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Attitudes and Risky Sexual Behavior among Youth in Kampala, Uganda: Empirical Analyses of Risk Factors by Gender

Alaina Whitton; Monica Swahn, Ph.D., MPH; Rachel Culbreth, MPH; Rogers Kasirye, MA

Purpose: The majority of HIV-infected individuals live in sub-Saharan Africa and youth account for the largest sub-population with new infections. Because the highest proportion of new infections is among girls, research is needed to understand the risk factors and context by gender. An analysis of peer and parental approval perceptions can elucidate the gender differences in this large, susceptible population in risky behaviors, including histories of sexually transmitted infections (STIs) and HIV.

Methods: Using the cross-sectional Kampala Youth Survey (2014) based in Kampala, Uganda (n=1,134), descriptive statistics were used to explore gender differences in demographics, peer and parental influence variables, and sexual actions. Sexual risk behaviors examined include sexual activity, sexual debut age, self-reported HIV and STI rates, and condom usage. Bivariate and multivariable logistic regressions were conducted to determine the odds of sexual risk behaviors based on peer and parental influence variables and gender. This analysis also sought to identify if gender moderated the association between peer and parental influence variables with sexual risk behaviors.

Results: There is a statistical difference between genders in a self-reported history of HIV diagnosis ($p < 0.0001$), perceiving peers are delaying sex ($p = 0.0057$), perceiving peer disapproval ($p = 0.0389$), and perceived parental disapproval of sexual activity ($p = 0.0009$). The perception of peer, adult, and parental opinions on sexual activity are significantly associated in varying levels across all risky sexual behaviors explored, with the exception of age at sexual debut and condom usage at last sexual encounter. When indexed and adjusted for other variables, females were at increased risk of participating in 3-4 risky sexual behaviors (OR: 0.63, 95% CI: 0.44, 0.90) and 5-6 risky sexual behaviors (OR: 0.38, 95% CI: 0.21, 0.68) compared to zero risky sexual behaviors. In an unadjusted model, perceiving peer abstinence and peer disapproval was associated with decreased risk in participating in a larger number of the risky sexual behaviors explored.

Conclusions: Adolescents remain an impressionable population whose behaviors are affected by their peers and parents. These impressions vary between genders, and programs addressing sexual health should consider gender sub-populations separately.

ATTITUDES AND RISKY SEXUAL BEHAVIOR AMONG YOUTH IN KAMPALA,
UGANDA:
EMPIRICAL ANALYSES OF RISK FACTORS BY GENDER

by

ALAINA WHITTON

B.S., GEORGIA INSTITUTE OF TECHNOLOGY

A Thesis Submitted to the Graduate Faculty
of Georgia State University in Partial Fulfillment
of the
Requirements for the Degree

MASTER OF PUBLIC HEALTH

ATLANTA, GEORGIA
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APPROVAL PAGE

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Acknowledgments

My sincerest thanks to Dr. Monica Swahn for sharing her passion for global health work and to Rachel Culbreath for her excellent guidance on my analysis and writing endeavors.

Author's Statement Page

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Introduction

In 2013, every two minutes an adolescent was newly infected with HIV around the world¹. With the majority of HIV infected individuals living in sub-Saharan Africa (sSA) and youth accounting for 45% of new infections², attention should be paid to the sexual and reproductive health behaviors in teens residing in sSA. Sexual beliefs, like the definition of adolescence, are a social construct and are subject to the sexual culture in which they exist³. In much of sub-Saharan Africa, women have a lower status than male counterparts³. This gender disparity effects sexual health, resulting in adolescent women being eight times more likely to be infected with HIV than young men². Despite knowing that parents and peers are strong influencers in decision making, limited research has been done to explore the psychosocial development of adolescents and their relationship to their parents and peers⁴. Because of their apparent susceptibility and the challenges in changing adolescent behavior, more research is needed to understand the effects of social influences by peers and parents on adolescents and their role in sexual and reproductive health. The UNAIDS *All In* strategic framework aims to end the AIDS epidemic by 2030 through strategically targeting adolescent transmission through four overarching principles: (1) adolescent leadership, mobilization, and engagement; (2) human rights and equity; (3) sexual and reproductive health and education; and (4) improved data to drive planning and results¹. By focusing on the differences between the genders within the adolescent population, the antecedents to behavior can be identified and inform programmatic design and intervention targeting in sSA.

There is a 7.3% prevalence of HIV in Ugandan adults, with women having a higher prevalence than men and adolescents having a larger gender gap than their older counterparts⁵. Additionally, sexual intercourse is the most common mode of HIV transmission⁵. While the HIV

risk for females is high as soon as sexual debut, the HIV risk starts lower and increases with age for males⁶. The majority of HIV-infected women are living in sSA and women are likely to acquire it 5-7 years earlier than men⁷. The HIV prevalence in Uganda is concerning overall but adolescent females are a particularly vulnerable population.

Gender norms are important in understanding agency and developmental differences between genders. In much of sSA, females have lower social status than their male counterparts³. Adolescent women are eight times more likely to be infected than adolescent males². A recent study dedicated to understanding inequitable gender norms in Uganda identified a statistically higher level of support for inequitable gender norms in younger adolescents (ages 10-14) than older adolescents (ages 15-24)⁸. The authors hypothesized that younger adolescents internalize the definitive differences in gender equity, but that adolescent views approach more equitable gender norms with increased age⁸. This information illustrates a need for the identification of differences in genders and their internalization of other's beliefs in the development of sexual and reproductive health behaviors. By understanding the differences between the genders an adolescent population programmatic design and intervention targeting in a sub-Saharan African context can be better informed and more impactful.

Adolescence is a social construct that is commonly defined as ages 10 through the early twenties; it is initiated by puberty and ends with a transition into adulthood that is less clearly defined⁴. This definitional ambiguity has made research challenging and it has historically focused on early adolescence (ages 10-13) and middle adolescence (ages 14-17)⁴. Despite knowing that parents and peers are strong influencers in decision making, limited research has been done to explore the psychosocial development of adolescents and their relationship to their parents and peers⁴. The exploration of the power of parents and peers in the internalization of

sexual and reproductive health behaviors is critical to understand when designing intervention programs aimed at decreasing HIV transmission in teens.

The existing research lacks the understanding of how risk factors and their correlation to risky sexual behaviors vary by gender. This research aims to explore that gap, hypothesizing that there is a significant difference between the genders in sexual and reproductive health behaviors highlighted in the internalization of norms perceived from both peers and parents. Through the gender differences in behaviors and the internalization of peer and parental influences, we aim to understand the role of gender in the effect of external pressures on sexual behavior in these adolescents. These will be done through 1) the determination of how selected sex behaviors vary by gender; 2) the determination of how self-reported HIV and STI history vary by gender; 3) the identification of risk factors associated with selected sex behaviors; and 4) the identification of if gender modifies the effects of peer and parental pressures on sex behaviors. Taken together, this research will elucidate the impact of peer and parental influence on adolescent sex behavior by gender.

