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Relationship Power and SRH Outcomes: The Mediating Role of Refusal Self-Efficacy and Depression among Emerging Adult African American Females by Recent IPV Exposure

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## Abstract

Relationship Power and SRH Outcomes: The Mediating Role of Refusal Self-Efficacy and Depression among Emerging Adult African American Females by Recent IPV Exposure  
By Katherine F. Cushing

**Introduction:** STIs have reached the highest rates ever, with young African American women living in Georgia being disproportionately impacted. Those who experience IPV are more likely to engage in behaviors that put them at risk for STIs. **Purpose:** The goal of this study was to explore a possible mediation, by refusal self-efficacy and depression, between the association of relationship power and condom use and STI status among those who had and had not experienced recent IPV. **Methods:** Cross-sectional baseline data was used from a survey African-American females aged 18-24, recruited, through street and community outreach in Atlanta, Georgia, for a comparative treatment efficacy trial of an alcohol-related sexual risk reduction intervention. **Results:** No significant associations were found between relationship power and STI or condom use outcomes among the IPV ( $p=0.172$ ,  $p=0.263$ ) and No IPV ( $p=0.245$ ,  $p=0.281$ ) groups or the full sample ( $p=0.051$ ,  $p=0.704$ ). Depression and sex refusal self-efficacy each were associated with relationship power, for those who had and had not experienced IPV as well as for the full sample ( $p<0.001$ ). A Chi-Square analysis showed no significant association between IPV exposure and STI status. Similarly, a t-test indicated a lack of association between IPV exposure and condom use. A mediation analysis was conducted to examine the proposed pathway using the full sample only, given the lack of association between relationship power and outcomes when stratified by IPV exposure. No mediation was found. **Conclusions:** These results add to the inconsistent findings regarding IPV, relationship power, and SRH outcomes. Future research may wish to examine differences in these variables among younger and older adolescents and consider the role of a sexual network, and other partner characteristics. High STI rates among those experiencing IPV highlights the need to promote prevention methods that women can control, including testing, PrEP, and HPV vaccinations. Additionally, the high rates of STIs and low reported condom use overall calls for increased sex education in high schools that stresses STI risk and the importance of health protective behaviors to reduce the spread of STIs among high-risk adolescents including African American emerging adults.

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## Chapter 1: Introduction

### *Background and Significance*

Despite decreasing teen pregnancy rates, adolescent sexual and reproductive health, especially among older adolescents, needs continued attention from the public health community, as rates of sexually transmitted infections (STIs) remain particularly high. Older adolescents transitioning into adulthood are in the midst of a period of exploration and identity formation, and likely engaging in behaviors that put them at increased risk for adverse sexual health outcomes. During this life stage, one's number of casual sex partners often reaches its highest point (Lyons, Manning, Longmore, & Giordano, 2015). Inconsistent use of condoms, and the mixing of alcohol and drug use with sexual intercourse is common (J. E. Lewis, Miguez-Burbano, & Malow, 2009). These risky sexual behaviors can lead to serious consequences, including contraction and spreading of STIs including HIV.

According to the Center for Disease Control and Prevention cases of STIs have reached the highest rates ever ("Reported STDs at Unprecedented High in the U.S.,"). Among those who have reported having an STI, adolescents, aged 15-24 years, are disproportionately represented, facing the greatest risk of becoming infected. Of the estimated 20 million new STIs in the U.S. each year, half occur among young people, though they make up only 27% of the sexually active population (Barton et al., 2016). Though both young men and women are impacted by STIs, young women are more likely to have long term consequences due to undiagnosed or untreated STIs (Barton et al., 2016). Undiagnosed, STIs are estimated to lead to infertility in over 20,000 women

each year ("CDC Fact Sheet: Reported STDs in the United States, 2016," 2017). In addition to infertility and other chronic and acute conditions associated with STIs, such as pelvic inflammatory disease and malignancy, STIs also have negative psychological impacts (Yavorsky et al., 2014). Individuals with STIs experience depressive symptoms, self-blame, and behavioral disengagement (Yavorsky et al., 2014). Not only do STIs have profound impacts on individuals physical and emotional wellbeing, they also represent a significant economic burden accounting for \$16 billion in health care costs annually ("CDC Fact Sheet: Reported STDs in the United States, 2016," 2017).

African American women, in particular, are at increased risk for STIs and associated adverse health outcomes. Rates of reported cases among Black women are 5.4 times higher for chlamydia and 9.6 times higher for gonorrhea, when compared to White women (Barton et al., 2016). Human papillomavirus (HPV) is the most common STI in the US (Satterwhite et al., 2013), despite the availability of a vaccine that protects against the strains that cause almost all genital warts and most cancers since 2009 (Barton et al., 2016; Garland et al., 2009; Gissmann et al., 1983). Vaccine receipt among African American and white women in this age group were similar, 38.0% and 44.7% respectively (Williams, 2017). However, black women have higher rates of HPV-associated cervical cancer than white women (Viens, 2016). Reported rates of primary and secondary syphilis have been increasing since 2001, with 7.5 reported cases per 100,000 individuals in 2014. Though much of the rise in prevalence is primarily attributed to men who have sex with men (MSM), from 2014 to 2015, the rate among men increased by 18.1% while among women the increase was 27.3%. Rates of syphilis

in African Americans are 4.7 times that among Whites (*Sexually Transmitted Disease Surveillance 2016, 2017*). Though rates of STIs are concerning among all populations, it is clear that, African American women face disparities in rates of diagnosis and outcomes that negatively impact their health and wellbeing.

In 2015, adolescents aged 13-24, made up 22% of all new HIV diagnoses. Though, like syphilis, risk for HIV is often associated with MSM, who account for 81% of these cases, it is important to consider HIV among adolescent African American females given the disproportional impact compared to young women of other races and ethnicities ("HIV Among Youth," 2018). African American females between the ages of 13 and 24 experience a rate of infection that is 20 times that of white females the same age, and 6 times that of Hispanic females ("CDC Fact Sheet: HIV among African American Youth," 2014). As those with STIs are also more likely to get HIV than those without STIs, promoting safe-sex practices that reduce the likelihood of STI acquisition and prompt treatment can additionally serve to protect against HIV.

Of the four regions of the U.S., Northeast, South, Midwest, and West, the southern region has historically, and continues to have the highest rates of common STIs (Barton et al., 2016). Additionally, residing in the state of Georgia increases STI risk, as Georgia has the 4<sup>th</sup>, 5<sup>th</sup>, and 6<sup>th</sup> highest rates of reported Gonorrhea, Primary and Secondary syphilis, and Chlamydia cases of all fifty states and the District of Columbia respectively (*Sexually Transmitted Disease Surveillance 2016, 2017*). Based on the seriousness of STI exposure and the increased risk, it is important to understand

underlying factors influencing risky sexual behaviors among African American females, particularly those in Georgia.

### Risk Behaviors

Three risk behaviors are especially important to consider in relation to the epidemiology of STIs: sex without condoms, sex with multiple partners, and the concurrency of sexual partners. High rates of STIs among emerging adults is particularly concerning given declining rates of condom use among sexually active youth. According to results from the 2015 National Youth Risk Behavior Survey (YRBS) while 30% of high school students are sexually active, only 57% use condoms; a decline from 63% in 2003 ("CDC Releases Youth Risk Behaviors Survey Results,"). It is important to note that the YRBS considers someone to be "currently sexually active" if they have had sex in the three months prior to the survey. Similarly, condom use is measured only as use at last sex, rather than over the course of the previous three months, so an individual who has had sex multiple times but only used a condom the most recent time would still be considered as a condom user in this data. Only 46% of black females report using a condom at last sex (Kann, 2016). Understanding how to support the use of condoms among specific populations is particularly important given the possibility for condom use to decrease as the use of highly-effective birth control methods becomes more popular (Steiner, Liddon, Swartzendruber, Rasberry, & Sales, 2016). Given the tendency for number of sexual partners to increase through adolescence it is important to consider the increased risks that emerging adults carry given the trends in condom use decline represented in younger adolescents in the YRBS.

## Relationship Power

Poor sexual and reproductive health (SRH) and risky-sexual behaviors can be considered an outcome of low perceived power in one's romantic relationship and an inability to safely and autonomously make health-protective decisions (Raiford, Seth, & DiClemente, 2013; Seth, Wingood, Robinson, Raiford, & DiClemente, 2015; Volpe, Hardie, Cerulli, Sommers, & Morrison-Beedy, 2013). Often, relationship power is tied to experiences of intimate partner violence (IPV), which is defined as "physical, sexual, or psychological harm by a current or former partner or spouse". Previous research using data from the National Longitudinal Study of Adolescent Health found that 40% of respondents had experienced IPV by the time they were young adults (Halpern, Spriggs, Martin, & Kupper, 2009). It is particularly important to understand the relationship between experienced IPV and condom use and STIs in African American women as they have reported experiencing IPV at a rate 35% higher than Caucasian women and 2.5 times more likely than women of other races/ethnicities (Rennison & Welchans, 2000). African American women who report IPV are more likely to report inconsistent condom use or using condoms less frequently (Seth, Raiford, Robinson, Wingood, & DiClemente, 2010), abuse due to condom negotiation (Wingood & DiClemente, 1997), and self-reporting a history of STIs (Seth et al., 2010) than those with no reported IPV. Women who have experienced negative outcomes such as IPV as a result of condom negotiation may be open to not using condoms to avoid upsetting their partner, to maintain their relationship, and to avoid new IPV (Guan et al., 2016).

## Current Interventions

Though many STI/HIV prevention interventions for young women promoting increased condom use contain a component on how to recognize abusive relationships, it is not a major focus of the programming and does not delve deeply into complex relationship dynamics (JM Sales, DiClemente, Davis, & Sullivan, 2012). These risk-reduction interventions are often designed to target skills regarding condom use and negotiation, but this may not be the best approach for those who have experienced or currently experience IPV (Seth et al., 2015; Teitelman, Ratcliffe, Morales-Aleman, & Sullivan, 2008). Previous research suggests that assessing individuals' past sexual, physical, and psychological experiences, such as experiences with IPV, would help public health professionals develop interventions that are relevant to the concerns of a target population (Guan et al., 2016).

