethnicities with an infection rate 15 times that of Caucasian women (Centers for Disease Control and Prevention, 2011a, 2013). As of 2010, African American women comprised 39% of the new HIV infections among their ethnic group, 87% of these infections were acquired through heterosexual intercourse (Centers for Disease Control and Prevention, 2013).

Among youth aged 13-24, 65% of all newly reported HIV infections were among African Africans (Centers for Disease Control and Prevention, 2011b). In the 2009 *Youth Risk Behavior Surveillance* of high school students, 45% of African American females were sexually active, the highest of any ethnicity, but only 51.8% reported using a condom during their last sexual encounter (Centers for Disease Control and Prevention, 2010, 2011b) – although previous research has shown African Americans to have higher condom use rates than their Caucasian counterparts (Centers for Disease Control and Prevention, 2004; Hallfors, Iritani, Miller, & Bauer, 2007). Thus, African American adolescent females are at increased risk of disease contraction.

Previous studies have sought to examine the factors affecting risky sexual decision making among not only adolescents, but specifically African American females (Dancy, Crittenden, & Ning, 2010; Davies et al., 2006; DiClemente, Wingood, Crosby,

Sionean, Brown, et al., 2001; Wingood & DiClemente, 1998a). The literature demonstrates a strong correlation between communication behaviors and condom use, such that those with a higher perceived efficacy of initiating conversations, and with greater frequency, have used condoms more regularly (Crosby, DiClemente, Wingood, Cobb, et al., 2002; Crosby et al., 2003; Halpern-Felsher, Kropp, Boyer, Tschann, & Ellen, 2004; Noar, Carlyle, & Cole, 2006; Sales et al., 2012). Evidence-based interventions among this population in particular aim to educate *and* build skills through interactive activities, such as role playing and facilitation of persuasive communication. Two such interventions among this population, HORIZONS and SIHLE, have proven effective in increasing condom use through these techniques (DiClemente et al., 2004; DiClemente et al., 2009).

However, more research is starting to emerge which delves into the processes regulating communication skills. In order to promote safer sex practices and increase communication among partners, insight is needed into the mechanisms empowering adolescents to initiate such conversations and effectively refuse risky sexual encounters otherwise. Psychosocial determinants, such as self-esteem, define concepts of "self" and are strong determinants of respect, worthiness, and happiness. Examination of self-esteem in particular has been shown influential for sexual risk reduction (Cole, 1997; Ethier et al., 2006; Goodson, Buhi, & Dunsmore, 2006; MacDonald & Martineau, 2002; Robinson, Holmbeck, & Paikoff, 2007; Salazar et al., 2005; Salazar et al., 2004; Spencer, Zimet, Aalsma, & Orr, 2002). No known studies to date though have examined the relationship between self-esteem, partner communication, and consistent condom use among this population in one model, hence what this thesis seeks to determine.

Purpose & Research Questions

Due to the disparities that exist among African American adolescent females with regards to disease contraction, as well as their engagement in risky sexual behaviors, it is critical to evaluate preventative measures (i.e. condom use) and increase consistent condom usage among this population. The focus of this study will be limited to only condom use because of its ability to prevent STIs. Many previous studies and interventions have focused on improving partner communication as an avenue of promoting condom negotiation (Crosby, DiClemente, Wingood, Cobb, et al., 2002; Noar, Carlyle, et al., 2006; Sales et al., 2012; Sionean et al., 2002), but more research is needed to understand the mechanisms influencing communication ability – such as psychosocial factors like self-esteem. Therefore, the purpose of this thesis is to analyze the association of self-esteem with partner communication within the aforementioned population of African American adolescent females to evaluate its influence on consistent condom use. The findings will lead to a further understanding of correlations between an internalized assessment of self-worth and sexual risk reduction, conclusions which could subsequently be used to close the gap of risky sexual behavior between differing ethnicities, specifically with regards to condom use.

This thesis will seek to answer the following research questions:

1) What association does self-esteem have with partner communication among African American female adolescents?

    a. Hypothesis 1: Higher self-esteem scores will be significantly correlated with higher levels of partner communication among the sample population.

2) Is partner communication associated with consistent condom use among African American female adolescents?

    a. Hypothesis 2: Usage of condoms at every instance of sexual intercourse will significantly differ based on frequency and quality of partner communication.

3) What is the relationship between self-esteem, partner communication, and consistent condom use?

    a. Hypothesis 3: The relationship between self-esteem, partner communication, and consistent condom use can be explained using a mediation model, as shown in Figure 1, such that partner communication mediates the relationship between self-esteem and consistent condom use.

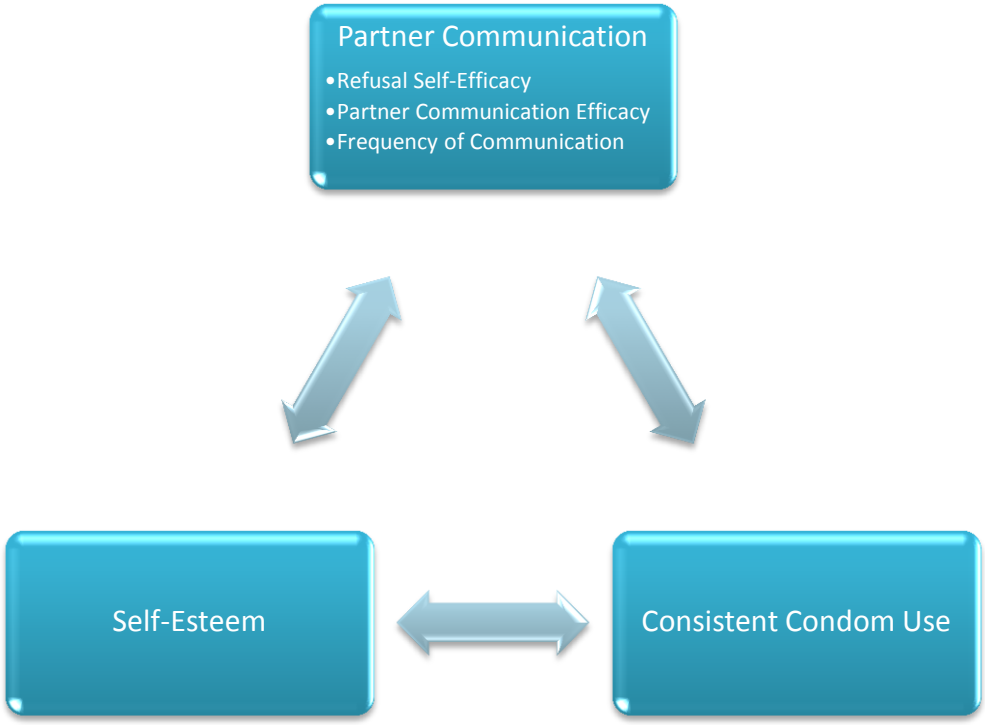

Figure 1. Proposed Mediation Model

Theoretical Framework

The theoretical frameworks that informed this thesis were the Theory of Gender & Power (TGP) and the Social Cognitive Theory (SCT) (Bandura, 1986; Connell, 1987). The Social Cognitive Theory developed out of Bandura's Social Learning Theory and is useful for integrating both environmental and individual level approaches into health behavior change. The theory is based on the idea that learning can occur through observation and positive reinforcement, during which behavior is constantly influenced by personal, behavioral, and environmental factors (Glanz, Rimer, & Viswanath, 2008). The Theory of Gender and Power grew out of Connell's 1987 article on how social analysis of gender and sexually is needed to understand societal interactions (Connell, 1987). The theory speaks to social and environmental factors that play into the sexual

decision making of women, such as gender-based power imbalances, and how this can lead women to become sexually passive. Wingood and DiClemente subsequently adapted the theory specifically to HIV related risk behaviors in 2000 (Glanz et al., 2008; Wingood & DiClemente, 2000).

Both theories have been previously used to measure factors that promote consistent condom use by altering personal, behavioral, or environmental outcomes (Crosby, DiClemente, Wingood, Cobb, et al., 2002; DePadilla, Windle, Wingood, Cooper, & DiClemente, 2011; Salazar et al., 2005; Salazar et al., 2004; Sales et al., 2012). Since factors contributing to condom use are so abundant and complex, the integration of the two different theories was key for understanding multiple levels of decision making associated with psychosocial determinants of condom use among African American adolescent females. Both theories not only look to multiple levels of influence on decision making, but also incorporate gender and sexually-based societal pressures for women; all of which are important to consider in examining the interplay between self-esteem, partner communication, and consistent condom use.

