

Research Article

Understanding the “Why” for High Risk Behavior: Adolescent Girls Motivations for Sex

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Abstract

Aims: Adolescent girls continue to face negative health consequences of sexual risk behaviors. Tested in a randomized controlled trial, the Health Improvement Project for Teens (HIP Teens) is a CDC- and Dept. of HHS-recognized HIV/STI/pregnancy prevention evidence-based intervention. Identifying why girls participate in safe and risky sexual behaviors is key to developing successful intervention strategies. This study identified motivations for sex in the 738 girls enrolled in the RCT and analyzed differences in sex motives among at-risk subgroups.

Methods: Sexually-active girls, ages 15-19 (n=738) were recruited from urban community-based settings and enrolled in the gender-specific intervention. Baseline data were collected via audio computer-assisted self-interview surveys including a modified Sex Motives Scale based on six domains (intimacy, enhancement, self-affirmation, coping, peer pressure, and partner approval), assessing drivers of both protective and risk-promoting motivations. Descriptive and inferential analyses were used to describe the distribution of sex motives as well as differences in subgroups with different risk profiles.

Results: Participants were predominantly African American and impoverished with reported risk behaviors. The predominant sex motives identified across the sample were enhancement and intimacy. Statistically significant motive differences across domains were identified among mental health variables (depression, drug and alcohol use) as well as demographic group characteristics (race, age, and parental status).

Conclusion: Understanding sex motives in girls and their relationship to modifiable and unmodifiable factors can improve tailoring of evidence-based risk reduction interventions to target specific subgroups. Understanding why girls have sex provides an opportunity to address motivation-focused strategies that may augment intervention efficacy.

Keywords: Sexual health; Adolescents; HIV; Sexually transmitted disease; Evidence-based interventions; Reproductive health; Minority women; Substance abuse; Mental health; Risk behavior

Introduction

Adolescent sexual and reproductive health risks continue to pose challenges to overall improvement of adolescent well-being. The Centers for Disease Control and Prevention estimate that almost 1 in 4 adolescents have contracted an STI [1]. Despite gains in reducing unintended pregnancy over the past decade, disparities in STIs and unintended pregnancies persist in vulnerable groups 15-24 years of age with minority adolescents [1]. In 2014, African American females had the highest number of estimated new HIV diagnoses than any other female racial group [2]. Hispanic and non-Hispanic black adolescent females have the highest teen pregnancy rates compared among other racial and ethnic groups [3]. Other demographic and biological factors (e.g. age, pregnancy, race, parental status) have been associated with risk behaviors as well. For example, younger sexually active females are at more likely to engage in unprotected sex and have multiple sexual partners [4] as well as experience sexual coercion from older partners [5,6]. Having ever been pregnant can also put teen girls at risk for continued negative health outcomes [7]; with almost

20% of teen births reported as repeat pregnancies [8]. Additional risk is faced by teen mothers compounding the negative health, social and economic outcomes; they are less likely to graduate high school and find stable employment thus impacting future quality of life [9].

Adolescence is a time of tremendous biological and personal development and for some teens, this time can be marked with the challenges of depression, substance use and alcohol abuse. A 2012 study by the Center for Behavioral Health Statistics and Quality found that girls ages 12 to 17 are almost three times more likely than their male peers to experience a major depressive event in the span of a year [10]. The 2015 Youth Risk Behavior Surveillance results indicated that adolescent girls were more likely to feel sad or hopeless almost every day for two weeks or more, drink at least one alcoholic beverage, and smoke marijuana in the past 30 days before the survey [11]. These factors are not only associated with negative sexual health outcomes but they can exacerbate them [12-14]. One study found that a higher dependence on marijuana was associated with a decreased use in condoms among adolescents and higher frequencies of sex

were associated with increased marijuana use [15]. African American adolescent girls that use marijuana and alcohol had higher rates of STI diagnoses, unprotected vaginal sex, and unintended pregnancy [16]. Substance use and depression have been linked with sexual risk behaviors including decreased condom use and substance use co-occurrence with sexual activities [13]. In a study by Lee, O’Riordan, and Lazbenik, 64% of the girls that exhibited a history of depression symptoms had a history of STIs and 12% had experienced an unintended pregnancy [17]. Binge drinking, like substance abuse, can compound the negative effects of depression and sexual risk behavior [13,18].