Though it is important for young women to learn skills and gain comfort in communicating with condom negotiation, those who believe that their safety or the security of their relationship would be put at risk by using these skills must be approached in a different manner. It may be necessary to place a greater emphasis on improving sense of self-worth and self-esteem among those who experience IPV rather than focusing on skills that they are not confident to employ or employ safely (Raiford et al., 2013). Given the differences in experience related to condom negotiation among those who have and have not experienced IPV, in order for interventions to be the most efficacious, it may be prudent to differentiate instruction for these distinct populations. One option for this may be to provide women who experience IPV instruction and resources for prevention options that they can control themselves without their

partners' awareness. Previous research has suggested the use of prevention methods within individual control, such as Pre-Exposure Prophylaxis (PrEP) which protects against HIV, for women who experience IPV including young African American women (Willie, Kershaw, Campbell, & Alexander, 2017).

#### *Purpose and Research Questions*

Based on the particularly high level of risk that African American females face as emerging adults in regards to sexual and reproductive health (SRH) it is important to understand aspects that influence condom-use behaviors and STI acquisition and how these may differ among young women who experience IPV. Previous research has largely focused on the role of increased sexual risk behaviors among those who experience IPV and those with low relationship power (Gielen et al., 2007; Hess et al., 2012; Miller et al., 2007; Pulerwitz, Amaro, Jong, Gortmaker, & Rudd, 2002; Raj et al., 2007; Seth et al., 2010; Wingood, Seth, DiClemente, & Robinson, 2009). Though previous research has examined mediation pathways between abuse history and consistent condom use (J. L. Brown et al., 2014; J. Sales et al., 2008), this study seeks to shift the status quo by stratifying by experiences of IPV and by examining STI status as well as frequency of condom use as outcomes. Previous research has identified impacts that IPV experience can have on health-related factors such as sex refusal self-efficacy and depression as well as connecting these factors to relationship power and SRH outcomes (L. K. Brown et al., 2006; Pulerwitz et al., 2002; J. Sales et al., 2008). This study aims to examine how these factors interact with relationship power and SRH outcomes.

The goal of this study is to provide greater understanding regarding the factors that influence SRH among those who have and have not experienced recent IPV and the role of relationship power, particularly during this salient period of development. Specifically, this study seeks to explore a possible mediation, by refusal self-efficacy and depression, between the association of relationship power and condom use and STI status. The results of this study can be used to answer calls by previous researchers regarding tailoring interventions regarding safe sex practices for specific populations (Guan et al., 2016; Raiford et al., 2013; Seth et al., 2015; Teitelman et al., 2008). Efforts to mitigate adverse SRH outcomes among African American females, have the potential to reduce the health disparities and improve population health among the age group most impacted by STIs. To achieve the goals described above, this thesis aims to answer the following research questions:

- 1) How is relationship power associated with condom use and STI presence among African American emerging adult females who have and have not experienced recent IPV?

Hypothesis 1a: Higher relationship power will be positively associated with greater condom use consistency and absence of STI among those who those who have experienced recent IPV.

Hypothesis 1b: Higher relationship power will be positively associated with greater condom use consistency and absence of STI among those who have not experienced recent IPV.

- 2) Are depression and refusal self-efficacy associated with condom use and STI presence among African American emerging adult females who have and have not experienced IPV?

Hypothesis 2a: Percentage of condom use and STI status will be significantly associated with experience of depression symptoms and self-efficacy regarding the ability to refuse sex among those who have experienced recent IPV.

Hypothesis 2b: Percentage of condom use and STI status will be significantly associated with experience of depression symptoms and self-efficacy regarding the ability to refuse sex among those who have not experienced recent IPV.

- 3) What is the relationship between power, depression, refusal self-efficacy, condom use, and STI presence among African American emerging adult females who have and have not experienced IPV?

Hypothesis 3a: The association between relationship power and percentage of condom use and STI status be mediated by refusal self-efficacy and depression among those who experienced recent IPV. Refusal self-efficacy will act as a stronger mediator than depression among this population.

Hypothesis 3b: The association between relationship power and percentage of condom use and STI status will be mediated by refusal self-efficacy and depression among those who have not experienced recent IPV. Depression will act as a stronger mediator than sex refusal self-efficacy among this population.

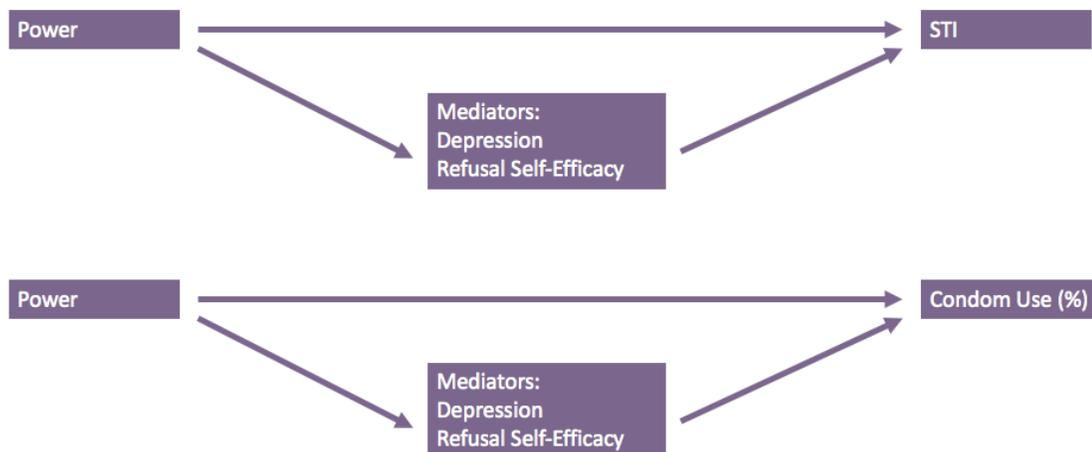


Figure 1 Proposed Mediation Model

### *Theoretical Basis*

This study is based in Social Cognitive Theory (SCT) which accounts for human behavior through an interplay between personal, behavioral, and environmental influences (Bandura, 1986). Grounded in the idea of reciprocal determinism SCT highlights that not only are individuals and their behavior influenced by their behavior but they also have the power to in turn alter environmental factors that impact behavior both at an individual and larger level (Glanz, Rimer, & Viswanath, 2008). Key concepts of SCT can be considered in five main categories: 1) psychological determinants of behavior, including outcome expectations and self-efficacy, 2) observational learning, 3) environmental determinants of behavior, 4) self-regulation, and 5) moral disengagement.

To further understand the role of SCT constructs in this topic it is necessary to consider this concept through an additional theoretical layer with the Theory of Gender and Power (TGP) (Connell, 1987). This theory builds from Connell's writings on gender and power imbalances at a societal and lower levels that shape interactions between

men and women. Connell built upon previous research regarding the sexual divisions of labor and power by adding a third structure, cathexis. This concept incorporates social norms and affective attachment. It describes social determinants of appropriate female sexual behavior and the sexual concern with impurity and immorality. Research surrounding HIV has adopted TGP as framework for understanding women's vulnerability toward risky sexual behaviors as well as to inform interventions, supporting its inclusion as a guiding theory in this study (Wingood & DiClemente, 2000).

The use of both theories allows for greater clarity in the ways in which gender and power biases shape society and individual functioning within that environment (Figure 2). These theories blend to bring further clarity to the multitude of factors that shape decision of emerging adult females to engage in sex without the protection of condoms. Young women's experiences with relationship power, their belief in their ability to refuse unwanted sex, and depression are all shaped by the interplay of societal norms expressed on multiple levels.

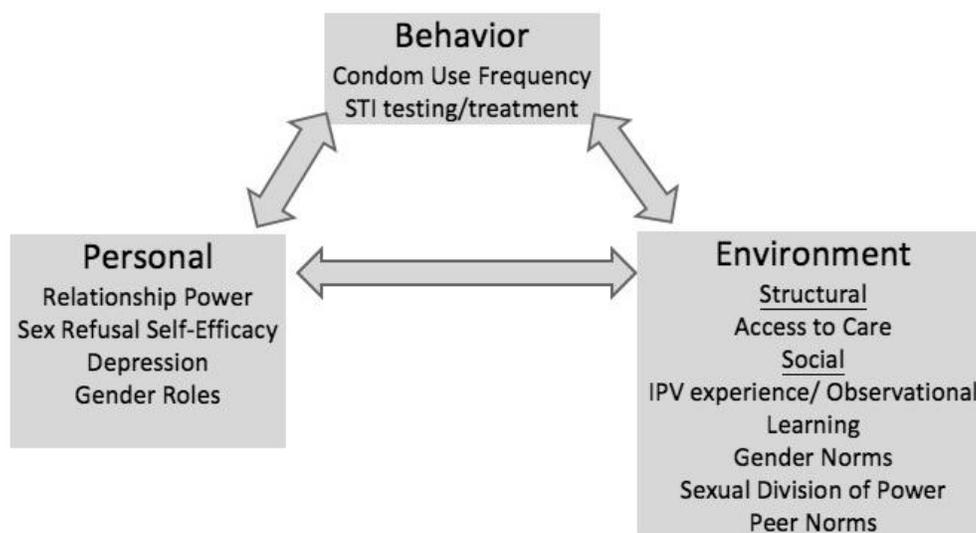


Figure 2 Theoretical Basis: SCT and TGP

The incorporation of SCT and TGP constructs in the personal, behavioral, and environmental realms guided the development of this thesis. Key constructs include; self-efficacy, observational learning, and outcomes expectations from SCT and the TGP structures of sexual division of power and cathexis (Table 1). Self-efficacy refers to one's belief in their own ability to perform behaviors that bring the desired outcome. In this study, the behavior of interest is refusing unwanted sex. Outcomes expectations refer to one's beliefs about the likelihood and value of the consequences of behavioral choices. In choosing to use or not use a condom one considers the likelihood and severity of adverse and positive consequences. Observational learning is learning to perform behaviors through the interactions of others either in real life or through the media. This can be connected to the topics of interest through experiences with partners or at a broader level, through which individuals may learn to engage in safe or risky SRH behaviors. Peer Modeling is a particularly strong component of observational learning (Glanz et al., 2008). The high value that adolescents place on the approval of their peers makes this especially important in this population. The sexual division of power refers to the ability of one partner to influence the actions of another. This can be expressed directly in sexual relationships, such as with a partner who disapproves of safe sex practices, or more broadly displayed through policy and media that disempower women to make their own decisions or emphasize the sexual degradation of women. Cathexis, as described earlier, encompasses the social norms that contribute to an environment in which women are more likely to experience adverse health outcomes due to expectations regarding their behavior.