Using the concept of reciprocal determinism as a guide, constructs influencing the dynamic interaction of personal, behavioral, and environmental factors were considered. The constructs applied during the development of this thesis, as shown in Figure 2, include: self-efficacy, self-regulation, outcome expectations, reciprocal determinism, social norms, and sexual division of power.

Self-efficacy is an individual's belief about their ability to perform an action or behavior. In the case of condom use, an individual needs to not only have the confidence

to use condoms, but also the efficacy to negotiate use with a partner. The self-assurance to initiate and communicate effectively may directly correlate with their internalized self-concept of respect and worthiness, or self-esteem. The motivation to actually initiate such conversations may also relate to their perceptions of outcome expectancies, or their beliefs about the positive/negative consequences of their behavior. As previously mentioned, risky sexual behavior can lead to a host of adverse health outcomes such as STIs, HIV, and teen pregnancy. Self-regulation, or personal control through self-monitoring, could be instrumental to developing and maintaining positive outcome expectancies.

Social norms have a strong influence on adolescent decision making because they are at a stage of development where they model the actions of others and seek approval by conforming to normative beliefs. So if condom use is perceived to be discredited by their peers, this could have an influence on engagement in risky behaviors. Social norms also influence the larger construction of gender norms and imbalances. Such imbalances in gender and relationship dynamics, according to the Theory of Gender and Power, expose women to different risk factors and may increase their vulnerability for acquiring HIV(Wingood & DiClemente, 2000). If gender imbalances cause women to become sexually passive, then their confidence and internalized perceptions of self-worth may be distorted. Imbalances of control in the relationship could subsequently affect condom negotiation, communication frequency, and refusal ability (Wingood & DiClemente, 2000), all of which could be further contributed to by a female's lacking self-esteem.

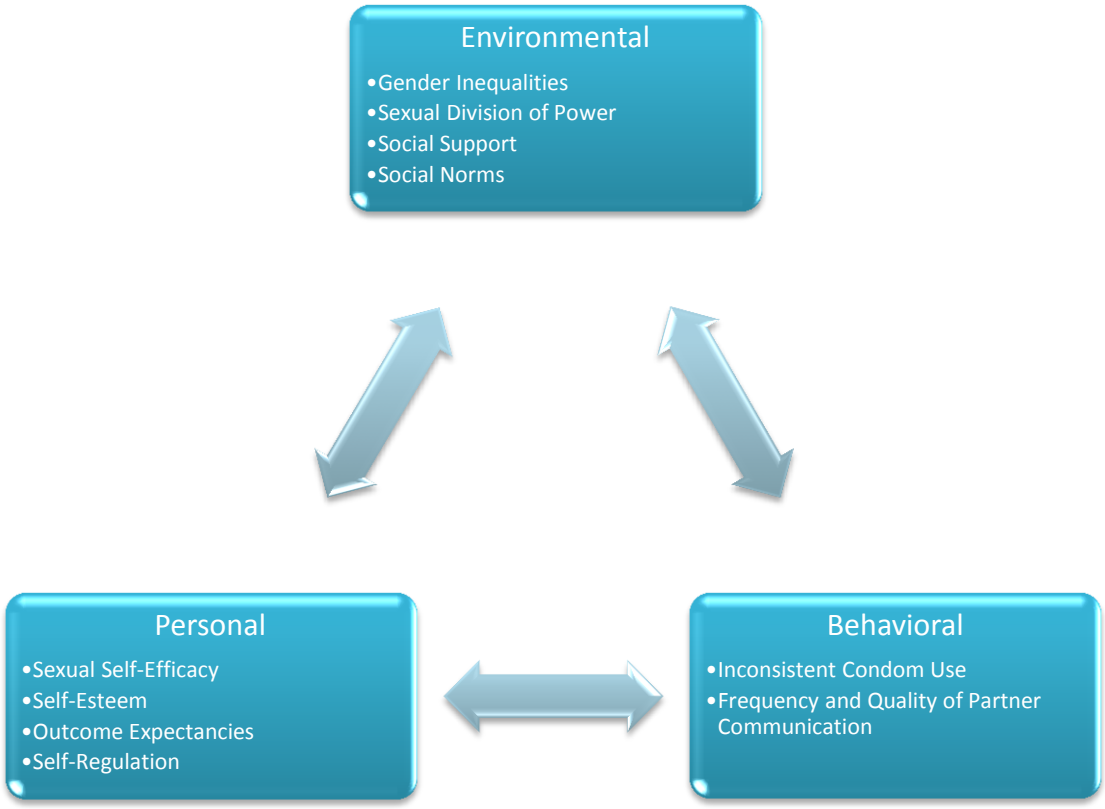

Figure 2. SCT & TGP Theoretical Framework (Bandura, 1986; Connell, 1987)

Chapter II: Literature Review

Factors Affecting Condom Use

Many correlates have been previously examined to determine strong predictors of condom use specifically among African American adolescent girls such as alcohol abuse, substance abuse, age of sexual debut, knowledge, norms, self-efficacy, social support, and communication (Bachanas et al., 2002; Beadnell et al., 2005; Crosby et al., 2003). While all of these factors demonstrated some association with condom use outcomes, none have been deemed superior indicators over others (Noar, Cole, & Carlyle, 2006). Bachanas et al. (2002) found that females in this population had higher instances of risky sexual behavior, earlier sexual debuts, and multiple concurrent unprotected encounters. They also had higher levels of substance abuse and were affiliated with social networks that engaged in similar risky behaviors.

These combinations of risk factors on a multitude of personal, social, and environmental levels are theorized to act upon one another simultaneously to contribute to an overall condom use behavior, as demonstrated by Bachanas et al (2002). Upon further examination of their model for determining condom use behavior, it becomes evident that reciprocal determinism is a key element in understanding how multiple risk factors contribute to the decision making process, as each factor does not have a singular effect. Instead, every individualized construct in the model is amplified by the myriad internal and external risks acting upon it at any given moment.

Additionally, many adolescents in this age range perceived themselves to be unsusceptible to HIV infection (Centers for Disease Control and Prevention, 2011b; Reitman et al., 1996). A lower threshold of perceived susceptibility to and severity of

HIV infection could lead to a range of risky behaviors and at a higher frequency, such as an increased number of partners and unprotected sexual encounters. This would be especially detrimental among African American adolescent females, where an elevated prevalence of disease already occurs.

As previously mentioned, across many studies, partner communication and subsequent ability to negotiate condom use was the strongest predictor of consistent use. This correlate is considered a subgrouping of "Sexual Self-Efficacy" by Bananas et al (2002) (Crosby et al., 2011; Noar, Carlyle, et al., 2006; Taylor-Seehafer & Rew, 2000). Crosby et al. (2003) found that when measuring predictive constructs of condom use among high-risk African American female youth, attitudes, self-efficacy, and knowledge were all insignificant. Peer norms and sexual communication however were significantly correlated with condom use. Sales et al. (2012) directly links the relationship between partner communication and consistent condom use with the reduction of HIV infection in this specific population. Increasing the frequency and quality of partner negotiation led to significant increases in both proportion and consistent condom use, even 12 months post-intervention. Crosby et al. (2011) also tied communication history and efficacy to applications for HIV/STD preventative interventions. African American adolescents (age 15-21 years) that were found to have higher levels of communication self-efficacy were 1.9 times more likely to report consistent condom use. Ability to negotiate was also correlated with condom use, leading the authors to hypothesize communication skills as possible mediating variables in HIV prevention specifically for this population (Crosby et al., 2011).

Even within communication history, there are multiple correlates affecting types and frequency of communication. Crosby et al. (2002) found that other factors among African American adolescent females influencing infrequent communication included low communication with parents regarding STD/pregnancy prevention, intercourse with a non-steady partner, lower self-efficacy to negotiate condom use, fear of negotiating condom use, and low motivation to actual use condoms. With the exception of condom use motivation, the remaining factors are indicative of the interpersonal decisions between partners; decisions that require effective and frequent communication to discuss together.