Literature Review

I. HIV, Adolescence, and Gender in sub-Saharan Africa and Uganda

HIV infections in adolescents are increasing annually, totaling 2.1 million in 2016, and the bulk of the new adolescent HIV infections occur in Africa⁹. This increasing trend is expected to continue, resulting in a 13% increase annually by 2030⁹. It is hypothesized that many of the AIDS-related deaths in adolescents today are a result of mother-to-child transmissions a decade ago¹. The most at-risk adolescent population are females in sub-Saharan Africa⁹, meaning that male responsibility for positive sexual actions is critical to reduce HIV risk⁷. Gender disparities within sub-Saharan Africa are prevalent when considering that two-thirds of the new HIV

infections in 2013 were among adolescent girls and, in Africa, AIDS is the leading cause of adolescent death¹. By exploring the HIV infections through a gender-specific lens, we are able to identify more at-risk populations and provide more meaningful research to influence policy and public health programming.

A 2011 USAID survey identified a 7.3% prevalence of HIV in Ugandan adults, with women having a higher prevalence than men⁵. For youth (15-24) there is a larger gender gap than the overall population, at 5% prevalence among women compared to a 2% prevalence among men⁵. The majority of HIV-infected women live in sSA and women are likely to acquire it 5-7 years earlier than men⁷. Sexual behaviors differ by gender with age at first sex, with median age in Uganda being 17.1 years for women and 18.4 for men⁵. Additionally, in Uganda, concurrent relationships are very common for males with new relationships commonly established with adolescent women, regardless of male age¹⁰. A study in rural Uganda suggested that the risk of HIV is high as soon as sexual debut in young women, but the risk of HIV increases with age for young men⁶. In Uganda, sexual intercourse is the most common mode of HIV transmission and as a result age of sexual debut is of particular interest when targeting intervention techniques⁵. Delayed sexual initiation shows a slight decrease in HIV levels compared to those who initiate sex earlier^{5,11}. These facts make Ugandan sexual education programs paramount as a potential behavioral intervention.

Gender disparities are ubiquitous in sSA and Uganda is no exception. The 1990 amendment of the consent law in Uganda, which changed the age of sexual consent for female adolescents to 18 and was punishable by hanging, was hotly debated, as sexual access to younger females was pervasively seen as a masculine right¹². In Uganda, there is a common practice of adolescent girls, particularly those in lower economic classes, participating in sex-for-money relationships

with older males that are culturally sanctioned¹²⁻¹⁴. Age disparate relationships are defined as a five-year or larger age gap between partners, usually with the woman being the younger party¹⁵. These age-disparate relationships are often accepted at an interpersonal level but condemned culturally¹⁴. When these transactional sex relationships become culturally unacceptable through pregnancies or other negative consequences, the female adolescent usually receives more blame than the male counterpart¹². Age disparities commonly found within these “sugar-daddy” relationships are associated with increased HIV risk^{14,15}. The gender disparity in HIV acquisition drives the epidemic and understanding gender-related risk factors is important for making change¹³.

Sexual education pertaining to HIV/ AIDS is not included in most secondary school curriculum in Uganda¹⁶. Sexual education in Uganda and much of sub-Saharan Africa is heavily rooted in the futile efforts of promotion of abstinence and delayed sex^{7,17}, though increasing condom use is a prevention technique that is increasing in curriculums^{7,18,19}. Despite the preference for abstinence-based programs, a Ugandan study showed that 80.6% of 13-24 year olds are sexually active, suggesting a need for better sexual education policies²⁰. Condom use at last high-risk sex in Uganda was 30% in household surveys obtained between 2006 and 2013¹. Despite efforts to increase condom usage, less than half of all adolescents in the Ugandan survey who had premarital sex indicated condom use in their last sexual encounter⁵. The acceptability of condom curriculum being used has mixed support across sSA, however the education of females on condoms is generally less acceptable than the education of males¹⁸. Widespread contraception usage is critical and is a good target intervention to slow down the transmission of HIV among adolescents. Adolescent (15-19) condom use increases with those who know of a condom source

⁵, meaning that locations to acquire contraception should be included in sexual education practices. Overall, sexual education in sSA has much room for improvement.

The cultural acceptability of adolescent sex is heavily linked to whether the adolescent is participating in activities that maintain childhood, like attending school. In a study in neighboring, rural Tanzania, most adults agreed that adolescents should not engage in sexual behavior until they have left school³, but schooling rates in sSA vary widely by gender, urbanicity of environment, and socioeconomic status. This creates a space for poorer adolescents to be culturally sanctioned to participate in sex. As education level increases, so does age at first sex, particularly among women⁵. Furthermore, being male is considered protective against STIs, with females' vulnerability attributed to decreased agency in condom negotiation and control over sexual encounters¹¹. The inequities between the genders in HIV prevalence are important to understand when trying to understand the sexual and reproductive behaviors of adolescents.

Ugandan adolescents are at risk of HIV infection and female adolescents are more at risk than their male counterparts⁵. This risk is a result of several things including disparate education rate, the increased risk associated with age-disparate relationships, and cultural norms decreasing the self-efficacy of women⁶. Despite the current focus on abstinence⁶, research has identified that sexual activity is highly prevalent which indicates the need to re-align the programmatic interventions to the reality. By considering the differing sexual experiences between the genders and the prevalence of risky sexual behaviors, programmatic interventions can be redesigned to increase efficacy and impact.

II. Theories of SRH Behavior in Adolescence

a. Social Cognitive Theory

There are a large amount of theories linking to sexual and reproductive health behavior in adolescence, but the bulk of the focus is on theories rooted in individual behavior. The Social Cognitive Theory (SCT) was proposed in 1986 by Albert Bandura and it highlights the triadic relationship between personal, behavioral, and environmental variables^{21,22}. This theory considers how environmental structures, including associates impact the social construction of individual behaviors. Critically, SCT makes a distinction between acquisition and adoption of behaviors, as not everyone performs a learned behavior²². Furthermore, behavior is either incentivized or not by perceived positive or negative implications, respectively. With age, a modeled behavior is internalized and individuals begin to self-monitor and achieve self-efficacy, or the ability to successfully complete an action²³. A limitation on the social cognitive theory is its' weight on environmental factors, including parent and peer social networks, which can likely not explain all decision-making. The foundation of this theory is an excellent lens to explore the powerful effects of parents and peers on adolescent sexual and reproductive health behaviors.