Table 1 Key Theoretical Constructs

<b>Theory</b>	<b>Construct</b>	<b>Applicability to study</b>
SCT	Self-efficacy	Refusal of unwanted sex
	Outcomes Expectations	STI or violence outcomes associated with condom use or negotiation
	Observational Learning	Learned behaviors regarding condom use
TGP	Sexual Division of Power	Decreased autonomy or power over sexual decisions
	Cathexis	Increased likelihood of having an STI due to social norms

## Chapter 2: Literature Review

Arnett proposed *emerging adulthood* as a distinct developmental period to describe the transitional period between adolescence and adulthood. Typically considered to apply to those ages 18-25, this period is marked by five defining characteristics- identity exploration, instability, self-focus, feeling in-between, and experiencing a range of possibilities (Arnett, 2000). Identity exploration in this stage is dominated by solidification of identity that began in adolescence in the fields of love, work, and world views. Romantic relationships in this period are distinct from those in adolescence- lasting longer and delving to deeper levels of intimacy as individuals seek a long-term partner. Additionally, several types of risky behavior, including unprotected sex, peak during the period of emerging adulthood. Emerging adults engage in risky behaviors as part of their identity exploration as they seek to engage in a wide array of experiences before they settle into their traditional adult roles. At the same time, emerging adults experience more freedom to make these risky decisions as they act with more autonomy and are less likely to be monitored by parents than during adolescence (Arnett, 2000). Given the tendency toward risky sexual behaviors that are a key component to healthy development to adulthood, it is important to understand the ways in which adverse SRH outcomes can be minimized for this age group while supporting positive sexual experiences.

Personal, Behavioral, and Environmental Influences on Condom Use

Despite the fact that condoms are the only readily available method for preventing both contraction and spread of STIs, use is relatively low. Factors that

contribute to non-use among adolescents and emerging adults, and have been extensively examined through previous research. Recent research using data from the 2013 Youth Risk Behavior Survey, has shown condom use to be associated with contraceptive method, with those who use a long acting reversible contraception being 60% less likely to use condoms than oral contraceptive users (Steiner et al., 2016). A nationally representative study of 15-24 year olds found that those who believed that condoms interfered with sexual pleasure were less likely to have used a condom at last sex than those who did not perceive condoms as diminishing pleasure (Higgins & Wang, 2015).

Behaviors are also related to interpersonal factors, both between sexual partners and driven by peer interactions. Condom use is more likely among college students when sex is part of an ongoing romantic relationship compared to a “hook up” in which partners are not engaged in a romantic relationship (Fielder & Carey, 2010). Another study found that the more time young women spent with their boyfriend per week the more likely they were to engage in unprotected sex (Crosby et al., 2000). Those who held normative beliefs about their male partners dominant role and those who identified their partner as the one who decided when to have sex, were less likely to use condoms (Crosby et al., 2000). Previous research has highlighted the importance of partner communication, with those who are more comfortable and communicate more frequently with their partner as more likely to engage in safe SRH behaviors (Crosby et al., 2013; Salazar et al., 2004). Adolescents who perceive that more of their peers are engaging in risky sexual behaviors are more likely to participate in those

behaviors while those who perceive that their peers practice more safe-sex behaviors, like using condoms, are more likely to do the same (Crosby et al., 2000; Kogan et al., 2011; L. M. Lewis, Melton, Succop, & Rosenthal, 2000).

Young women may be particularly likely to be willing to engage in risky sexual behaviors based on social constructs. Pressure that adolescent and emerging adult females face from society and from female peers to be in a romantic relationship as a symbol of social status, along with the pressure from male peers to have sex, and fear of failing relationships, contributes to a willingness to engage in behaviors that put their SRH at risk (Banister, Jakubec, & Stein, 2003; Raiford et al., 2013; Teitelman, Bohinski, & Boente, 2009). The social environment in which emerging adults explore and establish sexual and relationship norms can have a profound influence on their SRH outcomes.

#### IPV, Condom Use, and STI Outcomes

In addition to engaging in risky behaviors to maintain their relationship, previous research has shown that specific relationship characteristics are associated with SRH practices and outcomes. Those who experience or have experienced IPV are more likely to engage in risky sexual behaviors that in turn increase their risk for STIs (Gielen et al., 2007; Lichtenstein, 2005; Seth et al., 2010; Wingood et al., 2009). African American women who report IPV are more likely to use condoms inconsistently or less frequently (Seth et al., 2010; Wingood & DiClemente, 1997) and have an STI (J. Sales et al., 2008; Seth et al., 2010; Wingood et al., 2009) than those who have not experienced IPV. Women who experience IPV, whether it be in the form of physical, sexual, or psychological harm, may be unable to engage in SRH protective practices that prevent the contraction of STIs. Not only does IPV have the potential to affect sexual risk

behaviors in the future, evidence suggests that IPV and risky behavior occur at the same time, with violence and threats being used to coerce engagement in unwanted or unprotected sex (Miller et al., 2007; Raj et al., 2007). This suggests that current experiences with IPV can have an immediate impact on SRH and protective or risk behaviors.

Previous research suggests that IPV over the past year to the past two months are associated adverse SRH outcomes among emerging adults and older adolescents. Wave 3 of the National Longitudinal Study of Adolescent Health among women aged 18 to 28 years found that those who reported being victims of physical IPV in the past year were significantly more likely to test positive for chlamydia, gonorrhea, and trichomonas than those who were in non-abusive relationships (13.2% vs. 6.3%,  $p < 0.01$ ) and were less likely to report condom use at last sex (Hess et al., 2012). In a study of women ages 16-29 attending family planning clinics, one in five participants in this study reported involuntary non-condom use in the past three months with higher rates among those experiencing IPV, and those who reported greater fear of refusing sex. While no significant relationship was found between IPV and STI contraction, participants self-reported STI diagnosis and may have been influenced by social desirability bias (Decker et al., 2014). A study among African American adolescent females found that the odds of testing positive for an STI among those ages 18-21 were 3.4 times as great for those who had experienced IPV in the past 60 days as for those with no recent IPV (Raiford et al., 2013). Experiences of IPV can have a strong influence on SRH outcomes. This may be through the manifestation of imbalances of power within the relationship.

### Relationship Power

Relationship power refers to “engaging in behaviors against the other partner’s wishes, having greater control over decision making in the relationship, or having greater control over a partner’s behavior” (Pulerwitz et al. 2000). As adolescents establish their identities in terms of romantic relationships the power they have in relationships can influence their SRH including condom use, experience of IPV, and STI contraction. One study has found that population attributable risk estimates indicate that 52% of the lack of consistent condoms use among women can be attributed to low sexual relationship power and that women with high levels of relationship power were five times as likely as women with low levels to report consistent condom use (Pulerwitz et al., 2002). Previous research indicates that the more power that a teen has in a relationship the less likely they were to experience IPV (Teitelman et al., 2008). Relationship power has also been directly linked to STI status among African American adolescent females. Another study found that the odds of testing positive for chlamydia, gonorrhea, and trichomonas were 3.9 times as great for those who reported having less power in their relationship than those who had more (Raiford et al., 2013). It is unclear whether relationship power acts as a protective factor against IPV or if IPV leads to a lesser sense of power. Either way it is clear than when considering interventions related SRH many interpersonal factors must be considered.

### Relationship Power and Refusal Self-Efficacy

Sexual refusal self-efficacy refers to an individual’s belief in their own ability to choose not to engage in sexual activities. Being able to refuse unwanted sex and a sense of autonomy may help reduce adverse SRH outcomes. A study of African-

American adolescents found that those with high safer sex self-efficacy and low perceived partner-related barriers to condom negotiation were 2.5 times more likely to consistently refuse unwanted sex than those with low self-efficacy and high partner barriers (Sionéan et al., 2002). A study of Adolescent African American females aged 15-21 found that those with a history of sexual violence had lower reported condom use as related to their lack of power to communicate with their partner and negotiate safe-sex practices (J. Sales et al., 2008). Another study conducted with African American females of the same ages found that the odds for testing STI-positive were 3.8 times as great for those who perceived themselves as more able to refuse sex under various circumstances as for those with a lower perceived ability to refuse sex (Raiford et al., 2013). Discrepancies in the influence of young women's ability to choose to refuse sex or engage in safe-sex practices suggests the need for further research regarding sexual autonomy and SRH outcomes.

#### Relationship Power and Depression

Previous research has linked mental health problems including depression with risky sexual behaviors. A study of African American adolescents ages 15-21 found that those who reported depressive symptoms at baseline were 3.9 times more likely to report inconsistent condom use at 6 month follow-up compared to those who did not report depressive symptoms (L. K. Brown et al., 2006). Adolescent girls who experience moderate, high and very high levels of depressive symptoms have been found to have over three times the risk of ever having an STI compared to girls with low depressive symptoms (Shrier, Harris, Sternberg, & Beardslee, 2001). Among African American females aged 14-20 in Atlanta, GA, depression was associated with increased likelihood

of engaging in unprotected sex and testing positive for chlamydia, gonorrhea, or trichomonas (Jackson, Seth, DiClemente, & Lin, 2015). Depression has also been associated with a lack of perceived control and power over one's life. Previous research has found that relationship power mediates the relationship between IPV and long-term depression (Filson, Ulloa, Runfola, & Hokoda, 2010). This suggests that feelings of powerlessness rather than just violence and abuse plays into feelings of depression in those who have experienced IPV.