The Role of Fear in Negotiation

When delving further into the processes influencing and regulating partner communication, fear is a critical inhibitor of initiating negotiation. Female fear indicates a power imbalance between genders which therefore has the potential to significantly affect the females' sexual assertiveness (Wingood & DiClemente, 2000). Crosby et al. (2008) found that high-risk African American adolescent women may have more experiences with male-dominated power imbalances, ultimately affecting condom use with their overly influential partner. A 2002 study on minority women ages 18-25 found that condom use was considerably higher among women who independently or jointly made decisions regarding condom use when compared to women who allowed their partner to make the sole decision (Harvey, Bird, Galavotti, Duncan, & Greenberg, 2002). Other studies have further supported this finding by suggesting that equal or female predominate power in heterosexual relationships is the key to whether a condom is used (Bruhin, 2003).

Thus, studies in recent years have followed up on this finding and concluded that quality and frequency of communication within the dynamics of relationship power was not the only predictor of condom usage, but so was fear of negotiation by the female partner (Crosby et al., 2011; Crosby, DiClemente, Wingood, Cobb, et al., 2002). Crosby et al. (2008, 2011) deemed it the strongest correlate with whether condoms were used consistently and found that within these male-dominated power imbalances, female fear of negotiation led to higher rates of STIs and HIV due to inconsistent use. With each failure to use a condom, the likelihood of testing positive for a sexually transmitted disease increased by 22% (Crosby et al., 2005).

Female partners have a number of documented fears surrounding negotiation, some of which include violent repercussions and male cheating (Crosby et al., 2011; Crosby et al., 2008; Wingood & DiClemente, 1998a). This in turn lowers self-efficacy and sexual assertiveness, directly relating to the consistency with which condoms are used. It has been suggested though that psychosocial determinants, such as sexual assertiveness and self-esteem, need to be examined in the context of multiple other social and environmental influences that could affect communication skills such as normative beliefs and attitudes (Zamboni, Crawford, & Williams, 2000).

Psychosocial Determinants

A great deal of literary support exists for factors which negatively affect sexual risk reduction, but more research had begun to delve into the benefits of protective factors within the context of sexual risk taking. Any underlying correlate that has the capacity to positively regulate effective communication with a partner, increase negotiation skills, and reduce fears simultaneously may prove extremely beneficial to

improving consistent condom use among African American adolescent females. One hypothesized factor that is also strongly linked to gender imbalances, self-efficacy, and sexual assertiveness is self-esteem (Rosenthal, Moore, & Flynn, 1991).

Examining how this population in particular internalizes concepts of "self" and notions of self-worth, respect, and happiness could correlate with their perceived communication efficacy and condom negotiation. While partner communication may be the strongest predictor of condom use, in one recent study negative personal affect was found to be the strongest predictor of partner communication (DePadilla et al., 2011). Similarly, internalized assessments of personal control and efficacy have been found more influential to communication and sexual decision making for girls than boys (Pearson, 2006), suggesting that self-conceptualization among adolescent females is directly tied to one's ability to negotiate condom use with a sexual partner.

Although substantial data exists on the association between self-esteem and sexual decision making, the research is not very conclusive. In fact, numerous publications have contradictory findings (Biro, Striegel-Moore, Franko, Padgett, & Bean, 2006; Cole, 1997; Goodson et al., 2006; Salazar et al., 2004; Spencer et al., 2002). Some research indicates a positive relationship exists between self-esteem and safer sex practices, such that adolescent females with higher levels of self-esteem are more likely to have positive attitudes toward condom use, greater perceived efficacy to initiate communication with a partner, and less fear of condom negotiation (Salazar et al., 2005). In other words, lower self-esteem is associated with greater engagement in risky behavior (Ethier et al., 2006; Gullette & Lyons, 2006; MacDonald & Martineau, 2002; Orr, Wilbrandt, Brack, Rauch, & Ingersoll, 1989). Other researchers have conducted extensive

literature reviews on current data and suggested that adolescents higher in self-esteem are more likely to engage in risky sexual behavior and have more partners (Cole, 1997). However, negating both of these findings, other published meta-analyses have shown that the link between self-esteem and sexual behaviors is not statistically significant (Commendador, 2007; Goodson et al., 2006). In a 2005 analysis of 189 findings associated with self-esteem and sexual risk taking, 62% of the behavioral findings and 72% of the attitude-related findings were not significant (Goodson et al., 2006).

Data is even more limited in regards to the effects of self-esteem on partner communication and subsequent condom use. Salazar et al. (2005) looked at associations between self-esteem and a set of ten possible safer sex mediators among African American adolescent females. Nine of the theorized mediators were significantly correlated with self-esteem, including partner communication and fear of condom negotiation. Auslander, Baker, and Short (2012) also found that "women with less self-esteem tend not to consistently feel adequate in negotiating condom use for protection from STIs and unwanted pregnancies" (pg.3).

Several studies in recent years have laid the foundation for future examination by incorporating other constructs that help to define the "self", such as female body image, with sexual self-esteem and consistent condom use (Auslander, Baker, & Short, 2012; Salazar et al., 2004; Wingood, DiClemente, Harrington, & Davies, 2002). For example, Wingood, DiClemente, Harrington, and Davies (2002) specifically looked at the correlations between body image and sexual risk-taking in African American adolescent females. Their findings significantly associated self-esteem with risky sexual behaviors by demonstrating how lower self-esteem due to personal dissatisfaction with their

appearance caused adolescents not to engage in any activity that might result in abandonment by their sexual partner. One of the strongest findings was that lower self-esteem was an indicator for decreased partner negotiation, suggesting that "fear of abandonment and adolescents' perceived limited control in the relationship may reduce the likelihood of negotiating safer sex or using condoms" (pg. 437). Recent findings, such as these, indicate a need for researchers to consider how aspects of culture and ethnicity are internalized as part of "self" development.

Internalization of Culture and Ethnicity

Multiple ethnic differences are apparent in the literature between African American and Caucasian adolescents with regards to sexual risk behaviors. African American females typically have an earlier sexual debut than do Caucasian females (Bachanas et al., 2002; Dancy et al., 2010). African Americans also tend to have a higher mean self-esteem score (Bachman, O'Malley, Freedman-Doan, Trzesniewski, & Donnellan, 2011), as well as greater self-worth scores (Biro et al., 2006). In addition to having higher scores, their scores tend to be more stable across adolescence in comparison with Caucasian females. In the 1998 National Heart, Lung, and Blood Institute Growth and Health Study of 9-14 year old girls, African Americans' global self-worth, a measure of self-esteem, changed relatively little over the period from 9 to 14 years; however the Caucasian girls demonstrated a significant decrease over the five years. The African American females also showed smaller decreases in physical appearance and social acceptance scores as their BMI increased (Brown et al., 1998).

Supporting these observed racial differences, the literature shows that African American females thus have different ideas of "thinness" and body image in comparison with Caucasian women because of ethnic differences in how cultural norms are

internalized (Demarest & Allen, 2000; Kornblau, Pearson, & Breitkopf, 2007; Neumark-Sztainer et al., 2002; Story, French, Resnick, & Blum, 1995; Wingood et al., 2002). They have different role models, both in and out of the public eye, that inform their ideas about self-esteem, body image, and body type (Doswell, Millor, Thompson, & Braxter, 1998). African American adolescents who were more dissatisfied with their body image were found to believe they had fewer partner options, less control in their sexual relationship, and were more likely to worry about contracting HIV. Body dissatisfaction was also significantly associated with not using condoms in the last 30 days and unprotected vaginal sex in the last 6 months (Wingood et al., 2002).

These different internalizations between ethnic groups cause variances in self-esteem, body image scores, and perceptions of ethnicity (Doswell et al., 1998; Goodstein & Ponterotto, 1997; Phinney, Cantu, & Kurtz, 1997; Phinney & Chavira, 1992; Tiggemann, 2005; Wingood et al., 2002). Therefore, more current publications are combining different components used to define the "self" in order to give a more realistic depiction of how multiple factors are influencing one potential outcome. These components usually include self-esteem, body image, ethnicity, and/or sexual anxiety which are subsequently combined into a larger idea of self-concept (Hensel, Fortenberry, O'Sullivan, & Orr, 2011; Rostosky, Dekhtyar, Cupp, & Anderman, 2008; Salazar et al., 2004).

Media literacy is also an important component not only because of the literature supporting different cultural internalizations, but also the impact consistent portrayal of women's bodies as a certain shape and size may have on adolescent development. At a time when social networks and pop culture are influencing the construction of one's self-

identity, dissatisfaction and negative self-concept can result from unrealistic representations given in the media (Wiseman, Sunday, & Becker, 2005). Comparisons to movies, magazines, and models are telling young developing women to continually reach for an ideal that is largely unattainable.