Human behavior is not a direct result of environmental stimuli, rather the internalization and decision-making surrounding behavior, defined as agency, is influenced by environmental factors²³. In one of his many papers further examining the world through an SCT lens, Bandura identifies the core features of human agency and how they are linked to behavior²³. Actions are a result intention, forethought based in outcome expectations, and self-reflectiveness²³. Though the processing of both material and social outcomes are critical in behavior, the internalization and adoption of personal standards in the form of moral agency are critical to initiate, maintain, and self-regulate behavioral patterns²³. There are multiple modes of human agency that account for how external factors influence individuals; these modes are (1) personal agency, (2) proxy agency, and (3) collective efficacy. Personal agency is when a person's thoughts and self-

reflection is used to form behaviors. Proxy agency requires guidance and influence from other aspects of one's life like parents or peers to form behaviors²³. Lastly, SCT relies on the collective power of people in collective efficacy, which focuses on group-level efficacy like the preconceived notions imparted on an individual by their culture and/or country of residence²³. The network of these socio-structural factors has large, obvious implications on the internalization and actions of adolescents when it comes to sexual activity. The importance of this network highlights a need to understand how adolescent internalize perceptions from peers and parents.

Bandura's triadic relationship between individual, environmental, and behavioral variables can be further explored in the context of peer and parental networks and influence. Social behavior is regulated based on the perceived approval and outcomes that an individual identifies²³. In a study examining parents and peers through the Theory of Planned Behavior, both adolescent males and females who perceived parental disapproval of sex viewed sex negatively and have higher self-efficacy to limit sexual behavior, while the girls' perceptions of parental pride in abstinence also played a role²⁴. This sociocognitive causal model that includes how the perceptions of the group form effect ideation is critical in shaping health behaviors and designing health behavior interactions²³.

Gender development and norms can also be explained through the lens of social cognitive theory. In many cases, modeling behavior is focused on the comprehension of social interactions of similar persons, meaning that gender norms are often learned from those of the same gender²². Furthermore, these perceived gender norms can effect perceived self-efficacy, impediments and outcome expectations, all of which are important in understanding health sex behavior²³. The self-perpetuating nature of gender norms can be challenging to overcome in the context of

societies with established gender inequity. Gendered roles are promoted through modeling of parents and peers, experiences identifying socially sanctioned norms, and through direct tuition²². Societal subsystems including culture, education systems, and peers have strong effects on women's perceived efficacy, despite the fact that variation within sexes is larger than between them²². The ingrained behavior and ideals in adolescents surrounding the agency of women is particularly concerning when considering the increase in agency needed in women to appropriately address the HIV epidemic in adolescents. Taken together, this research identifies that SCT and the formation of adolescent behavior is a result of peer and parental influence, which in turn can affect sexual behavior.

b. Theory of Planned Behavior

To better predict and explain an individual's self-control over behaviors, the Theory of Reasoned Action was developed in 1980 by Icek Azjen²⁵. This theory later morphed into the Theory of Planned Behavior (TPB), which continues to focus on behavioral intent. The model states that intention and ability to control behavior is fed by external background factors²⁵. These factors affect the beliefs held by an individual, which cascades to their intentions in a situation and the resulting behavior. The TPB is often used to consider the effects of behavior on overall disease prevalence by better understanding the formation of intention and individual beliefs regarding sexual activity and risky sexual behaviors¹⁹.

Ajzen has expanded his theory to better account for the background factors that field into the beliefs that affect intention and behavior. These individual, social, and information factors are critical in the establishment of ideas that are internalized and result in behavior. For example, when deciding on the decision to delay sexual behavior until marriage or not, an individual may consider their personal values, their religious affiliation, the acceptability of pre-marital sex in

their culture, and the type of information received from a sexual and reproductive health. These background factors all feed into the formation of an individual's beliefs. TPB posits three types of beliefs—behavioral, normative, and control—each of which are paired with another construct that influences intention to perform a behavior²⁵. Behavioral beliefs are a calculation on the expected outcome of the behavior. These beliefs are a result of the attitude toward the behavior, which is the strength of the belief weighted by the evaluation of the outcome²⁵. Normative beliefs are the behaviors that are perceived as appropriate by a larger group. These beliefs feed into the subjective norm, or perceived peer pressure that ultimately affects action. Lastly, control beliefs are the perceived factors that may assist or impede in behavior. Control beliefs affect the perceived behavioral control, or ability to perform a behavior, and can act in place of actual behavioral control, which is difficult to measure. The background factors, the beliefs, and the perception of efficacy or appropriateness are all the precursors to intention, which is the direct antecedent to behavior²⁵. In TPB, behavior is a result of the interaction between the beliefs and the perceived behavioral control.

Despite the high prevalence of TPB-based interventions, a recent study has suggested that the accuracy of TPB interventions on sexual behavior yields mixed efficacy¹⁹. A study examining condom use behavior in Ghana found that the behaviors were changed based on a TPB-based sexual education course but the subjective norms were not²⁶. Furthermore, the Ghanaian study identified that interventions targeting the antecedents to belief formation are an effective method for developing sexual behavior interventions in teens²⁶. A Kenyan study that examined condom use in adolescents through a TPB lens found a direct correlation between condom use ideation and behavior in males and an indirect relationship in females²⁷. Additionally, the authors found that perception of peer condom use was associated with adolescent condom usage²⁷. These

studies taken together suggest that there is a place for TPB to be integrated into the study of adolescent sexual and reproductive behaviors.

III. Parental Influence on Adolescent Sex Behavior

Parents are large influences on child development and behavior. This influence trickles into many facets, including romantic relationships, sexual behavior, gender norms, and self-efficacy in many situations. Parental relationships including responsiveness and support play a role in the development of adolescent romantic relationships⁴. Despite the criticality of understanding this connection, very few interventions in sSA explore the importance of parental relationships in sexual risk reduction². Levels of social support and the delivery mechanism for that support (parental, school, or peer-based) have varying effects across genders, depending on environmental factors present²⁸. In a study in neighboring Tanzania, researchers identified parent-child relations as very formal, with respect being paramount³. By considering the relationship's effect on ideation and behavior, more effective sexual education could target either delivery to parents or teens, or both.

Parental relationships may influence adolescent sex behavior. Abstinence and decreased sexual intercourse frequency are associated with perceived parental disapproval for sexual intercourse²⁹. Furthermore, we know that home environment also has an impact, as living in a home with both parents is protective from teen pregnancy¹¹. Parental relationships and societal gender norms can interact both positively and negatively on risky sexual behaviors. For example, social support in the form of female support at home or peer groups is associated with fewer sexual partners and increased condom usage in teen girls from disadvantaged neighborhoods²⁸. Parental relationships can play a large role in adolescent sexual and reproductive health behaviors and must be considered when looking at prevalence and new interventions.