#### Summary

Preventing adverse SRH outcomes has been a focus of research regarding adolescents and emerging adults. Though teen pregnancy rates are falling, continued attention is needed on understanding what influences young adults to engage in risky behaviors so that interventions can be designed to encourage positive development, mental health, and healthy romantic relationships. While previous studies have identified low sexual or relationship power is associated with negative SRH outcomes including non-condom use and positive STI status, more research is needed on underlying factors that may be more modifiable. Refusal self-efficacy and depression have both been associated with low relationship power and low condom use and increased likelihood of having an STI. However, there exists a gap in the literature regarding how these factors mediate the pathway between relationship power and the SRH outcomes. Similarly, there is a lack of understanding regarding how these pathways differ between those who are and are not in an abusive relationship, which is generally characterized by low relationship power. This study aims to clarify and examine the connection between relationship power, refusal self-efficacy, and depression, with

condom use and STI status among those experiencing and not experiencing IPV. Given the growing rates of STIs in the adolescent population, and the associated long term health and financial costs ("CDC Fact Sheet: Reported STDs in the United States, 2016," 2017; Yavorsky et al., 2014), it is important to understand factors that contribute to the additional risk of those who are most vulnerable. The results of this study can be used to inform future research and sexual risk reduction interventions aimed at helping African American females navigate emerging adulthood while protecting themselves from adverse SRH outcomes.

## Chapter 3: Methods

### Participants

Between January 2012 and February 2014, African-American females aged 18-24, were recruited through street and community outreach in Atlanta, Georgia for an alcohol-related sexual risk reduction intervention. Recruitment staff approached potentially eligible young women and conducted confidential screening or scheduled a phone screening for a later date. The recruiter described the study, solicited participation, and assessed eligibility and interest for participation in the intervention. Inclusion criteria included self-identification as African-American, being 18-24 years of age, and having consumed alcohol on at least three occasions and had unprotected vaginal sex with a male in the past 90 days. Participants were excluded if they were married or pregnant. Respondent-driven sampling was also used for recruitment. Participants referred young women to be screened, and received \$5 for up to three who were successfully enrolled. Eligible participants were scheduled for baseline assessment, at which informed consent was received, and workshop activities at the study site at Emory University. Of the eligible young women, 96% (N=560) enrolled in the study, completed baseline assessments and were randomized to study conditions for the intervention. Over the course of the 12-month study participants were compensated up to \$445 for attending all intervention sessions and assessments. All study protocols were approved by the Emory University Institutional Review Board.

## Procedures

### Study Design

The main study was a comparative treatment efficacy trial consisting of three-arms: 1) a CDC designated evidence-based HIV prevention intervention culturally- and gender-tailored for African American young women (Horizons) with a group motivational enhancement therapy (GMET) component specifically targeting alcohol as a risk factor for STI/HIV (Horizons+GMET condition); 2) a time equivalent and dose-equivalent Horizons with placebo attention in the form of a General Health Promotion module (Horizons+GHP condition); and 3) an enhanced standard-of-care (SOC condition). Participants were randomly assigned in a 1:1:1 ratio using concealment of allocation techniques as to minimize potential allocation bias (Schulz & Grimes, 2002). This design allowed for the efficacy of the Horizons+GMET and Horizons+GHP interventions to be compared to that of the SOC condition.

### Intervention Methods

#### *Data Collection*

Baseline data collection occurred prior to randomization and consisted of three components: 1) bio-specimen collection to screen for pregnancy and three STIs (Chlamydia, gonorrhea, and trichomoniasis); 2) an audio-computer-assisted self-interview (ACASI) survey that included sociodemographics, sexual history, sexual behavior in the past 7 and 90 days, alcohol and drug use, communication skills, and psychosocial constructs associated with STI/HIV-preventative behaviors; and 3) and objective sexual communication assessment through video-recorded role play. Component 3 occurred only with a randomly selected subsample of 40% of participants. This was a planned missing design, used to maximize statistical power when an

expensive measure, the objective communication assessment, it unable to be used with all participants due to cost limitations.

The current study focused only on the data from the baseline ACASI assessment.

## Measures

### Background Demographics

Information regarding the sample population was obtained from questions regarding age, education, relationship status, age at first willing vaginal sex, partner characteristics, STI history, living situation, employment, and source of income.

Participants reported their age in years and their age the first time they willingly had vaginal sex as continuous variables.

Education status was measured as the participant's last grade completed in school, with possible answers: "eighth grade or less", "some high school", "graduated high school or GED", "some college", "graduated college", and "other".

Relationship status in the previous three months was measured as a dichotomous variable in which participants indicated whether or not they had had a boyfriend or main partner in the given time period. Similarly, employment status reported as a dichotomous variable, with participants reporting if they were currently employed at baseline.

Partner age was reported through one question, which asked "In general how old are the people you have sex with, are they...?". Responses included "much younger than you (4 or more years)", "younger than you (2-3 years)", "about the same age", "older than you (2-3 years)", and "much older than you (4 or more years)".

STI history was measured as a dichotomous variable in which participants responded to the question: “have you ever had a positive STD test result”.

Participants also indicated with whom they currently lived. Possible responses included, “alone”, “roommate”, “boyfriend”, “parents”, and “other people”.

Participants also indicated the source of most of their spending money. Possible options included “parents or relatives”, “TAFN public assistance”, “boyfriend”, “loans/school”, “own job”, and “other”.

Stratification Variable: Recent IPV

Experiences of emotional, physical, and sexual abuse in the last three months were measured as dichotomous variables. Emotional abuse was assessed by asking “In the past 3 months, have you been emotionally abused by your boyfriend? (threatened, called names, etc.)” while physical abuse was addressed by asking “In the past 3 months have you been physically abused by your boyfriend? (hit, punched, kicked, slapped, etc.)”. Recent sexual abuse was measured by asking “In the past 3 months has your boyfriend forced you to have vaginal sex when you didn’t want to?”. For the purposes of this study, positive response to any question was considered as experiencing recent IPV. Previous research has measured IPV exposure with the same measures for different time periods, including: the past 60 days (Swartzendruber, Brown, Sales, Murray, & DiClemente, 2012), 6 months (Seth et al., 2010), and over one’s lifetime (Seth et al., 2015).

#### Covariates

Covariates in addition to age (described above) included STI knowledge, condom intentions, STI worry, and partner trust, risky sexual peer norms. Psychometrics for this and other scales can be seen in Table 2.

STD knowledge was measured on a 11 item scale with possible scores ranging from 0-11, where higher scores indicated more knowledge (Sikkema et al., 2000). Items included “birth control pills protect women against the AIDs virus” and “STDs can only be passed through open sores or lesions”. Possible answers included, “true”, “false”, and “don’t know”. Scores were calculated as the summation of correct answers. Responses of “don’t know” were considered incorrect. Cronbach alpha for the scale was 0.74.

Condom Intentions was measured using a 4-item scale with possible scores ranging from 4-16 where higher scores reflected greater intention of use. The scale was edited from a 12 item “intention to practice safer sexual behavior” scale, with a Cronbach alpha of 0.88 for the original scale, by including only those specific to condom use (Schmiege, Broaddus, Levin, & Bryan, 2009). The included items were “How likely is it that you will buy or get condoms in the next three months?”, “How likely is it that you will carry condoms with you in the next three months?”, “How likely is it that you will talk to a sex partner about using condoms in the next three months?”, and “How likely is it that you will use a condom every time you have sexual intercourse in the next three months?”. Responses were measured on a 4-point scale from “Will not happen” to “Will definitely happen”.

STI worry was determined through one-item “How much do you worry that you could get an STD?”. Answers were reported on a 5 point Likert-like scale where 1 indicated “not at all”, 3 “some”, and 5 “a lot”.

Partner trust was measured using a 5 item scale with possible responses ranging from 5-35 where higher scores indicated a more trust in one’s partner (Rempel, Holmes, & Zanna, 1985). Sample items include “My partner has proven to be a faithful person. He would never be unfaithful, even if there was absolutely no chance of being caught” and “I know my partner will never let me down”. Responses were reported using a 7-point Likert scale where 1 indicated “strongly disagree” and 7 “strongly agree”. Cronbach alpha for the scale was 0.81.

Risky sexual peer norms was measured on a 5 item scale with scores ranging from 5-25 where higher scores represented greater perceived peer norms supporting risky sexual behavior. The scale was adapted from an original six item scale, with an original Cronbach alpha of 0.72, by removing the item that asked “how many of your friends think that: It’s okay to be abstinent, that is choose not to have sex” (Stanton et al., 1995). Sample items that remained in the scale were “How many of your friends think that: It’s okay to have vaginal or anal sex without a condom?” and “How many of your friends think that: cheating on your partner is okay”. Response options included “none”, “few”, “some”, “most” and “all”.

Hypothesized Predictor Variable

Relationship Power

Relationship power was measured through the Sexual Relationship Power Scale-Relationship Control subscale (modified) (Pulerwitz, Gortmaker, & DeJong, 2000). The

scale consisted of nine items measured on a 4-point Likert scale where 1 indicated strongly disagree and 4 indicated strongly agree. Sample items included “If I asked my partner to use a condom, he would get violent” and “When my partner and I are together I am pretty quiet”. All items were reverse coded. Possible scores ranged from 9-36, with higher scores indicating higher levels of perceived relationship control. Cronbach alpha for the scale was 0.84.

#### Hypothesized Mediator Variables

##### *Refusal Self-Efficacy*

Refusal self-efficacy was assessed using Cecil & Pinkerton’s (1998) 7-item Refusal Self-efficacy scale. Responses were measured on a 4-point Likert-type scale where 1 indicated “I definitely can’t say no”, 2 “I can’t say no”, 3 “I can say no”, and 4 “I definitely can say no”. 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 is pressuring you to have sex?”. Possible scores ranged from 7-28 with higher scores indicating greater refusal self-efficacy. The Cronbach alpha for the scale was 0.85.