Mental Health and Condom Use

Depressive symptoms and anxiety, also described in the literature as psychological distress, are shown to have a direct effect on risky sexual behavior (DiClemente, Wingood, Crosby, Sionean, Brown, et al., 2001; Doswell et al., 1998; Ethier et al., 2006; MacDonald & Martineau, 2002; Seth, Raiji, DiClemente, Wingood, & Rose, 2009; Shrier, Harris, Sternberg, & Beardslee, 2001). In a 2009 study among African American adolescent females, those with higher psychological distress had higher rates of STI infections, inconsistent condom use, and male partners engaging in multiple concurrent sexual encounters; they also had lower scores for condom use self-efficacy, partner communication, refusal self-efficacy, and negotiating condom use (Seth et al., 2009).

Hence, psychological distress could be a contributor to poor self-esteem as well as augmented social norms, low self-efficacy, refusal inability, and lower perceived control (DiClemente, Wingood, Crosby, Sionean, Brown, et al., 2001). Directionality between self-esteem and depression is undetermined, such that depression may contribute to lower self-esteem or poor self-image could lead to depressive symptoms. A strong social support network appears to be a protective factor though (Doswell et al., 1998; Grav, Hellzen, Romild, & Stordal, 2012). Cross-sectional data from the HUNT study, one of the largest studies ever conducted with over 40,659 participants, found that social support

was significantly associated with depression in that individuals who had lower self-reported social support had higher depression scores (Grav et al., 2012). Psychological distress, also well as social support, are therefore important to consider in order to minimize confounding when examining associations between self-esteem and risky sexual behavior.

Summary

The research questions for this thesis developed out of gaps in previous evidence-based interventions and knowledge obtained from empirical literature. Prior interventions for African American adolescent females, such as HORIZONS and SIHLE, have provided a strong framework for empowerment and addressing inequalities in negative health outcomes through education, skill building, and modeling (DiClemente et al., 2004; DiClemente, Wingood, Rose, Sales, & Crosby, 2010). These two interventions in particular aimed to increase communication strategies with male partners through a variety of activities. An examination of current publications demonstrates disagreement in regards to factors positively or negatively affecting communication ability. Continued research is needed in order to gain further clarity in the understanding of how psychosocial determinants affect risky sexual decision making.

Building off knowledge gained from empirical findings, and the complex relationship of factors determining condom use, underlying mechanisms affecting the strongest predictors of use, such as partner communication, will be examined in this thesis. Correlations between self-esteem, partner communication, and consistent condom use will be analyzed, while taking into account possible confounders as presented through a review of relevant literature.

Chapter III: Methodology

Participants

From June 2005 to June 2007 African American adolescent females, 14-20 years of age, were recruited from three clinics in downtown Atlanta, Georgia, providing sexual health services to predominantly inner-city adolescents. A young African American woman recruiter approached adolescents in the clinic waiting area, described the study, solicited participation, and assessed eligibility. Eligibility criteria included self-identifying as African American, 14-20 years of age, and reporting vaginal intercourse at least once without a condom in the past 6 months. Adolescents, who were married, currently pregnant, or attempting to become pregnant, were excluded from the study. Adolescents returned to the clinic to complete informed consent procedures, baseline assessments, and be randomized to trial conditions. Written informed consent was obtained from all adolescents with parental consent waived for those younger than 18 due to the confidential nature of clinic services. Of the eligible adolescents, 94% (N=701) enrolled in the study, completed baseline assessments and were randomized to study conditions. Participants were compensated $75 for travel and childcare to attend intervention sessions and complete assessments. The Emory University Institutional Review Board approved all study protocols and subsequently deemed this thesis exempt from further review since all participant identifiers had been removed from the cross-sectional data upon receipt.

Procedures

Study Design

The study used a type of two-arm randomized controlled trial design called a supplemental treatment trial (Piantadosi, 2005). Supplemental treatment trials are

combined modality studies, in which participants receive a "primary" treatment and, subsequently, receive a different treatment modality designed to enhance the effects of the primary treatment. Adolescents randomized to the experimental condition participated in the AFIYA HIV intervention and subsequently received the supplemental intervention, an individualized telephone-delivered HIV Prevention Maintenance Intervention (AFIYA+HIV PMI). Adolescents randomized to the comparison condition participated in the AFIYA HIV intervention however, they did not receive the supplemental HIV prevention maintenance intervention. Adolescents in this condition subsequently received a time- and dose-equivalent individualized telephone-delivered Nutrition Education Intervention (AFIYA+NEI). Assignment to study conditions was implemented subsequent to baseline assessment using concealment of allocation procedures, defined by protocol and compliant with published recommendations (K. F. Schulz, 1995; K. F. Schulz, Chalmers, Hayes, & Altman, 1995; K. F. Schulz, Grimes, D. A., , 2002). Prior to enrollment investigators used a computer algorithm to generate a random allocation sequence and opaque envelopes to execute the assignments.

Intervention Methods

To develop the study conditions, extensive qualitative research was conducted with adolescents from the study clinics. Prior to implementing the main trial, both conditions were field tested with adolescents recruited from study clinics to assess the gender- and cultural-appropriateness of the intervention, the comparison condition, and the assessment procedures.

The intervention (AFIYA) consisted of two components: (1) administration of one 5-hour group STD/HIV prevention session, and (2) administration of 9 individualized

telephone-delivered HIV Prevention Maintenance Intervention sessions to reinforce prevention information presented in the group sessions.

The 5-hour group session was facilitated by trained African American women health educators, implemented with, on average, 7-9 participants attending the session. The intervention was based on Social Cognitive Theory (Bandura, 1994), the Theory of Gender and Power (Wingood & DiClemente, 2000; Wingood & DiClemente, 2002), and previously published interventions for adolescent females seeking clinical services (DiClemente et al., 2004; DiClemente et al., 2009). Intervention sessions were interactive, fostered a sense of cultural and gender pride, and emphasized diverse factors contributing to adolescents' STD/HIV risk; including individual factors (STD/HIV risk-reduction knowledge, perceived peer norms supportive of condom use, condom use skills), relational factors (persuasive communication techniques to enhance male partner responsibility for condom use (Ford & Norris, 1995)), and social factors (encouraged participants to reduce douching). Participants also role played informing male sex partners about their STD status and encouraging partners to seek STD screening/treatment. To reinforce prevention concepts discussed in the group session, health educators administered 9 brief (20 minute) telephone contacts to adolescents, one contact every other month for the 18 month follow-up period.

The comparison condition received the full AFIYA group session, implemented by the same African American women health educators. Participant satisfaction ratings for the AFIYA group session did not differ by randomization assignment (4.74 of 5.0 Intervention/4.72 of 5.0 Control). Comparison participants received a time- and dose-equivalent individualized telephone-delivered Nutrition Education Intervention.

Data Collection

Data collection occurred at baseline, 6- , 12-, and 18-months following completion of the AFIYA group-implemented STD/HIV intervention, and consisted of an ACASI interview and self-collected vaginal swab to assess STDs. For the purposes of this thesis, only data collected at baseline will be utilized for analyses.

ACASI enhances data accuracy, increases participants' comfort answering sexually explicit questions, and eliminates low literacy as a potential barrier (Turner et al., 1998; Zimmerman, 2006). The ACASI assessed socio-demographics, sexual history, attitudes, and psychosocial constructs associated with STD/HIV-preventive behaviors. Sexual behaviors were assessed for three time periods; the 7 days , 90 days and 180 days (6 months) preceding assessments. Several strategies were used to enhance accuracy and validity of self-reported sexual behaviors, included reporting behaviors over relatively brief time intervals (McFarlane & St Lawrence, 1999; Sieving et al., 2005) and using the Timeline Followback methodology, an effective methodology to facilitate retrospective recall of STD/HIV sexual behaviors (Carey, Carey, Maisto, Gordon, & Weinhardt, 2001; Weinhardt et al., 1998). To enhance confidentiality participants were informed that code numbers would be used on all records. To minimize potential assessment bias, ACASI monitors were blind to participants' condition assignment.

After completing the ACASI, participants provided a self-collected vaginal swab specimens (Smith et al., 2001). Specimens were delivered to the Emory University Pathology Laboratory and assayed for two bacterial pathogens, *C. trachomatis* and *N. gonorrhoeae* using the BDProbeTec ET *C. trachomatis* and *N. gonorrhoeae* Amplified DNA assay (Becton Dickinson and Company, Sparks, MD) (Van Der Pol et al., 2001).