Parent-adolescent communication regarding sex is taboo in Uganda and presents a socio-cultural challenge¹⁶. These challenging conversations often sustain differing gender roles in sexual risk behaviors when they occur¹⁶. The awkward social interaction between Ugandan parents and teens discussing SRH can result in conversations lacking transparency and occasionally misleading information¹⁶. A small review of sSA studies identified a difference between genders in parental influence on SRH behaviors³⁰. In a South African study on university students, research found that older adults and parents act as barriers in health-seeking sexual and reproductive health behaviors¹⁷. Perception of low or decreased parental monitoring, not necessarily direct conversations about sex, of behavior is associated with increased sexual activity³⁰. A study examining female adolescent perspective on sexual behaviors in Ghana found that parental influence plays a role in sexual decision-making, including the potential to make money for the family through transactional sex³¹. There is existing research regarding parental influence in similar sub-Sahara African countries, but the effect of parents in adolescent sex behavior is not well understood.

IV. Peer Influence on Adolescent Sex Behavior

It is common to discuss peer influence when considering adolescent behavior, including sexual and reproductive health behaviors. Both male and female teens have a more negative attitudes towards sex if they believe their peers view sex negatively²⁴. An analysis identified that perceived peer norms are stronger predictors of adolescent sexual attitudes than perceived parental acceptance²⁴. A study in Ghana identified adolescent women receiving a large amount of sexual and reproductive health information and pressure from peers³¹. Despite this logical connection, research focused on the effects of peer exposure on adolescent sexual behaviors in sub-Saharan Africa is extremely limited³². Social network research can be challenging, as it is

hard to distinguish modeling behavior and internalizing behavior. There is a distinction between behavior modeling, which adolescents are known to perform based on peers' actions, and peer-level support resulting in delayed sexual debut²⁸. In light of the lack of literature on peer impact on sexual behavior, it is important to understand the role of peer influence in sSA through the examination of the internalization of perception.

The effects of peers on adolescent behavior can be both positive and negative. A South African study looking at sex behaviors in university students identified peer pressure as the largest factor impacting risky sexual behaviors¹⁷. The students in this study emphasized that 'African Culture' discourages adolescents from communicating about sexual behaviors with older individuals¹⁷. Perceived peer sexual behaviors are linked to adolescents intentions to have sex, with less favorable peer views associated with increased abstinence and pro-childbearing attitudes related to early initiation of sex²⁹. When adolescents perceive that their peers are engaging in sexual behavior, they are more likely to initiate sex early and continue to engage in sexual intercourse^{11,29}. This indicates that adolescents internalize the perceptions and behaviors of their peers and model those behaviors themselves. Research has shown that adolescents who exhibit early dating behaviors are likely to engage in sexual activity earlier as well as have poorer indicators for development including increased alcohol and substance abuse⁴. This research highlights the impact of peers on adolescent sexual and reproductive health behaviors, which can in turn affect other areas of their development.

V. Literature Gaps

While there is a large research focus on the HIV epidemic in Africa, there is limited focus on the gender differences in adolescents. The scientific community recognizes the extent that gender plays a role in HIV risk, but fails to stratify key analysis and identify root causes for that

difference. Because Africa is the youngest continent, meaning the average age is the lowest, it is critical that we supplement the understanding of how adolescents acquire HIV and make sexual decisions. Furthermore, we know that teenagers and their sexual activity are highly susceptible to peer and parental influence, another factor that should be included when examining gender-specific sexual activity and behaviors in adolescents in sSA.

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Title: Attitudes and Risky Sexual Behavior among Youth in Kampala, Uganda: Empirical Analyses of Risk Factors by Gender

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Purpose: The majority of HIV-infected individuals live in sub-Saharan Africa and youth account for the largest sub-population with new infections. Because the highest proportion of new infections is among girls, research is needed to understand the risk factors and context by gender. An analysis of peer and parental approval perceptions can elucidate the gender differences in this large, susceptible population in risky behaviors, including histories of sexually transmitted infections (STIs) and HIV.

Methods: Using the cross-sectional Kampala Youth Survey (2014) based in Kampala, Uganda (n=1,134), descriptive statistics were used to explore gender differences in demographics, peer and parental influence variables, and sexual actions. Sexual risk behaviors examined include sexual activity, sexual debut age, self-reported HIV and STI rates, and condom usage. Bivariate and multivariable logistic regressions were conducted to determine the odds of sexual risk behaviors based on peer and parental influence variables and gender. This analysis also sought to identify if gender moderated the association between peer and parental influence variables with sexual risk behaviors.

Results: There is a statistical difference between genders in a self-reported history of HIV diagnosis ($p < 0.0001$), perceiving peers are delaying sex ($p = 0.0057$), perceiving peer disapproval ($p = 0.0389$), and perceived parental disapproval of sexual activity ($p = 0.0009$). The perception of peer, adult, and parental opinions on sexual activity are significantly associated in varying levels across all risky sexual behaviors explored, with the exception of age at sexual debut and condom usage at last sexual encounter. When indexed and adjusted for other variables, females were at increased risk of participating in 3-4 risky sexual behaviors (OR: 0.63, 95% CI: 0.44, 0.90) and 5-6 risky sexual behaviors (OR: 0.38, 95% CI: 0.21, 0.68) compared to zero risky sexual behaviors. In an unadjusted model, perceiving peer abstinence and peer disapproval was associated with decreased risk in participating in a larger number of the risky sexual behaviors explored.

Conclusions: Adolescents remain an impressionable population whose behaviors are affected by their peers and parents. These impressions vary between genders, and programs addressing sexual health should consider gender sub-populations separately.

Key words/short phrases (3-10): adolescent sex; peer influence; parental influence; adolescent HIV

**Attitudes and Risky Sexual Behavior among Youth in Kampala, Uganda:
Empirical Analyses of Risk Factors by Gender**

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Introduction

The bulk of the world's HIV epidemic burden falls on sub-Saharan Africa (sSA), and youth account for 45% of new infections¹. In much of sSA, females have lower social status than their male counterparts², making adolescent females a particularly vulnerable population for HIV acquisition, and they are eight times more likely to be infected than adolescent males¹. Peers and parents also affect adolescent behavior, including the establishment of their romantic relationships³. This information suggests that interventions to decrease HIV risk in one of the most vulnerable populations must focus on how the internalization of adolescent perceptions affects sexual and reproductive health behaviors. The UNAIDS *All In* strategic framework aims to end the AIDS epidemic by 2030 through strategically targeting adolescent transmission through four overarching principles: (1) adolescent leadership, mobilization, and engagement; (2) human rights and equity; (3) sexual and reproductive health and education; and (4) improved data to drive planning and results⁴. By focusing on the differences between the genders within the adolescent population, the antecedents to behavior can be identified and inform programmatic design and intervention targeting in sSA.