Understanding what motivates adolescents to participate in risk behaviors and their interactions with other risk factors can help researchers develop interventions to reduce risk among specific at-risk subgroups. As such, many theoretically-driven interventions targeting risk behaviors have highlighted motivation as a critical construct for integration (e.g. Information Motivation Behavioral Skills Model, Self-Determination Theory) [19-21]. Studies have shown that varying motives for having sex influence risk behavior among adolescents. The relationship between motives for sex and condom use was examined in a study by 277 female adolescents [22]. Those whose motivations attached meaning or intimacy to sex were less likely to use condoms [22]. Those who reported low scores on the motive “to express love” (intimacy) with steady partners were more likely to have protected sex [22]. Similarly, sex motives were examined in 133 adolescent girls with more effective condom use identified in girls who scored low in the motive to have sex to express love [23]. For example, Paradise and colleagues reported inexperienced and sexually active adolescent girls with sexual motives based on personal values and, in some cases, religious influence [24]. Ozer and colleagues assert that there are gender and social nuances that may have a greater yet less understood impact on sex motives among adolescents [25]. In a study by Cooper, Shapiro, and Powers, motivations for sex were categorized into four areas related to self-focused or socially-focused interactions with positive or negative reinforcement [26].

Understanding that motivation for sex is multi-faceted, Cooper et al. [26] developed a 29-item Likert scale questionnaire consisting of six sex motive domains (Enhancement, Intimacy, Coping, Self-affirmation, Partner approval, and Peer approval). These domains were theoretically constructed from the four areas of motivation (Social Aversive, Social Approach, Self-Focused Aversive, and Self-Focused) [26].

These “drivers” of behavior choice can be classified into four areas (Figure 1); the horizontal spectrum ranging from risk-taking (averse) or protective (favorable) outcomes, specifically whether sexual behavior is driven by escaping negative outcomes or seeking positive outcomes [26]. Across a vertical spectrum ranging from internally focused (self) to externally focused (social) motivations for sex, specifically whether choices motivating sex behaviors are focused on the self or the desire to interact with others. These components helped shape the six sex motive domains: social approach, social aversive, self-focused or intrapersonal, and self-focused intrapersonal aversive motives [26].

The motivation to have sex for love, emotional connection and intimacy were classified as “Social Approach” motives. Intimacy

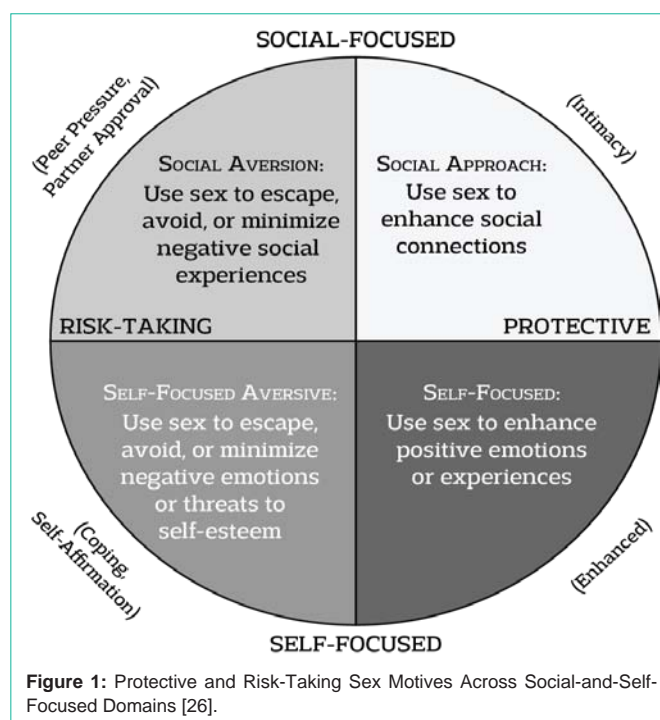


Figure 1: Protective and Risk-Taking Sex Motives Across Social-and-Self-Focused Domains [26].

motives fall under the Social Approach component. Cooper and colleagues found that differences existed among sex motives as protective factors against different types of sexual risk; intimacy motives were associated with lower frequencies of sexual intercourse, delayed initiation of sexual activity, and less risky behavior.

Social Aversive motives include having sex for a partner’s love, attention, and favor (partner approval) or for social approval or to “fit in” (peer pressure). Partner approval motives were associated with higher levels of sexual risk taking including higher numbers of sex partners, using less effective forms of birth control, and increased rates of unintended pregnancy [26]. The occurrence of unprotected sex doubled when partner approval motives were reported. Peer pressure motives acted as protective factors in their link to decreased frequency of intercourse, delayed sexual activity initiation, and a reduction in risky behavior [26]. However, as sexual experience was gained, peer pressure motives were associated with increased risky sex behaviors [26].

Self-focused Intrapersonal Aversive motives include engaging in sexual behavior to boost one’s self-confidence or to feel sexually attractive (self-affirmation) and having sex to decrease feelings of sadness, depression, or loneliness (coping motives). Coping motives were correlated with increased numbers of sex partners, less effective forms of birth control, and unplanned pregnancy [26]. Over time, the likelihood of STI acquisition and rate of sexual intercourse associated with coping motives increase. Self-affirmation motives were linked to lower rates of sexual intercourse, delayed sexual debut, and safer sex behaviors but doubled the risk of unplanned pregnancy [26].