Participants with a positive STD test were provided directly observable single-dose antimicrobial treatment, risk-reduction counseling per CDC recommendations, and were encouraged to refer sex partners for treatment. The County Health Department was notified of reportable STDs.

Measures

Background Demographics

Information regarding the sample population was first obtained from questions regarding age, education, employment, relationship status, parental monitoring, and receipt of welfare. Participants were asked to indicate their age in years and last grade completed in school, ranging from 8th grade or less to 1-2 years of college. Respondents' primary caregiver was assessed by the question, "who was the one person primarily responsible for caring for you when you were growing up." Possible responses included "mother," "father," "grandmother," "aunt," "sister," or "other." Current employment status was determined by a "yes/no" response to whether participants current had a job for which they are paid. Total hours worked per week were also self-reported. Relationship status was limited to whether or not the participant currently had a boyfriend. Lastly, receipt of family aid was determined by asking whether "in the past 12 months, did you or anyone you live with receive any money or services from any of the following…" Choices included "welfare including Temporary Assistance to Needy Families," "food stamps," "Women, Infants, & Children," or "Section 8 housing subsidies." Participants were asked to check all that apply or select no, thus responses ranged from 0-4 types of aid received.

Hypothesized Predictor Variables

Properties and examples of all scales assessed for the purposes of this thesis are described below and included in Table 1.

Self-Esteem

Self-esteem was measured using Rosenberg's 10-item scale with items ranging from (1) Never to (5) Always on a 5-point Likert scale (Rosenberg, 1965). Sample items included "I feel that I'm a person of worth" and "I feel that I am a failure." Five items were reverse coded prior to computing the total Rosenberg score by summing the response to all 10 items. Scores could range from 10 to 40, with higher scores indicating greater perceived self-esteem. Cronbach alpha reliability for this scale was .86 suggesting high internal consistency of scale items.

Hypothesized Mediating Variables

Partner Communication Self-Efficacy

This six item scale was adapted from previous evidence-based interventions among a similar population, specifically HORIZONS and SIHLE, to measure partner communication history (DiClemente et al., 2009; Wingood & DiClemente, 1998b). The six items assessed how difficult it would be for the participant to ask their boyfriend about the number of previous sex partners, whether he is engaging in multiple concurrent sexual relationships, if he has an STD, both utilizing and demanding a condom during sex, and subsequently refusing to have sex if he refuses to wear a condom. Possible answer choices for each item ranged from (1) Very hard to (4) Very easy on a Likert scale. No items were reverse coded prior to summing all responses. Scores could range

from 6 to 24, with higher scores indicating higher perceived self-efficacy to communicate with a partner. Cronbach alpha reliability for this scale was .82 suggesting high internal consistency of scale items.

Partner Communication Frequency

Partner Communication Frequency was assessed using an adapted 5-item scale also from previous evidence-based interventions among a similar population, specifically SIHLE and HORIZONS (DiClemente et al., 2009; Wingood & DiClemente, 1998b). Sample items included "during the past 90 days, how many times have you and your boyfriend or sex partner(s) talked about how to prevent getting the AIDS virus" and "during the past 90 days, how many times have you and your boyfriend or sex partner(s) talked about his sexual history?" Possible answer choices ranged from (1) Never to (4) 7 or more times, for a total of 5-20, with higher response scores indicating higher frequency of partner communication. Cronbach alpha reliability for this scale was .85 suggesting high internal consistency of scale items.

Refusal Self-Efficacy

Refusal self-efficacy was used to assess a participant's ability to refuse sex under different risky circumstances. The variable was measured using a 7-item scale with responses ranging from (1) I definitely can't say no to (4) I definitely can say no (Wingood & DiClemente, 1998a). Sample items included "how sure are you that you would be able to say NO to having sex with someone you have known for a few days or less" and "how sure are you that you would be able to say NO to having sex with

someone who refuses to wear a condom?" No items were reverse coded prior to summing the responses to all seven items. Scores could range from 7-28, with higher scores indicating greater perceived refusal self-efficacy. Cronbach alpha reliability for this scale was .82 suggesting high internal consistency of scale items.

Hypothesized Behavioral Outcome Variables

Condom Use at Last Sex

Participants were asked to indicate "yes" or "no" to the question "the very last time you had sex, did you use a condom to prevent STDs or pregnancy?"

Consistent Condom Use in the Last 90 days

Respondents were first asked "in the past 90 days, how many times have you had vaginal sex?" Subsequently, the youth were asked "out of the xx times you've had vaginal sex, in the past 90 days, how many times did you use a condom?" Only whole value responses were accepted. Consistent condom use in the last 90 days was calculated by taking the difference between the number of times engaging in sexual intercourse and number of times a condom was used (# vaginal sex - # times condom used). This variable was further dichotomized into consistent vs. inconsistent condom use: values of 0 were labeled consistent use and any value other than 0 was considered inconsistent use.

Consistent Condom Use in Last 6 Months

Respondents were first asked "in the past 6 months, how many times have you had vaginal sex?" Subsequently, the youth were asked "out of the xx times you've had vaginal sex, in the past 6 months, how many times did you use a condom?" Only whole

value responses were accepted. Consistent condom use in the last 6 months was calculated by taking the difference between the number of times engaging in sexual intercourse and number of times a condom was used (# vaginal sex - # times condom used). This variable was further dichotomized into consistent vs. inconsistent condom use: values of 0 were labeled consistent use and any value other than 0 was considered inconsistent use.

Covariates

For theoretical purposes, grounded in the findings from the literature review, several covariates were considered for controlling in data analysis to reduce the possibility of confounding. Such variables included age, social support, depression, and history of abuse.

Social Support

Social support was assessed using an 11-item scale with responses ranging from (1) Strongly disagree to (4) Strongly agree on a 4 point Likert scale (Zimet, Powell, Farley, Werkman, & Berkoff, 1990). Sample questions included "There is a special person who is around when I am in need" and "I can count on my friends when things go wrong." No items were reverse coded prior to summing the responses across all 11-items. Scores could range from 11-44, with higher scores indicating greater perceived social support. Cronbach alpha reliability for this scale was .90 suggesting high internal consistency of scale items.

Depression

This 8-item scale was used to measure feelings of depression by asking respondents to indicate how many days during the past week they experienced relevant symptoms from (1) less than 1 day to (4) 5-7 days (Santor & Coyne, 1997). Sample questions included "I felt lonely" and "I had crying spells." No items were reverse coded prior to summing the responses across all 8-items. Possible scores could range from 8-32, with higher scores indicating greater depression. Cronbach alpha reliability for this scale was .91 suggesting high internal consistency of scale items.

Abuse History

History of abuse was assessed using four different variables to include physical, emotional, and sexual abuse (Wingood & DiClemente, 1998b). Emotional abuse included being threatened and called names while physical abuse ranged from being hit, punched, kicked, and slapped. Sexual abuse was divided into forced vaginal sex and forced anal sex. Participants were asked to respond to each abuse history segment with yes, no, or refused to answer.

Table 1. Psychometric Properties of Assessed Scales

Scale No. of Items	Scale Range	Scale Item Example	Scale Reliability alpha
Self-Esteem 10 items	10-40	I feel that I'm a person of worth.	.86
Partner Communication Self-Efficacy 6 items	6-24	How hard is it for you to ask if he could use a condom?	.82
Partner Communication Frequency 5 items	5-20	During the past 90 days, how many times have you and your boyfriend or sex partner(s) talked about how to use a condom?	.85
Refusal Self-Efficacy 7 items	7-28	How sure are you that you would be able to say NO to having sex with someone who refuses to wear a condom?	.82
Social Support 11 items	11-44	There is a special person who is around when I am in need.	.90
Depression 8 items	8-32	During the past week, I thought my life had been a failure.	.91

Data Analytic Plan

All data was initially exported from the Questionnaire Development System (QDS), de-identified, and cleaned prior to receipt. SPSS Statistics 20 for Windows was used for all analyses associated with this thesis.