A survey of Ugandan adults in 2011 found a 7.3% prevalence of HIV, with women having a higher prevalence than men and adolescents having a larger gender gap than their older counterparts⁵. The survey indicated that sexual intercourse is the most common mode of HIV transmission⁵. A separate study in rural Uganda identified that HIV risk for females is high as soon as sexual debut, but HIV risk increases with age for males⁶. In fact, the majority of HIV-infected women are living in sSA, and women are likely to acquire it 5-7 years earlier than men⁷. The HIV prevalence in Uganda is concerning overall, but adolescent females are a particularly vulnerable population.

Gendered roles are promoted through modeling of parents' and peers' behaviors and direct tuition⁸. Despite the fact that variations are greater within sexes than between them, societal subsystems have strong effects on women's perceived efficacy⁸. Decreased agency in condom negotiations and control over sexual encounters are associated with female vulnerability⁹. Gender disparities are ubiquitous throughout sSA and Uganda is no exception. The amendment to Uganda's consent law in 1990 increasing the age of consent for females to 18 was hotly debated as sexual access to younger females was pervasively seen as a masculine right¹⁰. Uganda has a history of culturally sanctioned age-disparate or "sugar-daddy" relationships in which adolescent girls, commonly those in lower economic classes, participate in sex-for-money relationships with older males¹⁰⁻¹². The age disparities found within these relationships is associated with an increased HIV risk^{12,13}. This highlights the gender disparity in HIV risk that may drive the epidemic, and research on gender-specific behaviors is important for making change¹¹.

The social networks surrounding teens including the peers and parents are critical as the adolescents identify, model, and perform behaviors and have been identified as stable predictors of sexual behavior¹⁴. Perceived peer sexual behaviors are linked to adolescents intentions to have sex, with less favorable peer views associated with increased abstinence and pro-childbearing attitudes related to early initiation of sex¹⁴. Conversely, when adolescents perceive that their peers are engaging in sexual behavior, they are more likely to initiate sex early and continue to engage in sexual intercourse^{9,14}. A study in Ghana identified adolescent women receiving a large amount of sexual and reproductive health information and pressure from peers¹⁵. Despite this logical connection, research focused on the effects of peer exposure on adolescent sexual behaviors in sub-Saharan Africa is extremely limited¹⁶.

Parental relationships are critical in many aspects of adolescent development including the formation of romantic relationships³. The effect of parental influence and support on adolescent sex behavior is particularly complex¹⁴. Parental influence on sexual and reproductive health behaviors varies between genders¹⁷. Adolescent-parent communication regarding sex is taboo in Uganda, meaning that older adults and parents can act as a barrier in health-seeking sexual and reproductive health behaviors like other parts of sSA^{18,19}. Perhaps as a result of these unsuccessful and awkward conversations, teens receive a large amount of sexual education and pressure from peers¹⁵. A recent study identified that perceived peer norms are stronger predictors of adolescent sexual attitudes than perceived parental acceptance²⁰, while another identified that peer pressure is the largest factor impacting risky sexual behavior¹⁹. When addressing the prevalence of HIV in adolescents, particularly women, in sSA, interpersonal relationships play a large part in behavior.

There are a large amount of theories linking to sexual and reproductive health behavior in adolescence, but the bulk of the focus is on theories rooted in individual behavior like the Social Cognitive Theory and the Theory of Planned Behavior. Albert Bandura proposed the Social Cognitive Theory (SCT) in 1986 and it highlights the triadic relationship between personal, behavioral, and environmental variables^{8,21}. Though the processing of both material and social outcomes are critical in behavior, the internalization and adoption of personal standards in the form of moral agency are critical to initiate, maintain, and self-regulate behavioral patterns²². Similarly, the Theory of Planned Behavior states that intention and ability to control behavior is fed by external background factors²³. In a study examining parents and peers through the Theory of Planned Behavior, both adolescent males and females who perceived parental disapproval of sex viewed sex negatively and have higher self-efficacy to limit sexual behavior, while the girls'

perceptions of parental pride in abstinence also played a role²⁰. This sociocognitive causal model that includes how the perceptions of the group form effect ideation is critical in shaping health behaviors and designing health behavior interactions²². The ingrained behavior and ideals in adolescents surrounding the agency of women is particularly concerning when considering the increase in agency needed in women to appropriately address the HIV epidemic in adolescents.

The prevalence of HIV in Uganda receives extensive public health attention, however there is limited research that examines adolescent behavior through a gender-specific lens. The large difference in disease prevalence between genders calls for an understanding of how behavior and risk are different. Despite knowing that age-disparate relationships in Uganda are relatively common, literature examining those relationships and their risk is limited. The research shows that decision making in adolescents is strongly influenced by peer and parental networks³, but the effect of that information in sexual decision making in Uganda is limited. Based on the gaps in the literature, we aim to explore how sexual behaviors differ by gender including self-reported HIV and STI rates and the internalization of peer, adult, and parental perceptions. Through the gender differences in behaviors and the internalization of peer and parental influences, we aim to understand the role of gender in the effect of external pressures on sexual behavior in these adolescents. These will be done through 1) the determination of how selected sex behaviors vary by gender; 2) the determination of how self-reported HIV and STI history vary by gender; 3) the identification of risk factors associated with selected sex behaviors; and 4) the identification of if gender modifies the effects of peer and parental pressures on sex behaviors. We hypothesize that these risk factors and their correlation to risky sex behaviors will vary by gender. Taken together, this research will elucidate the impact of peer and parental influence on adolescent sex behavior by gender.

Materials and Methods

Setting

In the spring of 2014 a cross-sectional study entitled the Kampala Youth Survey was performed to assess alcohol use, violence, sexual risk behaviors, and HIV among slum-residing youth in Kampala, Uganda CITE. Adolescent participants aged 12-18 were recruited from either a Uganda Youth Development Link (UYDEL) drop-in center, where the youth were receiving services or were recruited via community outreach activities²⁴. UYDEL is a non-profit organization that provides social services to disadvantaged youth living on the streets or in the slums of Kampala²⁵.