##### *Depression*

Depression was determined using the Center for Epidemiologic Studies Depression (CES-D) short scale (Santor & Coyne, 1997). The scale consists of eight-statements about feelings that the participant may have experienced over the last week. Sample items included “My sleep was restless” and “I had crying spells”. Responses were measured on a 4-point scale of the frequency of experiencing

symptoms, where 1 was “less than 1 day”, 2 was “1-2 days”, 3 was “3-4 days” and 4 was “5-7 days”. Possible scores ranged from 8-32 with higher scores indicating the presence of more depressive symptoms. Cronbach alpha was 0.92.

#### Hypothesized Outcome Variables

##### *STI Status*

STI Status was determined based on the results of biospecimen tests for chlamydia, gonorrhea, and trichomoniasis. Positive result for any of the three tests was used to indicate positive STI status.

##### *Condom Use*

Participants were first asked, “In the past 3 months, how many times have you had vaginal sex?”. Participants were then asked, “Out of the [value from previous question] time you’ve had vaginal sex in the past 3 months, how many times did you use a condom?”. Condom use was assessed as a continuous variable as the proportion of times that the participant reported having used a condom while having vaginal sex.

Table 2 Psychometric properties of measures

<b>Scale</b>	<b>Scale Range</b>	<b>Scale Item Example</b>	<b>Scale Reliability (alpha)</b>
Power in the Relationship	9-36	“When my partner and I are together I am pretty quiet”	0.84
Refusal Self-Efficacy	7-28	“How sure are you that you would be able to say NO to having sex with someone who is pressuring you to have sex?”	0.85
Depression	8-32	“I had crying spells”	0.92
STI Knowledge	0-11	“STDs can only be passed through open sores or lesions”	0.74
Condom Intentions	4-16	“How likely is it that you will talk to a sex partner about using condoms in the next three months?”	0.88*
Partner Trust	5-35	“I know my partner will never let me down”	0.81

Scale	Scale Range	Scale Item Example	Scale Reliability (alpha)
Peer Norms- Risky Sexual Behavior	5-25	“How many of your friends think that: it’s okay to have vaginal or anal sex without a condom?”	0.72*

\*this value was from the original scale

#### Analysis

A de-identified and cleaned SPSS database was used for analysis. SPSS Statistics 25 for Mac was used to conduct all analyses. Once all study scales and variables were computed, the sample was stratified by IPV exposure and descriptive statistics were conducted for all continuous and categorical variables for each exposure as well as for the whole sample. A T-test and Chi-Square analysis were conducted to assess the relationship between IPV exposure and outcomes of condom use and STI status, respectively. The following analyses were conducted to address the research aims of this study:

- 1) Bivariate analyses were run between the predictor variables (power) and outcome variables (STI status and frequency of condom use) for the full sample, and then repeated with the sample stratified by IPV exposure. Simple linear regressions were conducted for condom-use analyses, while binary logistic regressions were used to assess STI status relationships. Significance levels were set at  $p < 0.05$ .
  - a. Outcome A (frequency of condom use)
  - b. Outcome B (STI status)

- 2) Bivariate analyses were run between the predictor (power) and the hypothesized mediator variables (refusal self-efficacy and depression) for each group. Simple linear regressions were conducted for these analyses. Significance levels were set at  $p < 0.05$ .
  - a. Refusal self-efficacy
  - b. Depression
- 3) A Multivariate logistic regression and multivariate linear regression were conducted between the hypothesized mediators and the hypothesized outcomes while controlling for predictor variable (power) and covariates using the full sample. Multivariate logistic regression was used to assess STI status while multivariate linear regression was conducted to examine the condom use outcome.

## Chapter 4: Results

### Background Demographics

The sample consisted of a total of 560 African American females, who ranged in age from 17 to 24 (mean = 20.58, SD= 1.892). The highest level of education completed by most participants was having graduated from high school or received a GED (n= 231, 41.3%). The next most common were having finished some high school (n= 180, 32.1%) followed by some college (n= 128, 22.9%). Only 2% had graduated from college. There were five participants each who reported 8<sup>th</sup> grade or other as their highest education.

The majority of the sample (n= 471, 84%) reported having a boyfriend or main partner in the past three months. Average age at first willing vaginal sex was 15.39 years (SD=1.85), with responses ranging from 11 to 23. Most participants reported generally having sex with people who were about the same age as them (38.8%, n = 217) or with a partner 2-3 years older (36.1%, n=202). Participants were much more likely to generally have partners who was more than 4 years older than them (22.3%, n=125) than 2-3 years younger (2%, n=11) or 4 years younger (0.9%, n=5). Over half of the sample (52%, n=291) reported ever having a positive STI test.

Living with parents was the most common living situation, reported by 48.4% (n=271) of participants. The next most common was living with a boyfriend (17.5%, n=98), followed by living alone (15.5%, n=87) and living with a roommate (15.0%, n=84). The remaining 3.6% (n=20) identified living with "other people". The majority of the sample did not have a job for which they were paid (72.9%, n=408). Most participants received their spending money from their parents (n=191, 34.1%). There were a similar

number of participants whose spending money came from their own job (n=129, 23%) as from their boyfriend (n=123, 22%). Another unspecified source was reported by 12% of the sample (n=67). Public assistance (TANF) and loans/school were less common, 4.3% (n=24) and 4.6% (n=26) respectively.

While participant's mean age was similar across IPV exposures, differences were evident in other demographic characteristics. About 70% (n=68) of participants who reported recent IPV had a positive lifetime STI history, compared to 50% (n=188) among those with no IPV. Those who experienced IPV were more likely to have attended or graduated from college, but less likely to be employed than those with no recent IPV. Mean age at first willing vaginal sex was slightly lower among those with IPV exposure than those who did not experience IPV, 14.72 and 15.51 years respectively. Interestingly, those reporting IPV were more likely to report a non-specified "other" option when asked about their living situation and source of spending money than those with no IPV. See Table 3 for details regarding demographics for those who have and have not experienced recent IPV, as well as the full sample.

Table 3: Sample Demographic Characteristics

	<b>IPV</b> n (%) / mean (sd)	<b>No IPV</b> n (%) / mean (sd)	<b>Full sample</b> n (%) / mean (sd)
Sample	96 (17.14%)	375 (66%)	560 (100%)
Age (yrs)	20.66 (1.87)	20.61 (1.93)	20.58 (1.89)
Education			
<b>8<sup>th</sup> grade or less</b>	0	4 (1.1%)	5 (0.9%)
<b>Some High School</b>	30 (31.3%)	121 (32.3%)	180 (32.1%)

	<b>IPV</b> n (%) / mean (sd)	<b>No IPV</b> n (%) / mean (sd)	<b>Full sample</b> n (%) / mean (sd)
<b>Graduated High School/GED</b>	37 (38.5%)	159 (42.4%)	231 (41.3%)
<b>Some College</b>	25 (26.0%)	82 (21.9%)	128 (22.9%)
<b>Graduated College</b>	2 (2.1%)	6 (1.6%)	11 (2%)
Relationship Status (last 3 months)			
<b>Single/dating</b>			89 (15.89%)
<b>Boyfriend/Main Partner</b>			471 (84.11%)
Age at first willing vaginal sex (yrs)	14.72 (1.84)	15.51 (1.76)	15.39 (1.85)
General Partner Age			
<b>Much Younger (4 or more yrs)</b>	1 (1.0%)	2 (0.5%)	5 (0.9%)
<b>Slightly Younger (2-3 yrs)</b>	1 (1.0%)	7 (1.9%)	11 (2.0%)
<b>About the Same Age</b>	32 (33.3%)	154 (41.1%)	217 (38.8%)
<b>Slightly Older (2-3 yrs)</b>	33 (34.4%)	133 (35.5%)	202 (36.1%)
<b>Much Older (4 or more yrs)</b>	29 (30.2%)	79 (21.1%)	125 (22.3%)
STI History			
<b>Has tested positive</b>	67 (69.8%)	188 (50.1%)	291 (52%)
<b>Never tested positive</b>	29 (30.2%)	187 (49.9%)	269 (48%)
Lives with			
<b>Parents</b>	48 (50%)	180 (48%)	271 (48.4%)
<b>Boyfriend</b>	17 (17.7%)	74 (19.7%)	98 (17.5%)
<b>Alone</b>	14 (14.6%)	61 (16.3%)	87 (15.5%)
<b>Roommate</b>	9 (9.4%)	57 (15.2%)	84 (15.0%)
<b>Other</b>	8 (8.3%)	3 (0.8%)	20 (3.6%)
Employment Status			
<b>Employed</b>	18 (18.8%)	106 (28.3%)	152 (27.1%)
<b>Unemployed</b>	78 (81.3%)	269 (71.7%)	408 (72.9%)
Source of Spending Money			
<b>Parents</b>	34 (35.4%)	136 (36.3%)	191 (34.1%)
<b>Own Job</b>	13 (13.5%)	90 (24.0%)	129 (23.0%)
<b>Boyfriend</b>	22 (22.9%)	88 (23.5%)	123 (22.0%)
<b>School/Loans</b>	5 (5.2%)	13 (3.5%)	26 (4.6%)
<b>Public Assistance/TANF</b>	5 (5.2%)	13 (3.5%)	24 (4.3%)
<b>Other</b>	17 (17.7%)	35 (9.3%)	67 (12.0%)

#### Independent Variable

Of the 471 (84.11%) participants who had a boyfriend or main partner in the last three months, 96 (20.38%) reported experiencing IPV. Among those who reported experiencing recent IPV, the average relationship power score was 24.44 (SD=6.30), with scores ranging from 9 to 36. Of the 375 participants in a relationship who did not report recent IPV (79.62%), the average relationship power score was 29.70 (SD = 4.87), with score ranging from 9 to 36 where a higher score reflects a greater sense of relationship power.