First, study scales and variables were computed; reliability was determined as well. Descriptive statistics were conducted for continuous and categorical variables. Bivariate analyses were run between the predictor variables, hypothesized mediators, hypothesized behavioral outcome variables, and hypothesized covariates. Covariates with

a significance level of $p<.20$ were included in subsequent multivariate analyses (Hosmer & Lemeshow, 2000). Second, three different analyses were conducted to test for mediation (Baron & Kenny, 1986):

1) Bivariate analyses were run between the predictor variable (self-esteem) and the hypothesized behavioral outcome variables (consistent condom use at last sex, last 90 days, and last 3 months). Significance level was set at $p \leq 0.05$ and a significant association between self-esteem and consistent condom use was required to progress to the next step.
2) Bivariate analyses were run between the predictor variable (self-esteem) and the hypothesized mediator variables (refusal self-efficacy, partner communication self-efficacy, and partner communication frequency). Significance level was set at $p \leq 0.05$ and a significant association between self-esteem and partner communication was required before proceeding to the final step.
3) Multivariate logistic regression was conducted between the hypothesized mediators and the hypothesized behavioral outcome variables, while controlling for the predictor variable and covariates significant at the $p<.20$ level. Comparisons between the p-value and slope in step one (assessing the relationship between self-esteem and consistent condom use) and step three (adding hypothesized mediators to the model) were conducted to determine whether partial or complete mediation was evident.

Chapter IV: Results

Background Demographics

A total of 701 African American adolescent females were included in the sample for this study. Ages ranged from 14-20 years old, with the average age being 17.64 years (SD=1.67). The majority of the sample was still in 9^{th}-12^{th} grade (n=368, 52.5%), with only 59 participants (8.4%) reporting an education level of 8^{th} grade or less. The remaining sample population indicated that they had either graduated from high school (n=130, 18.5%) or were in their 1^{st}-2^{nd} year of college (n=114, 16.3%). "Other" was selected by 30 of the youth (4.3%). A large proportion of the sample indicated that they currently had a boyfriend (n=557, 79.5%), while 20.5% were single (n=144). More than half the sample was also unemployed at baseline (n=446, 63.6%). Of those who were employed (n=255, 36.4%), the hours worked per week ranged from 2-60.

The largest proportion of participants lived only with their mother (n=298, 42.5%). The next largest proportion lived with both a mother and a father (n=112, 16%). The remainder of participants lived with another relative (n=84, 12%), alone (n=51, 7.3%), or with a boyfriend (n=47, 6.7%). Another type of living circumstance or cohabitant was selected by 15.5% of respondents (n=109). During the past twelve months, all participants, or someone they reside with, had received financial support or services from at least one of the following sources: welfare including Temporary Assistance to Needy Families, food stamps, WIC, and/or Section 8 housing. One source of support was received by 77.2% of participants (n=541), two sources by 14.6% (n=102), three sources by 7.7% (n=54), and four sources by 0.6% (n=4). See Table 2 for a complete summary of sample demographics.

Table 2. Sample Demographics (N=701)

	Mean	SD
Age (yrs)	17.64	1.67
	N	**%**
Education	59	8.4
8th grade or less	363	52.5
9th-12th grade	130	18.5
High school grad/GED	114	16.3
1-2 yrs of college	30	4.3
Other		
Currently Resides With:		
Alone	51	7.3
Mother & Father	112	16.0
Mother only	298	42.5
Boyfriend	47	6.7
Another relative	84	12.0
Other	109	15.5
Receipt of Family Aid		
1 Source	541	77.2
2 Sources	102	14.6
3 Sources	54	7.7
4 Sources	4	0.6
Current Employment Status	255	36.4
Employed	446	63.6
Unemployed		
Current Relationship Status	144	20.5
Single	557	79.5
Has a boyfriend		

Covariate Characteristics

Covariates in addition to age included depression, social support, and four types of abuse history (emotional, physical, sexual – vaginal/anal). The mean depression score was 14.86 (SD=6.51), with responses ranging from 8-32. Social support scores ranged from 14-44 and the average score was 35.94 (SD=5.83). In regards to the four types of abuse, 55.9% had experienced emotional abuse (n=392), 39.4% had been physically abused, 24% had been forced to have vaginal sex against their will (n=168), and 4.1% had been forced to have anal sex (n=29).

Predictor Variable Characteristics

The only predictor variable utilized for the purposes of this thesis was self-esteem. The mean self-esteem score was 33.92 (SD=5.08) and responses ranged from 16-40. A total of 117 youth (16.7%) reported the highest possible self-esteem score of 40.

Hypothesized Mediator Characteristics

The hypothesized mediator variables included partner communication self-efficacy, communication frequency, and refusal self-efficacy. The mean score for partner communication self-efficacy was 20.56 (SD=3.57) and scores ranged from 6-24. Refusal self-efficacy scores ranged from 7-28 and the average score was 24.56 (SD=3.40). Frequency of partner communication across five topic items ranged from 5 (Never) – 20 (7 or more times for each topic). The average score was 11.92 (SD=4.32). Of the five topics, participants spoke most frequently about their partner's sexual history (mean=2.56 of 4, SD=1.03), followed by preventing pregnancy (mean=2.48 of 4, SD=1.10), preventing STDs (mean=2.46 of 4, SD=1.12), preventing AIDS (mean=2.34 of 4, SD=1.18), and lastly how to use condoms (mean=2.08 of 4, SD=1.02).

Sexual History Characteristics

Participants' sexual history details their use of condoms at last sex, in the last 90 days, and in the last six months. The very last time engaging in vaginal intercourse, 43.1% of participants used a condom to prevent STDs or pregnancy (n=302). In the last 90 days, 16.1% used a condom consistently, or 100% of the time (n=113). During the last six months, 11.3% of study participants used a condom at every vaginal sex (n=79). Table 3 shows more detailed statistics of condom use and sexual history.

Table 3. Sexual History Characteristics

	N	%
Condom Use at Last Sex		
Yes (Protected Sex)	302	43.1
No (Unprotected Sex)	399	56.9
Condom Use, Last 90 Days		
Consistent Condom Use (100%)	113	16.1
Inconsistent Condom Use (<100%)	551	78.6
Missing	37	5.3
Condom Use, Last 6 Months		
Consistent Condom Use (100%)	79	11.3
Inconsistent Use (<100%)	622	88.7

Bivariate Analyses

Bivariate analyses of self-esteem and the hypothesized covariates revealed that seven of the nine were significantly associated with the predictor variable of self-esteem. Those variables included: employment status (r=.103, p=.006), depression (r= -.485, p<.001), social support (r=.368, p<.001), physical abuse (r= -.245, p<.001), emotional abuse (r= -.253, p<.001), vaginal sexual abuse (r= -.313, p<.001), and anal sexual abuse

(*r*= -.128, *p*=.001). Table 4 shows in greater detail the correlations between all the hypothesized covariates.

Table 4. Intercorrelations of Self-Esteem & Study Variables

Variable	2	3	4	5	6	7	8	9	10
1. Self-Esteem	.061	.029	.103**	-.485***	.368***	-.245***	-.253***	-.313***	-.128***
2. Age		-.054	.343***	.027	-.013	.027	.020	.089*	.049
3. Receipt of Family aid			-.078*	.042	-.031	.076*	.013	-.038	.054
4. Employment Status				-.097**	.017	-.063	-.004	-.029	-.083*
5. Depression					-.178***	.270***	.289***	.276***	.132***
6. Social Support						-.135***	-.131***	-.179***	-.052
7. Physical Abuse							.551***	.279***	.082*
8. Emotional Abuse								.330***	.040
9. Sexual Abuse (Vaginal)									.202***
10. Sexual Abuse (Anal)									

*p≤.05, **p≤.01, ***p≤.001

Mediation Analyses

In order to test for possible mediation, initial bivariate analyses were run between self-esteem, condom use at last sex, consistent condom use in the last 90 days, and consistent condom use in the last six months. The purpose of these analyses was to determine whether a pathway even exists between self-esteem and consistent condom use. The results showed that self-esteem was not significantly associated with condom use at last sex, (B=.007, *p*= .056), consistent condom use in the last 90 days (*p*=.43), or consistent condom use in the last six months (*p*=.22). Therefore, mediation cannot be present since a statistically significant pathway between self-esteem and consistent condom use does not exist.

However, for the purposes of this thesis, mediation analyses were continued for condom use at last sex due to marginal significance. Bivariate analyses were subsequently conducted to determine whether the hypothesized mediator variables of partner communication self-efficacy, partner communication frequency, and refusal self-efficacy were associated with the predictor variable of self-esteem. Results showed that all three hypothesized mediators were significantly associated with self-esteem. Communication self-efficacy and refusal self-efficacy were associated at the significance level of $p<.001$. Communication frequency was significant at $p= .006$. Table 5 shows the intercorrelations for self-esteem and the hypothesized mediators.