Data Collection

Data was collected over a 14-day period, resulting in a sample size of 1134 (92% participation rate and some surveys lost due to technical errors)²⁴. Surveys were translated into the local language, Luganda, by a certified translator and back translated to English to ensure accuracy²⁶. Participants' ages ranged from 12-18, without exclusion criteria²⁶. After participants gave informed consent, in-person interviews lasting 20-30 minutes were conducted by trained UYDEL staff²⁴. Participation was incentivized through a small snack and drink (juice or soda)²⁴. The surveys were collected on Google Nexus 7 tablets using the Qualtrics survey software (Qualtrics, Provo, UT, USA). UYDEL staff were trained on the technology and content of the surveys prior to administration²⁴. Question content primarily derived from previously validated instruments including the 2011 Kampala Youth Survey^{24,27-29}, World Health Organization's (WHO) Global School-based Student Health Survey (GSHS)³⁰, the Uganda AIDS Indicator Survey³¹, the Demographic Health Survey³², Monitoring Alcohol Monitoring in Africa

(MAMPA) 2012 Questionnaire, imPPACS³³, CAGE (Cut-Annoyed-Guilty-Eye) Questionnaire³⁴, and AUDIT (Alcohol Use Disorders Identification Test) Questionnaire³⁵.

Ethics

Parental consent was waived in the survey's administration because (1) children who cater to their own livelihood are considered emancipated in Uganda at 14 years of age, (2) consent for HIV testing without parental approval can be obtained at 12 years of age, and (3) UYDEL is considered as serving in the children's best interests as many are orphans or otherwise "abandoned"²⁶. The protocol was approved by the Institutional Review Board at Georgia State University (H14101) and the Uganda National Council on Science and Technology (SS3338), in accordance with the Declaration of Helsinki.

Measures

All participants were asked demographic questions to assess biological sex, age, and education level. Age was stratified into two groups along the early and normal sexual initiation ages divide: 12-14 years old and 15-18 years old³⁶. Education was stratified during analysis to those who: a) never attended school; b) attended at least some primary; c) attended at least some secondary; and d) attended at least some tertiary.

Demographics of sexual behavior were also collected through survey administration. To determine if the adolescent is sexually active, they answered yes or no to the question "Have you ever had sexual intercourse?" Age at sexual initiation was determined through the question "How old were you when you used sexual intercourse for the first time?" and answers were then grouped into the early (12-14 years) and normal (15-18 years) sexual debut age divide³⁶. Teens were also asked to identify condom use at first and last sexual encounter through the question "did you use a condom the first (last) time you had sex?" with a yes or no response. To

determine the adolescent's history of sexually transmitted infections (STIs), they were asked to self-report their history via a yes or no response to the question "Have you been told by a doctor/nurse or HIV counselor that you have a sexually transmitted infection such as syphilis, herpes, chlamydia or gonorrhea?" Lastly, HIV status was assessed through a self-reported yes or no to the question "Have you been told by a doctor/nurse or HIV counselor that you have HIV?" These questions taken together highlight critical pieces of risky sexual behaviors and elucidate the sexual history of the adolescents.

Questions on perceived peer and parental influence were collected on a scale of "Disagree", "Neither agree nor disagree", and "Agree". Statements asked were "Most of my friends do not plan on having sex until they are older", "Most of my friends think I should not have sexual intercourse", "Most adults discourage people my age from having sex", "My parents would be upset if they found out I am having sex", and "My parents think I should carry a condom if I plan to have sex".

Data Analysis

Descriptive statistics were performed to explore demographics, peer and parental influence variables, and SRH actions by gender (Table 1). Both bivariate and multivariable logistic regression analyses were conducted to determine the risk of SRH actions and to identify any underlying moderation by gender, adjusting for demographics and peer and parental influence variables (Tables 2a-c). A multinomial logistic regression model was used to determine the odds ratios for the number of risky sexual behaviors the teens participated in. Analyses were computed in SAS 9.4 (SAS Institute, Cary, NC, USA).

Results

Of the overall population, there was not a significant difference between the prevalence of females (n=636) and males (n=497). Of the risky sexual behavior examined, there was only a significant difference between genders for the self-reported STI rate ($p < 0.0001$, Table 1). Peer ($p = 0.0057$, $p = 0.0389$) and parental influence ($p = 0.0009$) appears to significantly vary across genders in adolescents (Table 1).

Multivariable logistic regressions were then performed to identify the association between the risk factors, including the demographic variables and the perception variables, and the selected sexual behaviors (Tables 2a-c). When adjusted, the associations were controlled by all other variables. Males were at lower risk for a self-reported STI history (OR: 0.56, 95% CI 0.43, 0.74) than their female counterparts. When controlling for all other variables, males were at lower odds of being sexually active (OR: 0.64, 95% CI: 0.47, 0.86) and reporting a history of HIV diagnosis (OR: 0.61, 95% CI: 0.47, 0.78) than females. Age increased the odds of being sexually active (OR: 1.94, 95% CI: 1.77, 2.12); delayed sexual debut (OR: 2.19, 95% CI: 1.85, 2.59); a self-reported history of an STI (OR: 1.32, 95% CI: 1.21, 1.44); using a condom at first sexual encounter (OR: 1.27, 95% CI: 1.11, 1.46); and using a condom at last sexual encounter (OR: 1.19, 95% CI: 1.04, 1.36). When adjusting for all other variable, age was associated with increased odds of being sexually active (OR: 1.92, 95% CI: 1.73, 2.14); delayed sexual debut (OR: 2.23, 95% CI: 1.85, 2.68); a self-reported history of HIV infection (OR: 1.27, 95% CI: 1.18, 1.36); and condom use at last sexual encounter (OR: 1.19, 95% CI: 1.03, 1.38). Increasing levels of education were generally significantly associated with decreasing odds of early sexual debut in both unadjusted and adjusted models (Table 2a) and decreasing odds of self-reported STI rates in the unadjusted model (Table 2b).

When compared to adolescents who did not perceive abstinence in their peers, adolescents who did perceive abstinence were less likely to be sexually active (OR: 0.19, 95% CI: 0.14, 0.26) and were more likely to use a condom at their last sexual encounter (OR: 1.58, 95% CI: 1.06, 2.23) (Tables 2a-c). When adjusted, adolescents who perceived peer abstinence were at lower risk of a self-reported HIV infection (OR: 0.58, 95% CI: 0.44, 0.78) and at lower risk of being sexually active (OR: 0.43, 95% CI: 0.27, 0.68) than their counterparts (Tables 2a, b). Adolescents who perceived peer disapproval of sexual activity were at decreased odds of being sexually active (OR: 0.17, 95% CI: 0.12, 0.24) and of a self-reported history of STI diagnosis (OR: 0.59, 95% CI: 0.39, 0.88) compared to adolescents who did not perceive peer disapproval of sexual activity. After adjusting for the other variables, perceived peer disapproval was associated with decreased odds of sexual activity (OR: 0.49, 95% CI: 0.31,0.76); decreased odds of self-reported history of HIV diagnosis (OR: 0.46, 95% CI: 0.34,0.61); and increased odds of self-reported history of STI diagnosis (OR: 2.49, 95% CI: 1.24, 5.01). To test the moderating effect of gender on the selected perception variables, the significance of the interaction between gender and all of the perception variables was assessed. Only the interaction between gender and STI diagnosis was significant ($p=0.0051$). In males, the perceived peer disapproval of sexual activity decreased the odds of having an STI history (OR: 0.69, 95% CI: 0.52, 0.93).