#### Covariates

Covariates in addition to age (described above) included STI knowledge, condom intentions, STI worry, and partner trust, and risky sexual peer norms (Table 2). Scores on the STI knowledge scale ranged from 0-11 with a mean of 7.62 (SD=2.46) for the full sample. The mean condom intention score was 11.23 (SD= 3.52) with scores ranging from 4-16. STD worry scores ranged from 1-5 with a mean of 3.13 (SD =1.44). The mean partner trust score was 22.57 (SD=6.22) with score ranging from 5-35. Scores for perceived risky sexual peer norms ranged from 5-25 with a mean of 9.79 (SD=4.06). See Table 4 for values presented by IPV exposure.

Table 4 Covariates by IPV exposure

<b>Variable</b>	<b>IPV</b> Mean (SD)	<b>No IPV</b> Mean (SD)	<b>Full Sample</b> Mean (SD)
STI knowledge	8.031 (2.51)	7.68 (2.32)	7.62 (2.46)
Condom Intentions	10.42 (3.64)	11.44 (3.47)	11.23 (3.52)
STD Worry	3.57 (1.34)	3.01 (1.44)	3.13 (1.44)
Partner Trust	18.44 (6.81)	23.64 (5.67)	22.57 (6.22)
Risky Sex Peer Norms	11.63 (4.47)	9.38 (3.70)	9.79 (4.06)

## Mediators

### *Depression*

The average Depression score for the 96 participants reporting recent IPV was 16.05 (SD = 6.29), ranging from 8 to 32. The average Depression score was 12.63 (SD = 5.32), with scores ranging from 8 to 32, among the 375 who had not recently experienced IPV (Table 5).

### *Refusal Self-Efficacy*

All 96 participants reporting IPV completed the sex refusal self-efficacy scale. The average score was 22.02 (SD = 4.98), with scores ranging from 7 to 28. For those without IPV the average sex refusal self-efficacy score is 24.16 (SD = 4.07) with scores ranging from 7 to 28 (n= 375).

## Dependent Variables

### *Proportion Condom Use*

The average proportion of condom use over the past three months among those experiencing recent IPV was 0.27 (SD = 0.31), with scores ranging from 0-0.9 (n=95). The average proportion of condom use among those not experiencing IPV was 0.33 (SD = 0.31) ranging from 0 to .96 (n= 366).

### *STI status*

Of the 96 participants reporting recent IPV, 37 (38.5%) had at least one STI, while 59 (61.5%) tested negative. Of the 375 participants not reporting recent IPV, 124 tested positive for at least one STI (33.1%) while the remaining 251 (66.9%) tested negative.

Table 5: Descriptives of Variables of Interest by Recent IPV Exposure

<b>Variable</b>	<b>IPV</b> Mean (SD)	<b>No IPV</b> Mean (SD)	<b>Full Sample</b> Mean (SD)
<b>Power</b>	24.44 (6.30)	29.70 (4.87)	28.74 (5.71)
<b>Depression</b>	16.05 (6.29)	12.63 (5.32)	13.35 (5.85)

Variable	IPV	No IPV	Full Sample
	Mean (SD)	Mean (SD)	Mean (SD)
Sex Refusal Self-Efficacy	22.02 (4.98)	24.16 (4.07)	23.64 (4.54)
Proportion Condom Use	0.27 (0.31)	0.33 (0.31)	0.33 (0.308)
	N (%)	N (%)	N (%)
At Least One STI	96 (38.5%)	124 (33.1%)	189 (33.8%)

#### Bivariate Analysis of Covariates

Bivariate analyses were conducted to examine the relationship between relationship power and the proposed covariates, for the full sample as well as by recent IPV exposure. Among those who experienced recent IPV (n=96) only two of the proposed covariates were significantly correlated with relationship power: partner trust and risky sexual peer norms (Table 6). For those with no recent IPV exposure (n=375), relationship power was significantly correlated with STI knowledge, STI worry, partner trust, and risky sexual peer norms (Table 7). Among the full sample (n= 560) 6 of the 7 proposed covariates were significant. These included STI knowledge, condom intentions, STI worry, partner trust, and risky sexual peer norms (Table 8).

Table 6 Bivariate Correlations among those with IPV exposure (n=96)

Variable	2.	3.	4.	5.	6.	7.
<b>1. Relationship Power</b>	-.042	0.181	.196	-.112	0.328**	-0.420***
<b>2. Age</b>		0.137	0.182	-0.013	-0.16	-0.103
<b>3. STI Knowledge</b>			0.349***	-0.012	-0.112	-0.259*
<b>4. Condom Intentions</b>				0.071	-0.116	-0.301**
<b>5. STI Worry</b>					-.266*	0.139
<b>6. Partner Trust</b>						-0.033
<b>7. Risky Sexual Peer Norms</b>						

\* p≤.05, \*\*p≤.01, \*\*\*p≤.001

Table 7 Bivariate Correlations among those with no IPV exposure (n= 375)

Variable	2.	3.	4.	5.	6.	7.
<b>1. Relationship Power</b>	0.003	0.220***	0.028	-0.125*	0.350***	-0.196***
<b>2. Age</b>		0.262***	0.033	0.065	-0.024	0.000
<b>3. STI knowledge</b>			-0.049	0.103*	0.043	0.021
<b>4. Condom Intentions</b>				0.126*	-0.015	-0.220***
<b>5. STI worry</b>					-0.265***	0.091
<b>6. Partner Trust</b>						-0.143**
<b>7. Risky Sexual Peer Norms</b>						

\*  $p \leq .05$ , \*\*  $p \leq .01$ , \*\*\*  $p \leq .001$

Table 8 Bivariate correlations among full sample (n=560)

Variable	2.	3.	4.	5.	6.	7.
<b>1. Relationship Power</b>	.006	.170***	0.089*	-0.137***	0.392***	-0.312***
<b>2. Age</b>		0.264***	0.059	0.032	-0.066	-0.011
<b>3. STI knowledge</b>			0.032	0.095*	-0.25	0.002
<b>4. Condom Intentions</b>				0.117**	0.020	-0.228***
<b>5. STI worry</b>					-0.235***	0.112**
<b>6. Partner Trust</b>						-0.157***
<b>7. Risky Sexual Peer Norms</b>						

\*  $p \leq .05$ , \*\*  $p \leq .01$ , \*\*\*  $p \leq .001$

### Mediation Analysis

Bivariate Analysis: Independent with Dependent

To test for a possible mediation, bivariate analyses were run to assess the relationship between relationship power and the outcomes of proportion of condom use and STI status by recent IPV exposure. The results of simple linear regressions indicated no significant relationship between power and proportion of condom use among those who experienced recent IPV ( $B=0.006$ ,  $p=0.263$ ), those with no recent IPV exposure ( $B=-0.004$ ,  $p=0.281$ ), or the full sample ( $B=0.001$ ,  $p=0.704$ ) as seen in Figure 3.

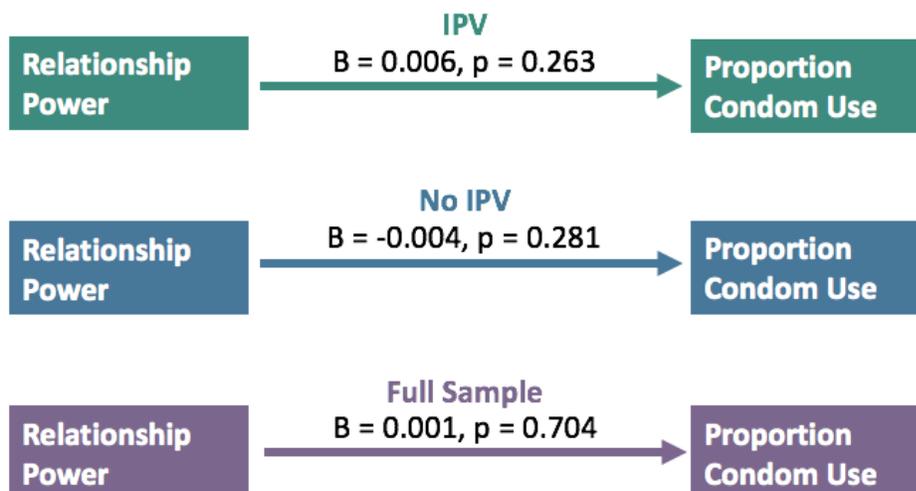


Figure 3 Binary regression between relationship power and condom use by IPV exposure

Similarly, results of a binary logistic regression between relationship power and STI status showed no significant results among those with or without recent IPV exposure,  $\text{Exp}(B) = 0.995$  ( $p = 0.172$ ) and  $\text{Exp}(B) = 0.974$  ( $p = 0.245$ ), respectively. Among the whole sample the relationship was more significant ( $\text{Exp}(B) = 0.970$ ,  $p = 0.051$ ) (Figure 4). Given the lack of a statistically significant relationship between relationship power and proportion of condom use or STI status among either IPV exposure group it is not possible for a mediation to exist. However, the marginal significance of the relationship among the full sample, supported a continued mediation analysis at this level. For the purposes of this thesis, bivariate analyses were conducted for both IPV exposure groups as well as the full sample.