Table 5. Intercorrelations of Self-Esteem & Hypothesized Mediators

Variable	2	3	4
1. Self-Esteem	.354***	.104**	.334***
2. Communication Self-Efficacy		.319***	.396***
3. Communication Frequency			.131***
4. Refusal Self-Efficacy			

**p≤.01, ***p≤.001

When testing significant associations between the mediators and the behavioral outcome of condom use at last sex, only partner communication self-efficacy (p=.018) and communication frequency (p=.003) were significantly associated. Refusal self-efficacy (p=.129) was not associated with consistent condom use at this time point. Therefore, refusal self-efficacy was not included in the subsequent model.

Lastly, a multivariate logistic regression was performed controlling for the predictor variable and covariates significant at p<.20, which included age, all types of abuse history except vaginal sexual abuse, and depression. The results did not demonstrate a mediation effect occurring, as self-esteem's p-value increased but the slope remained the same (B=.007, p=.719). Only communication frequency was still

significantly associated (*p*=.037), while partner communication self-efficacy had dropped out (*p*=.272). See Figure 3 for logistic regression mediation results.

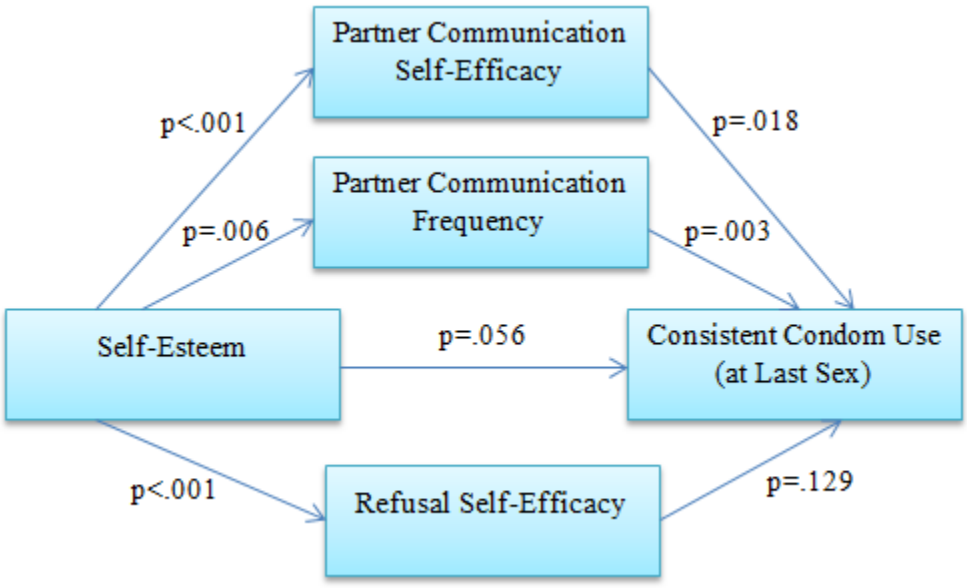

Figure 3. Logistic Regression Mediation Results

Frequencies of High vs. Low Self-Esteem and Consistent Condom Use

In order to have a greater understanding of participants' consistent or inconsistent condom use based on their self-reported self-esteem, self-esteem was dichotomized into high/low self-esteem based on a median split. Those with self-esteem scores of 0-34 were categorized as "lower self-esteem" and those with scores of 35-40 were categorized as "higher self-esteem." Cross-tabulation frequencies were run for consistent condom use at last sex, 90 days, and 6 months based on high/low self-esteem. The resulting frequencies are shown in Tables 6-8. As previously mentioned, no significant associations existed between self-esteem and consistent condom use at any time point, demonstrated again through the resulting chi-square calculations.

Table 6. High/Low Self-Esteem & Consistent Condom Use at Last Sex

	Protected Sex (Condom Used)	Unprotected Sex (Condom Not Used)	Total
Lower Self-Esteem	135 (40.8%)	196 (59.2%)	331
Higher Self-Esteem	167 (45.1%)	203 (54.9%)	370
Total	302 (43.1%)	399 (56.9%)	701

Chi-square: (X^2=1.35; *df*=1; *p*=.246)

Table 7. High/Low Self-Esteem & Consistent Condom Use in Last 90 Days

	Consistent Condom Use (100%)	Inconsistent Condom Use (<100%)	Total
Lower Self-Esteem	54 (17.3%)	259 (82.7%)	313
Higher Self-Esteem	59 (16.8%)	292 (83.2%)	351
Total	113 (17%)	551 (83%)	664

Chi-square: (X^2= .023; *df*=1; *p*=.879)

Table 8. High/Low Self-Esteem & Consistent Condom Use in Last 6 Months

	Consistent Condom Use (100%)	Inconsistent Condom Use (<100%)	Total
Lower Self-Esteem	36 (10.9%)	295 (89.1%)	331
Higher Self-Esteem	43 (11.6%)	327 (88.4%)	370
Total	79 (11.3%)	622 (88.7%)	701

Chi-square: (X^2= .097; *df*=1; *p*=.755)

Associations of Proportion Condom Use

Ad hoc analyses were additionally performed to examine any relationship between self-esteem, partner communication, and proportion condom use. Proportion condom use was calculated using the equation: (# of times a condom was used for

vaginal intercourse / # of total vaginal intercourse occasions). Proportion calculations for condom use were assessed for the 7 days, 90 days, and 6 months prior to baseline.

Bivariate analyses showed that self-esteem was also not correlated with proportion condom use in the last 7 days (n=398, p=.198), 90 days (n=664, p=.316), or 6 months (n=701, p=.106). In regards to the hypothesized mediators, partner communication self-efficacy was significantly correlated with proportion condom use in the last 7 days (r=.115, p=.022), 90 days (r=.102, p=.009), and 6 months (r=.098, p=.009). Partner communication frequency was too significantly associated with proportion condom use in the last 7 days (r=.170, p=.001), 90 days (r=.136, p<.001), and 6 months (r=.146, p<.001). Refusal self-efficacy however was still not associated with even proportion condom use in this sample at any time point (7 days: p=.808, 90 days: p=.530, 6M: p=.536).

Chapter V: Discussion

As this is one of the first known studies to examine relationships of self-esteem, partner communication, and consistent condom use in one model, its findings can be utilized to further understand pathways for sexual risk reduction among the sample population. They can also help inform additional areas of research with regards to how psychosocial factors affect sexual decision making. Conclusions were informed by the preceding data analyses and a thorough review of the existing literature surrounding the topic.

As demonstrated in the literature, the African American adolescent females in this sample did have high mean self-esteem scores (mean=33.92, SD=5.08) and condom use rates similar to recent national data (43.1% at last sex) (Bachman et al., 2011; Centers for Disease Control and Prevention, 2010). All participants were either experiencing financial constraints or residing with someone of low SES, since 100% of respondents were obtaining financial aid from at least one source. In terms of generalizability, this could be a common characteristic of adolescents seeking sexual health services from clinics in downtown Atlanta, GA. The use of sexual health clinics among this age range and its correlation with risky sexual behaviors could also be reflective of limited parental monitoring too, such that only 16% came from a two-parent home (DiClemente, Wingood, Crosby, Sionean, Cobb, et al., 2001)**.** The following results were found in regards to the three research questions of this thesis:

Question 1: What association does self-esteem have with partner communication among African American female adolescents?

In this sample, self-esteem was significantly associated with partner communication self-efficacy, communication frequency, and refusal self-efficacy. The

original hypothesis was supported, such that among this population higher self-esteem scores were associated with of higher levels of communication among sexual partners. This indicates that psychosocial determinants, such as internalized ideas of "self," are related to this population's ability to communicate efficiently and frequently. It also adds continued evidence to the existing literature demonstrating that self-esteem is an important component to address in conjunction with partner communication when designing behavioral interventions specifically tailored for African American adolescent females (Salazar et al., 2005; Salazar et al., 2004).

Question 2: Is partner communication associated with consistent condom use among African American female adolescents?

Among this population, only communication self-efficacy and partner communication frequency were significantly associated with consistent condom use at last sex. Refusal self-efficacy was not associated with consistent condom use at last sex. Ad hoc analyses demonstrated that communication self-efficacy and partner communication frequency were also associated with proportion condom use in the last 90 days and 6 months. Refusal self-efficacy was still not associated with proportion condom use in this sample at any point. Therefore, the original hypothesis was only partially supported. Increased condom use was predicted by frequency and efficacy of conversations with a sexual partner, however not by perceived ability to refuse sex.