Perceived adult disapproval of adolescent sex was associated with increased odds of being sexually active (OR: 4.12, 95% CI: 2.48, 6.85) compared to those who do not perceive adult approval. When adjusting for other variables, perceived adult disapproval of adolescent sex was associated with increased odds of a history of HIV diagnosis (OR: 1.84, 95% CI: 1.21, 2.80). Adolescents who perceive their parents disapproving of them having sex were at increased risk of being sexually active (OR: 11.85, 95% CI: 5.08, 27.67) and increased odds of a self-reported

history of HIV diagnosis (OR: 3.51, 95% CI: 1.91, 6.48) compared to teens to did not perceive disapproval of sexual activity from their parents. When controlling for other variables, teens who perceived parental disapproval of sexual activity were at increased odds of being sexually active (OR: 5.98, 95% CI: 2.25, 15.87); having a history of HIV diagnosis (OR: 1.92, 95% CI: 1.17, 3.14); and having a history of STI diagnosis (OR: 4.39, 95% CI: 2.14, 9.01) over teens who did not perceive parental disapproval of sex. Lastly, adolescents who thought that their parents would want them to carry a condom if having sex were at increased odds of having a history of STI diagnosis (OR: 1.38, 95% CI: 1.01, 1.88) and, when controlling for the other variables, were at an increased risk of having a history of HIV diagnosis (OR: 1.34, 95% CI: 1.01, 1.77).

Based on the violation of the proportional odds assumption (Table 3), a multinomial indexing approach was determined to be appropriate for both unadjusted and adjusted models. Being male and having attended at least some secondary school decreases the odds of participating in multiple risky sexual behaviors, while increasing age increases the odds (Table 4). Adolescents who participated in 5-6 risky sexual behaviors were less likely to be male than female (OR: 0.46, 95% CI: 0.27, 0.79) compared to adolescents who participated in zero risky sexual behaviors. When adjusting for other factors and with a referent group of zero risky sexual behaviors, male adolescents were less likely to report engaging in 3-4 risky behaviors (OR: 0.63, 95% CI: 0.44, 0.90) or 5-6 risky behaviors (OR: 0.38, 95% CI: 0.21, 0.68). Teens that perceive their peers as delaying sexual encounters are less likely to participate in more risky sexual behaviors than those who perceive their peers engaging in intercourse. The same is true for teens that perceive peer approval of their sexual intercourse. Compared to teens reporting zero risky sex behaviors, teens that reported perceiving peer disapproval for sexual activity were less likely to participate in 1-2 risk behaviors (OR: 0.36; 95% CI: 0.24, 0.53), 3-4 risk behaviors (OR: 0.15, 95% CI: 0.10,

0.22), and 5-6 risk behaviors (OR:0.19, 95% CI: 0.10, 0.35). The magnitude of these odds is diminished when adjusted for the other variables in the model. Both adult approval and parental disapproval increase the likelihood of participating in more risky sexual behavior. With a referent group of zero risky sex behaviors reported, adolescents who reported perceiving parental disapproval for their sexual activity were more likely to participate in 1-2 risky sex behaviors (OR: 4.97, 95% CI: 1.83, 13.47), 3-4 risky sex behaviors (OR: 12.72, 95% CI: 4.91, 32.97), and 5-6 risky sex behaviors (OR: 14.48, 95% CI: 4.66, 45.02) compared to those who did not report perceiving parental disapproval.

Discussion

Sub-Saharan Africa faces a challenge as the region with the greatest portion of the HIV epidemic, with females in the region accounting for the majority of those infections¹. Gender disparities prevalent throughout much of sub-Saharan Africa affect sexual and reproductive health behaviors and subsequently influence HIV prevalence. By better understanding the gender-specific sexual behaviors that adolescents engage in, interventions can be more targeted and efficacious. Despite the prevalence and nuance of risky sexual behavior in sub-Saharan African adolescence, the literature that aims to understand the behavior ideation behind those behaviors is limited. This study aims to understand how peer and parental influence is perceived by teens and, in turn, if their behaviors are affected by those perceptions. Through the analysis of the extent of adolescent internalization of interpersonal opinions surrounding risky sexual behaviors we seek to understand the factors that contribute to the ongoing HIV epidemic in a vulnerable population.

In our study, bivariate associations between genders showed a difference in the perceived peer approval questions (“Peers do not plan to have sex until older” and “Most of my friends

think I should have not have sex”) and the perceived parental disapproval question (“My parents would be upset if they found out I am having sex”), which indicates gender differences in how the adolescents perceive cultural acceptability about sex. In a South African study, the effect of peer approval was the largest actor impacting risky sexual behaviors¹⁹. Our finding of a gender difference in perceived parental disapproval is in line with a small review of other sub-Saharan African studies that there is a gender difference in parental influence on sexual and reproductive health behaviors¹⁷. These findings frame the argument that both gender and perceived influence from parents and/or peers are critical in ideation of and participation in risky sexual behaviors.

Our findings of males being at less risk for risky behaviors (Table 4) are in line with other published reports of increased HIV incidence in females. There are several elements that may feed into this increased risk including the age-disparate relationships of transactional sex common in sSA¹⁰⁻¹², the increased odds of HIV per sexual encounter for females¹¹, the prevalence of male sexual partner concurrency^{37,38}, and the cultural gender disparities that exist in Uganda. The finding that older adolescents are more likely to participate in risky sexual behavior is likely an artifact of increased rates of sexual activity with age. Furthermore, educational attainment was also associated with some risky sex behaviors. The epidemiology of HIV within sSA is shifting with the HIV prevalence in higher educated populations decreasing at a faster rate than the prevalence amongst the less educated^{6,39}. It is hypothesized that individuals with increased education levels have more positive responses to sexual education programs, but the effect of education levels varies by gender⁴⁰⁻⁴². Additionally, education was not stratified by gender for this analysis and young women in school are less likely to be HIV positive than those who are not⁴². Condom use at either first sexual encounter or last sexual encounter was not consistently associated with any variables analyzed herein, which is aligned with a condom

usage rate of 54% in a similar population of adolescents in Kampala's slums³⁷. Condom usage rates were directly correlated to school attendance in a similar study³⁷. As a whole, these results emphasize that gender, age, and education are important elements in sexual behavior.