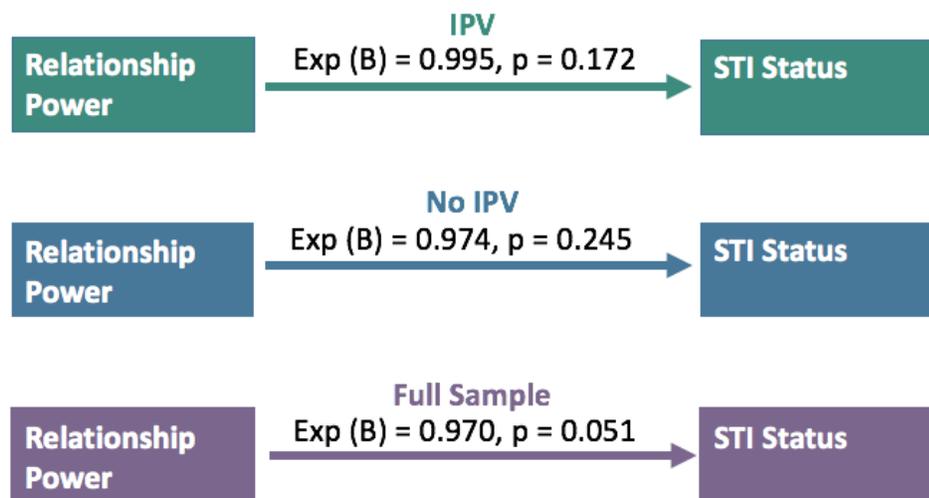


Figure 4 Binary regression between relationship power and STI status by IPV exposure

#### Bivariate Analysis: Independent with Mediators

Continuing the mediation analysis, bivariate analyses were conducted to examine the relationship between the proposed mediator variables, depression and refusal self-efficacy, with the relationship power by recent IPV exposure. The results indicate that among both groups and the full sample, the mediators were significantly associated with relationship power ( $p < 0.001$  for all variables as seen in Table 9). There was a negative relationship between relationship power and depression among both those who have and have not experienced recent IPV,  $B = -.0492$  and  $B = -0.319$ , respectively. A positive relationship was found between relationship power and refusal self-efficacy where  $B = 0.471$  for those who reported recent IPV exposure and  $B = 0.302$  for those without recent IPV exposure. Among the full sample,  $B = -0.401$  between relationship power and depression, and  $B = 0.330$  between relationship power and sex refusal self-efficacy.

Table 9: Power and Mediator Associations

Variable	Regression Coefficient	Significance
<b>Depression</b>		
IPV	-0.492	<0.001
No IPV	-0.319	<0.001
Full Sample	-0.401	<0.001
<b>Sex Refusal Self-Efficacy</b>		
IPV	0.471	<0.001
No IPV	0.302	<0.001
Full Sample	0.330	<0.001

Bivariate Analysis: Mediators with Dependent

Next, bivariate analyses were conducted using the proposed mediators and proportion of condom use and STI status by IPV exposure. The results indicate only two pathways that are statistically significant at  $p < 0.20$  (Table 10). The relationship between depression and STI status was significant for those with no IPV exposure ( $\text{Exp}(B) = 1.029$ ,  $p = 0.154$ ) and for the full sample ( $\text{Exp}(B) = 1.021$ ,  $p = 0.162$ ). Among those who had experienced recent IPV, the most significant relationship was between sex refusal self-efficacy and STI status ( $\text{Exp}(B) = 0.943$ ,  $p = 0.170$ ).

Table 10 Bivariate correlations of mediators with outcomes by IPV exposure

Outcome	Depression	Sex Refusal Self-Efficacy
<b>IPV</b>		
STI Status	$\text{Exp}(B) = 1.036$ , $p = 0.285$	$\text{Exp}(B) = 0.943$ , $p = .170^*$
Proportion Condom Use	$B = 2.277$ , $p = 0.277$	$B = 1.928$ , $p = .25$
<b>No IPV</b>		
STI Status	$\text{Exp}(B) = 1.029$ , $p = .154^*$	$\text{Exp}(B) = .996$ , $p = .875$
Proportion Condom Use	$B = 0.003$ , $p = .296$	$B = -.004$ , $p = .383$
<b>Full Sample</b>		
STI Status	$\text{Exp}(B) = 1.021$ , $p = 0.162^*$	$\text{Exp}(B) = 0.987$ , $p = 0.501$
Proportion Condom Use	$B = 0.002$ , $p = 0.270$	$B = -0.001$ , $p = 0.775$

To further clarify the relationship between the outcomes, proportion of condom use and STI status, and IPV exposure status, t-test and Chi-Square tests were conducted. A Chi Square test examining STI status at baseline and IPV exposure showed non-significant results ( $\chi^2 = 1.018$ ,  $df = 1$ ,  $p = 0.313$ ) (Table 11). A T-test was conducted to analyze the relationship between proportion of condom use and IPV exposure, which also indicated non-significant results ( $t = 1.636$ ,  $df = 459$ ,  $p = 1.03$ ). Given the results of a Levene's test ( $F = 0.010$ ,  $p = 0.920$ ), variances were assumed to be equal.

Table 11 STI at baseline by Recent IPV Exposure

	No STI	At least one STI	Total
<b>No IPV</b>	251	124	375
<b>Recent IPV</b>	59	37	96
<b>Total</b>	310	161	471

$\chi^2 = 1.018$ ,  $df = 1$ ,  $p = 0.313$

#### Mediation Regressions

Given the lack of bivariate group difference between IPV exposure groups, the mediation analysis was conducted using the full sample, controlling for relationship power and the covariates found to be significantly associated with relationship power, which included STI knowledge, condom intentions, STI worry, partner trust, and risky sexual peer norms. To examine the proportion of condom use pathway, a multiple linear regression was performed. A mediation was not present as indicated by the consistent slope between relationship power and proportion of condom use ( $B = 0.001$ ), though the p-value decreased from 0.704 to 0.685. In this model sex refusal self-efficacy ( $B = -0.008$ ,  $p = 0.028$ ) and condom intentions ( $B = 0.0035$ ,  $p < 0.001$ ) were significant, while depression was not ( $B = 0.002$ ,  $p = 0.384$ ). The mediation pathway for condom use is seen in Figure 5.

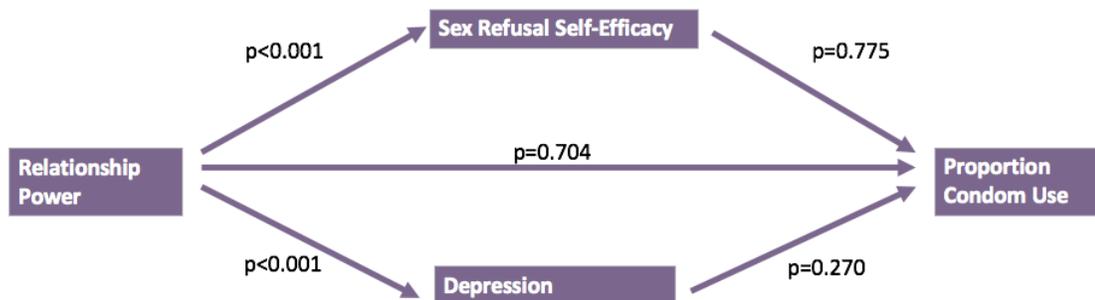


Figure 5 Mediation pathway for proportional condom use

To assess the mediation pathway with STI status outcomes, a multiple logistic regression was conducted. The results indicate a change in the slope of the Relationship power to the outcome from  $\text{Exp}(B)=0.970$  ( $p=0.051$ ) to  $\text{Exp}(B)=1.019$  ( $p=0.371$ ) with reduced significance. However, none of the other variables showed significant relationships. Specifically, the regression coefficients for sex refusal self-efficacy and depression were  $\text{Exp}(B)=1.022$  ( $p=0.428$ ) and  $\text{Exp}(B)=0.991$  ( $p=0.648$ ). Though no variables were statistically significant, STI worry had the lowest p value ( $B=0.881$ ,  $p=0.075$ ). Figure 6 depicts the mediation pathway for STI status.

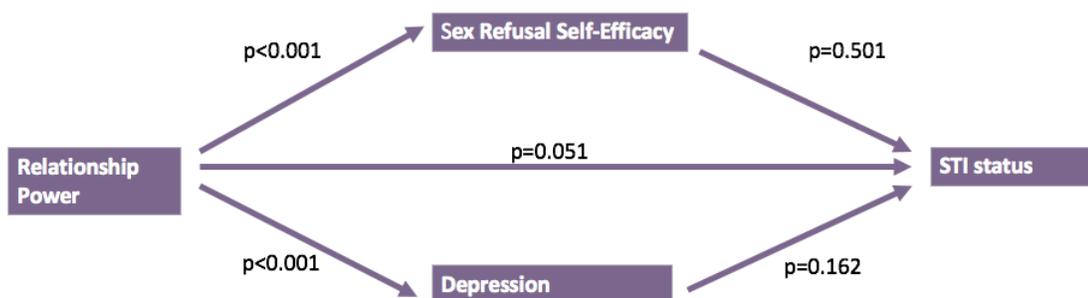


Figure 6 Mediation pathway for STI status

## Chapter 5: Discussion

The results of this study can be used to further inform research regarding psychosocial influences on risky SRH behaviors and outcomes among African American emerging adult females. Specifically, this study provides insight into differences and similarities regarding the SRH of those who have and have not experienced recent IPV. The details regarding pathways to SRH outcomes, of proportional condom use and STI status examined by this study can be used to guide future research that seeks to establish pathways that contribute to these outcomes.

This study highlights the importance of addressing STI prevention and the importance of condom use, beyond pregnancy prevention, among the emerging adult population. At least a third of each group tested positive for an STI at the start of the alcohol based sexual risk reduction intervention for which they were recruited. Additionally, over half of the sample reported having previously tested positive for an STI. Condom use in the three months prior to the survey was consistently low across the sample. Participants reported using condoms about a third of the time, and use did not differ significantly by IPV exposure. This is lower than previous research involving a slightly younger sample of African American females who were recruited at sexual health clinics in Atlanta, GA, which found a proportionate condom use of 51.2% over the 60 days prior to data collection (J. M. Sales et al., 2012). Though sexual exploration is a key aspect of the emerging adulthood life-phase, it is necessary to emphasize ways to mitigate the associated health risks.

Relationship power was relatively high among the sample, with the lowest average (those who experienced recent IPV) still falling in the upper half of the scale. Of the participants who experienced IPV, only 17.7% were living with their boyfriend, and 22.9% primarily received their spending money from their boyfriend. Though these situations were reported at a similar rate among those not experiencing IPV, it is possible that the results would have been different if the sample consisted of a larger number of women with a greater level dependency on their partner. Receiving support and living with parents may have served as a protective factor. Overall high levels of reported relationship power and low dependence on their sexual partner may have influenced the results of the research questions discussed below.