The lack of statistical association between refusal self-efficacy and condom use was unexpected based on trends in previous research. However, upon further review of the scale content, the lack of association could be attributed to the fact that refusal self-efficacy is not actually about condom use, the hypothesized outcome variable. This scale

is more focused on the refusal of unwanted or unprotected sex, and may therefore not be correlated with condom use as are other communication scales. Instead of promoting communication, this scale is directed more at an individualized efficacy to refuse as opposed to promoting dyadic communication.

Also, given the high levels of self-esteem and efficacy among this specific sample, confidence may not be truly indicative of behavioral outcomes. Perceived ability does not translate into actually performing safer sex practices. Emotional processes, arousal, and attraction may confound an adolescent female's ability to refuse, or desire to refuse, in the moment. Vulnerability and power dynamics within the relationship could also negate perceived efficacy during the act.

There could also be a degree of social desirability bias playing into the associated responses. Perhaps the youth felt they should know how to refuse, or have never encountered an instance where they wanted to refuse, and therefore overestimate their intended reaction in such a circumstance. Motivation could be a key element missing in such a scenario, which supports previous findings correlating partner communication with an individual's motivation to actually do so (Crosby, DiClemente, Wingood, Cobb, et al., 2002).

Question 3: What is the relationship between self-esteem, partner communication, and consistent condom use?

No significant associations were found between self-esteem and consistent condom use at any time period among this study population. In addition, significant correlations were not found between self-esteem and proportion condom use. Even when

mediation analyses were performed for condom use at last sex due to marginal significance, no mediation was found to be present. Therefore, the original hypothesis that the relationship between self-esteem, partner communication, and condom use could be explained using a mediation model was found to be null. Self-esteem was correlated with partner communication, and two of the three measures for partner communication were found to be correlated with consistent condom use, however self-esteem was not directly related to a behavioral outcome of condom use.

Although the results were not significant for this study population, there are indications that further research is still needed using different sampling methods among dissimilar demographics. There was not much variation in self-esteem among this population and the number of participants reporting consistent condom use across the three time points decreased dramatically as time passed. At the six month follow-up period, 37 participants were either lost to follow-up or failed to respond to the question regarding condom use, reducing the overall sample size. These factors limited the statistical power of the analyses and did not give a diverse range of background experiences to examine. Perhaps there are key differences among African American adolescent females who seek sexual health services from teen clinics for predominantly inner-city youth. As theorized by the Theory of Gender and Power, different results might be seen among less independent and empowered youth (Wingood & DiClemente, 2002). Those with the capacity to access and utilize such services may already have higher confidence and efficacy. Sexual education could also be influencing confidence if these youth have more exposure to sexual decision making, and therefore have already built up skills other individuals not seeking care may not have yet. Future research is also

needed to examine correlations between relationship dynamics, power, and relationship quality to self-esteem and its subsequent effect on sexual risk taking.

Limitations

As with the conduct of any research, there were several limitations associated with the methodology of this thesis. The cross-sectional design of this study restricts determinations of directionality and causality in regards to the examined variables. For those significantly correlated, it is impossible to tell which influenced the other. For example, self-esteem may not be influencing partner communication, but instead partner communication may be affecting self-esteem. It is difficult to make subsequent recommendations on efficient sexual risk reduction techniques without having a greater understanding of which mechanisms are the leading driver of change.

Using only cross-sectional baseline data also limits the ability to see behavior change due to the intervention techniques utilized. Comparing pre- and post-intervention data, or longitudinal findings, would give a better comparison of how improving communication efficacy through interactive skills building and telephone counseling correlates with changes in self-esteem and condom use. In this thesis, only correlations of pre-intervention attitudes, beliefs, and behaviors were able to be determined.

In using secondary data, analyses are restricted to the variables and scales already integrated into the study. While the literature has demonstrated the benefits of including a more well-versed definition of the "self" by including multiple constructs such as self-esteem, body image, ethnicity, and/or BMI (Hensel et al., 2011; Rostosky et al., 2008; Salazar et al., 2004), this study did not collect data on such constructs. Therefore, a more

inclusive variable of "self-concept" was not able to be commuted, perhaps limiting the scope of self-esteem among African American adolescent females.

Recall bias is also a consideration in computing estimates of consistent condom use, and even ad hoc proportion condom use rates. While these adolescent females may be better able to remember condom use at last sex, some difficulties may arise with the feasibility of recalling every instance of vaginal intercourse and number of times a condom was used in the last 90 days and 6 months. Although self-reported condom use has been demonstrated in the literature to be relatively accurate, this accuracy weakens as the frequency of sexual encounters increases, as well as the recall period (Jaccard, McDonald, Wan, Dittus, & Quinlan, 2002).

Generalizability is also a limitation of this thesis. While the findings are applicable to African American adolescent females between the ages of 14 and 20 years, they may not apply to other ethnicities or age ranges. These findings might also be specific to predominantly inner-city adolescents who seek sexual health services from a clinic-based provider. Similarities in findings may not be seen among individuals who seek services from a private provider or insurance-based provider. Inherent differences in confidence and capabilities may be seen in those adolescents who travel greater distances, possibly alone and perhaps navigating public transit, to seek services. Demographics and other associated sample characteristics are only applicable to the Southeast region of the United States as well.

Implications and Recommendations

Due to the need to increase consistent condom use among African American adolescent females, future studies and interventions need to assess how changes in self-

esteem, specifically from low to high levels, affect adoption of preventive behaviors. Drawing upon the current literature and the marginally significant findings of this thesis, it is hypothesized that as levels of self-esteem increase, so will self-efficacy in correlation with confidence, enabling youth in this population to self-regulate consistent condom use as they gain the ability to initiate partner communication and equalize power differences within relationships.

Because many adolescents are already aware of the lower sexual risk that comes with proper condom usage (i.e. it's not an innovative concept), specific attention should be paid to building skills and changing outcomes expectancies, both personal and societal. While limitations are recognized regarding feasibility and time constraints of intervention sessions, solely focusing on bolstering communication strategies and skills may not effectively change behavior if the assertiveness to initiate conversation is rooted in a deeper issue – such as negative self-perception. This requires intervening on multiple levels in order to change not only individual behaviors, but also the normative beliefs of entire social and community networks. For example, self-regulation and social norms should be targeted by promoting positive self-image and encouraging adolescents to make personal commitments to valuing their rights in sexual decision-making without pressures from external persons or cues. This should be aided through the social support of parents, peers, and organizations. These support systems ought to be based on longevity in order to sustain consistent use of condoms and prevent relapses of negative self-image, lower sexual assertiveness, and infrequent partner communication.

Building upon the existing data, further studies should examine the psychological factors that affect behavioral decisions behind consistent condom use. In particular, these

studies should consider the interplay that gender power imbalance has on the lack of partner communication and the role that female sexual assertiveness has on negotiation initiation. Specifically, they should aim to identify how lower levels of self-esteem, over other associated risk factors, contributes to a lack of sexual assertiveness causing infrequent partner communication and therefore inconsistent condom usage.

The application of TGP and SCT constructs to increase sexual assertiveness through positive self-esteem is important for planning such HIV interventions and health education classes among adolescents. This can be accomplished by examining what actually influences changing levels of self-esteem when related to partner communication, such as social norms and support. Positive enforcement, care, and open communication from parental figures, peers, and social organizations has been shown to elevate condom use by providing protective support, increasing skills, and building confidence (Buzi, Smith, & Weinman, 2009; Chia-Chen Chen & Thompson, 2007; Crosby, DiClemente, Wingood, Harrington, et al., 2002; Hadley et al., 2009; Miller, Levin, Whitaker, & Xu, 1998; Whitaker, Miller, May, & Levin, 1999).

In assessing the normative beliefs of a community or network, the concepts outlined by the TGP become influential. Discrepancies of gender and power may put women at an increased risk of HIV exposure, a risk multiplied further among adolescent, ethnic minority females (Wingood & DiClemente, 2000). Looking again at the effects of reciprocal determinism, multiple constraints attributed to power inequalities can place these adolescents in a seemingly helpless situation where they feel devoid of choices. This in turn can affect their perceptions of self, status, assertiveness and therefore subsequent sexual risk taking.

Based upon the evidence presented by prior research, the most effective theoretical constructs of TGP and SCT should be integrated into a framework designed to diminish the disproportionally high rates of HIV diagnoses among adolescent African American females by increasing self-esteem and empowering youth to initiate communication and negotiations with their sexual partner, facilitating action to consistent condom use and impacting sustained maintenance.

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