In the multinomial regression table (Table 4), the odds ratios associated with peer, adult, and parental perception variables were associated with several sexual behaviors examined. The perception that peers were delaying sex was significantly associated with decreased risk of being sexually active and a decreased risk of having a self-reported positive HIV test when adjusting for other factors. This supports existing research that teens will have a negative view regarding sex if their peers do²⁰, which in turn may affect the actions of adolescents. Additionally, parental disapproval for sexual activity was strongly associated with adolescents who reported being sexually active. This is contradictory to the existing knowledge that perceived parental disapproval for sexual intercourse is associated with abstinence and decreased sexual intercourse frequency¹⁴ and underlines the importance of peer perceptions over parental perceptions. These findings solidify that the acceptance and internalization of acceptance of social networks are important in adolescent sexual activity.

The body of research focusing on HIV in adolescents in Uganda and sub-Saharan Africa is growing but much more information must be determined to holistically approach the HIV epidemic in the vulnerable populations. These findings reiterate the need for studies that recognize the different experiences of males and females in Uganda and interventions that implement with the gender-unique experiences in mind. Additionally, the continued trend of increased risk of risky sexual behaviors in adolescent females is complicated and requires more information to extrapolate details that may be helpful when designing targeted interventions including how cultural norms affect the internalization of peer and parental pressures.

Study Limitations

The cross-sectional nature of this study means that we are unable to determine temporal and causal relationships. Furthermore, the study variables were largely self-reported, likely resulting in an under-reporting due to lack of disease diagnosis and/or the sensitive nature of the topics that result in under-reporting of undesirable behaviors. This is likely due to the low-literacy rate in the population that resulted in many surveys being read aloud. The results of this study identify characteristics of a very specific population, but have lessons that can be considered when developing interventions related to adolescents in sub-Saharan Africa or adolescent sexual behavior in general. We know that there is a gender disparity in adolescents in Uganda, a trend that is likely continued throughout the region. And, we now understand that the different genders internalize peer, adult, and parental influence in differing ways, which has large implications on behavioral control.

Conclusion

The influence of social networks including peers, adults, and parents is important in adolescent behavior¹⁴. Taken in conjunction with the HIV epidemic that is especially prevalent in adolescents and females¹, this information offers a unique way to approach the design and implementation of sexual and reproductive health programs. Our study identified that the effect of these interpersonal relationships on sexual behavior varies by gender, which is especially pertinent in a community with abundant gender disparities. This information contributes to the growing body of literature that identifies that being female is especially high-risk for risky sexual behaviors including HIV acquisition, likely due the prevalence of age-disparate relationships and sexual concurrency.

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Table 1. Frequencies of demographic data and variables by gender.

| Question content ^A (N, N%) | Female (n=636) N (N%) | Male (n=497) N (N%) | Pr > ChiSq |
|--|-----------------------------|---------------------------|---------------------|
| Education | | | 0.8603 |
| None | 36 (60.00) | 24 (40.00) | |
| Attended at least some primary | 338 (56.43) | 261 (43.57) | |
| Attended at least some secondary | 244 (55.08) | 199 (44.92) | |
| Attended at least some tertiary | 11 (64.71) | 6 (35.29) | |
| Missing | 7 (50.00) | 7 (50.00) | |
| Age (Median, IQR) | 17 (3) | 17 (3) | 0.9627 ^B |
| Sexually Active | | | 0.0808 |
| No | 286 (53.56) | 250 (46.64) | |
| Yes | 349 (58.85) | 244 (41.45) | |
| Missing | 1 (25.00) | 3 (75.00) | |
| Age at Sexual Initiation | | | 0.0774 |
| <12-14 | 152 (61.54) | 95 (38.46) | |
| 15-18 | 198 (57.06) | 149 (42.94) | |
| Missing | 286 (53.06) | 253 (46.94) | |
| Has been diagnosed with HIV | | | 0.6859 |
| Yes | 68 (58.62) | 48 (41.38) | |
| No | 553 (56.03) | 434 (43.97) | |
| Missing | 15 (50.00) | 15 (50.00) | |
| Has been diagnosed with an STI | | | <.0001 |
| Yes | 268 (63.96) | 151 (36.04) | |
| No | 368 (51.76) | 343 (48.24) | |
| Missing | 0 (0.00) | 3 (100.00) | |
| Did you use a condom the first time you had sex | | | 0.1385 |
| Yes | 155 (59.16) | 107 (40.84) | |
| No | 195 (58.73) | 137 (41.27) | |
| Missing | 286 (53.06) | 253 (46.94) | |
| Did you use a condom the last time you had sex | | | .1088 |
| Yes | 235 (59.95) | 157 (40.05) | |
| No | 115 (56.93) | 87 (43.07) | |
| Missing | 286 (53.06) | 253 (46.94) | |
| Peers do not plan to have sex until older | | | 0.0057 |
| Disagree | 144 (48.65) | 152 (51.35) | |
| Neither agree nor disagree | 155 (60.55) | 101 (39.45) | |
| Agree | 336 (58.33) | 240 (41.67) | |
| Missing | 1 (20.00) | 4 (80.00) | |
| Most of my friends think I should not have sex | | | 0.0389 |
| Disagree | 147 (50.34) | 145 (49.66) | |
| Neither agree nor disagree | 142 (61.74) | 88 (38.26) | |
| Agree | 345 (57.02) | 260 (42.98) | |
| Missing | 2 (33.33) | 4 (66.67) | |
| Adults approve of people my age having sex | | | 0.1012 |
| Disagree | 535 (56.67) | 409 (43.33) | |
| Neither agree nor disagree | 45 (51.14) | 43 (48.86) | |
| Agree | 56 (57.73) | 41 (42.27) | |
| Missing | 0 (0.00) | 4 (100.00) | |
| My parents would be upset if they found out I am having sex | | | 0.0009 |
| Disagree | 538 (58.35) | 384 (41.65) | |
| Neither agree nor disagree | 62 (45.26) | 75 (54.74) | |
| Agree | 36 (52.94) | 32 (47.06) | |
| Missing | 0 (0.00) | 6 (100.00) | |
| My parents think I should carry a condom if I am going to have sex | | | 0.8779 |
| Disagree | 258 (55.72) | 205 (44.28) | |
| Neither agree nor disagree | 162 (54.92) | 133 (45.08) | |
| Agree | 213 (57.72) | 156 (42.48) | |
| Missing | 3 (50.00) | 3 (50.00) | |

^ARow percentages were used; ^BWilcoxon Two-Sample Test used; statistically significant associations are bolded