Research Question 1: How is relationship power associated with condom use and STI presence among those who have and have not experienced IPV?

The results do not support the original hypotheses, and indicate that there is no significant association between relationship power and the sexual health outcomes of proportional condom use in the last three months and STI presence at baseline. Using the full sample of participants, the association between relationship power and STI status approached statistical significance, while it did not with proportional condom use. The non-significance of this relationship contributes to the lack of understanding regarding IPV, relationship power, and SRH outcomes. Though research that suggests that women who experience IPV are more likely to engage in risky sexual behaviors, including inconsistent condom use, and report having had STIs (Hess et al., 2012; Seth et

al., 2010; Wingood et al., 2009), this study and other previous research have found no relationship between IPV and STI experiences (Decker et al., 2014). The results are consistent with previous research which found that sexual relationship power was not associated with condom use (Bralock & Koniak-Griffin, 2007). However, it is inconsistent with another study of African American adolescent females aged 15 to 21, where those with low relationship power were more likely to test positive for the same STIs considered in this study (Raiford et al., 2013). Differences in results may be connected to the differences in life stage of the participants. Younger adolescents may be strongly influenced by relationship power, or willingness to engage in risky behaviors to secure or maintain a relationship for the resulting social status (Raiford et al., 2013). In contrast, emerging adults' STI status may rather be a result of the high number of sexual partners and other risky behaviors, such as combining sex with alcohol and other drugs, that peak at this life stage (Arnett, 2000; Shulman & Connolly, 2013). The lack of consistency of results suggests that further research is needed in this area to determine what other factors contribute to the influence of relationship power, and why it appears significant in some SRH outcomes but not others, at different developmental stages.

Research Question 2: Are depression and refusal self-efficacy associated with condom use and STI presence among those who have and have not experienced IPV?

Though relationship power was significantly associated with both depression and sex refusal self-efficacy, these intermediaries were not associated with the outcomes of

interest. Depression and sex refusal self-efficacy were not strongly associated with proportional condom use and STI at baseline for those in relationships in the past three months, whether or not they experienced IPV, or among the full sample which is inconsistent with the original hypotheses. However, the trends were in line with differences by IPV exposure proposed in the hypotheses.

The results suggest differences by exposure status in regards to STI status. Sex refusal self-efficacy was more strongly associated with STI status among those who experienced IPV ( $p=0.170$ ) than those who did not experience IPV ( $p=0.875$ ). Previous research has indicated that those with higher refusal self-efficacy are more likely to be STI positive than those who report feeling less capable of refusing sex (Raiford et al., 2013). Given the inconsistent results, more research is needed to examine factors that contribute to STIs among those who are comfortable refusing sex and to clarify the connections between relationship power and sex refusal self-efficacy.

In contrast, though reported depression was higher among those with IPV, depression was more strongly associated with STI outcomes among those who did not experience IPV whether they were in a relationship or not,  $p=0.154$  and  $p=0.162$  respectively, than those who experienced IPV ( $p=0.285$ ). While these results were non-significant, previous research among similar populations have found that those with depressive symptoms are more likely to engage in risky sexual behaviors and experience adverse SRH outcomes (L. K. Brown et al., 2006; Jackson et al., 2015). Future public health sexual risk reduction interventions should seek to promote mental health and tailor prevention efforts for populations, such as those with IPV experience, who are at

increased risk of depression. Not only does this have the potential to improve SRH outcomes but also other health and social outcomes associated with poor mental health.

Research Question 3: What is the relationship between power, depression, refusal self-efficacy, condom use, and STI presence among those who have and have not experienced IPV

Both original hypotheses were not supported as it was not possible for a mediation to exist among either IPV exposure group, given the results of bivariate analyses. Based on marginal significance, the mediation analysis was conducted with the full sample data, however no significant results were found. It is interesting that relationship power, refusal self-efficacy, and depression were more significantly correlated with STI status, which can be considered a more distal outcome, than with condom-use, a more immediate outcome. This may be explained by the fact that without regular use, condoms do not have a consistently clear association with STI status (Beadnell et al., 2005; Warner et al., 2004; Weisman, Plichta, Nathanson, Ensminger, & Robinson, 1991). Factors beyond condom use including sexual network, number of partners and exposures, and other partner characteristics contribute to STIs. The lack of findings in this study may have been influenced by the lack of inclusion of such variables.

This might suggest that risk reduction and SRH education efforts would be well served to address relationship power in terms of STI prevention in general, rather than for condom use specifically. Expanding adolescent understanding of STI prevention

beyond condom use either through public health intervention or through school-based sexual education could reduce the STI burden among adolescents and emerging adults. Education should include the importance of having conversations with partners about previous sexual history, getting tested regularly especially if not in a long-term mutually monogamous relationship, sharing test results with new partners before having sex, and getting vaccinated for HPV and hepatitis B. As college students are predominately emerging adults (*College Enrollment and Work Activity of 2015 High School Graduates*, 2016), colleges and universities have an opportunity to address the STI epidemic in this population by advertising STI testing and other SRH options available at campus-located health centers or by connecting students to affordable care in the community. Though the educational attainment of this sample, with about 75% having not attended college, suggests intervention is also needed at an earlier stage. Expanded and comprehensive sex education in high schools that stresses STI risk and the importance of health protective behaviors might be the best way to reduce the spread of STIs. Education and awareness of the availability of SRH options related to STIs may help women take steps to protect themselves beyond relying on a partner's openness to condom use.

#### Discussion of Covariate Significance

The results of covariate analyses suggest that there are differences in how SRH related factors are experienced by those who experience IPV. For example, while STI knowledge was highly significant with condom use intentions among those who reported recent IPV, it was not among those in a relationship where they did not experience IPV or among the entire sample. Interestingly, partner trust was significantly correlated with STI worry in each group, but not with condom intentions. Based on the

large number of significant associations between perceived peer risky sexual behaviors and the other covariates, future research may wish to focus on the influence that the social environment, especially peers, can have on emerging adults SRH behaviors. The strong preference that adolescents and emerging adults place on adhering to social norms may make these influences especially strong when establishing SRH practices (Van de Bongardt, Reitz, Sandfort, & Deković, 2015). Additionally, partnership characteristics should be considered as the length of relationship, perception or knowledge of partner personal characteristics, and concurrency of partners is connected to partner trust and STI worry and may be influential to SRH outcomes (Downing-Matibag & Geisinger, 2009; Lemoine, Teal, Peters, & Guiahi, 2017). The differences observed in covariate associations suggest that there are underlying differences between those who have and have not experienced recent IPV, and that it may be prudent for sexual health interventions to differentiate between these populations and tailor messaging as appropriate.

### Limitations

Though the large sample size and laboratory confirmation of STI condition were strengths of this study, several limitations may have influenced the results. Proportion of condom use over the last three months could have been influenced by recall-bias. Participants with inconsistent condom use may not have been able to accurately remember how many times they had used a condom during sexual encounters over such a long period. Additionally, knowing that they were recruited to participate in an alcohol-related sexual risk reduction intervention may have resulted in a response bias,

with participants anticipating what they believe the researchers want them to report about. Similarly, awareness of the intention of the intervention may have led to social desirability bias when reporting condom use, as participants may have wished to portray their sexual behaviors as safer than they truly are, as to fit into what is considered more socially acceptable. However, this is not likely to have had a strong effect as the low levels of condom use reported by the sample suggests that participants responded candidly. Selection bias, may also have influenced the results, those who were willing to participate in this year-long intervention may have had different experiences with IPV, condom use, and relationship power than those who did not participate in the intervention. Specifically, those who experience IPV with extremely low relationship power may not have had the autonomy to participate in this intervention and therefore the data may not fully represent the full spectrum of relationship power. Similarly, as participants were only eligible for inclusion in the study if they had engaged in unprotected vaginal sex with a male in the past 90 days, the sample did not include those who were consistently using condoms.

This study was conducted among African American female adolescents residing in a major metropolitan area in the southeast, and is not generalizable to other populations. Those who live in other settings, or have other cultural norms, are not be represented by this data.

## Conclusions

Though the results of this thesis indicated no association between relationship power and STI status or condom use, and therefore no possible mediations, among either IPV exposure, it is still important to consider the ways in which public health interventions aimed at reducing adverse SRH outcomes can support young women who may not have the option to safely advocate for condom use or other active safe sexual health practices. It may be prudent for interventions to be tailored to different populations to reinforce different skills regarding SRH protective behaviors depending on participants experiences with IPV. Differences between the pathways of relationship power and outcomes of proportional condom use and STI status indicate that factors other than condom use, such as peer and partner characteristics, should be considered when addressing STI prevention.

Given the rise in popularity of highly effective birth control options such as LARC, it is particularly important to give women options for preventing STIs in ways that are less overt than condom use. Those who experience IPV may be less able to negotiate condom use on the terms of backup pregnancy prevention, if they are using LARCs and their partners are aware of the effectiveness of this method. This draws attention to the opportunity to promote STI prevention methods that women can have control over, covertly if necessary. Though Pre-Exposure Prophylaxis (PrEP) protects against HIV rather than STIs more generally, interventions should promote this option among those who experience IPV, as they are at higher risk of contracting HIV than those who do not experience IPV (Breiding, Black, & Ryan, 2008). Additionally, ensuring that women receive an HPV vaccine is a way to protect against both cancer and STIs, without

depending on a sexual partner to use a condom. Interventions focused on SRH as well as school-based education programs at the high school and college level should focus on options for women to take independently to protect themselves from STIs.

Overall, it is important for public health research and interventions to integrate theoretical constructs from both TGP and SCT when addressing condom use, STIs, and other SRH outcomes. This combination of theories addresses the interplay of gender roles, and individual attitudes, and social environment related factors, at multiple levels of the social ecological model and the role they play in emerging adults' sexual health practices. Engaging adolescents and emerging adults in protective SRH behaviors has the potential to improve SRH outcomes for individuals as they explore romantic relationships and develop SRH practices and reduce the spread of STIs among this disproportionately affected population.

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