Self-focused intrapersonal motives are comprised of sex for pleasure, thrill-seeking, and excitement; enhanced motives are housed in this quadrant [26]. Enhanced motives were associated with increased risk taking behavior over time; greater numbers of

sex partners, higher risk of contracting an STI, and increased rates of unintended pregnancy [26].

Black participants had higher coping and peer approval scores in the Cooper et al study, which means that this group may attribute different meanings to sexual behavior and are more sexually experienced than their white counterparts [26]. Different sex motives act as protective or risk factors for negative sexual behavior. Examining motives through the lens of other established risk subgroups can allow researchers to tailor motivational components of intervention's targeting those specific motivations that drive behavior.

Despite their increased risk, there are still a limited number of theoretically-driven, effective sexual risk reduction interventions tailored to adolescent girls. The Information-Motivation-Behavioral Skills model can provide a theoretical framework for understanding HIV/AIDS preventive behavior; this model incorporates motivation as a major determinant for sexual risk reduction [19]. The Health Improvement Project for Teens (*HIPTeens*) is an evidence-based interventions identified by the Centers for Disease Control and Prevention and the Department of Health and Human Services as having strong evidence for HIV, STI, and teen pregnancy outcomes. *HIPTeens* is theoretically-guided by the Information Motivation Behavior Skills Model and is a brief gender-specific intervention [27]. True to its structural roots, each session targeted strategies that integrated the constructs of the Information Motivation Behavior Skills Model. The structure and content of the small group sessions provided by trained female facilitators diverse in age, race, ethnicity, discipline, and experience included developmental and age appropriate approaches such as games, interactive group activities, and role play. This intervention significantly reduces multiple risk behaviors across the yearlong study; further information about the randomized controlled trial can be found elsewhere [28]. Data collected during the course of the randomized controlled trial can inform tailoring of evidence-based interventions to enhance their impact. Understanding how sex motives may differ among at-risk groups is an important step in developing such adaptations. The purpose of this study is to analyze differences in sex motives among girls enrolled in the *HIPTeens* RCT and to identify variations in motivations for sex between girls with reported risk behavior profiles.

Methods

Study design and sample

We used purposes convenience sampling, approaching all 15-19 year old females at multiple health, education, and youth development sites. From the 1,013 approached meeting study criteria, we recruited 738 English-speaking girls aged 15-19 years from urban community-based centers in upstate New York. To be eligible for this study participants had to be unmarried, not pregnant, not given birth within the past 3 months, and sexually active within the past 3 months. Reflecting the high risk northeast urban area from which they were recruited, the majority of study participants were low-income African American (69%) girls with a mean age of 16.5 years. In addition 17% of girls reported Hispanic ethnicity which is higher than the national percentage of Hispanic female adolescents (10.5%) [29]. Overall these girls were at increased sexual risk; mean age of first vaginal sex ($M=14.43$ years) was younger than reported age for first oral ($M=15.24$ years) or anal ($M=15.74$ years) sex. At baseline,

participants reported older steady sex partners ($M=18.69$ years) and more than one concurrent partner ($M=1.43$).

As a component of the randomized controlled trial intervention study, this paper presents baseline analyses from girl's recruited following randomization to intervention groups. Following full study consent procedures in a private area by trained recruiters, girls were enrolled and then baseline data were collected using an Audio Computer Assisted Self Interview (ACASI) [28,30] comprised of valid and reliable measures. These measures included the Sex Motives Scale, [26] as demographics, sexual and other risk behavior.

Measures

This ACASI survey was used to capture sociodemographic information, sexual histories, and other items related to sexual risk behavior. Specifically, sociodemographic questions requested information on participants' age, race, ethnicity (defined as Hispanic or non-Hispanic), poverty (received free lunch in school), and marital and living status. Participants reported on history of pregnancy, childbearing, and parenting. Participants also reported their current and past risk behaviors with "steady" and "casual" partners, including number of sexual partners and the number of sexual episodes of protected (condoms) and unprotected (without condoms) vaginal and anal sex [28,31-33].

Other risk-related data including depression symptoms, drug and alcohol use (general and concurrent with sex) were collected. The study collected data on depressive symptoms among study participants by using the Center for Epidemiological Studies Depression (CES-D) scale [34]. This Likert-type scale has 9 items with to measure frequency of symptoms; answer options ranged from 1="less than a day per week" to 4="5-7 days per week" [28,30,31,34]. Higher scores are associated with higher depressive symptoms with scores of 15 or higher indicate clinically significant depressive symptom levels. For the purpose of this study we classified girls with a CESD score of 15 or higher as high depressive symptoms and girls with lower than 15 as low depressive symptoms.

To measure alcohol use in these teens, researchers used items from Weschler's College Alcohol Survey [35]. Specifically four questions assessed alcohol use among study participants, described as reliable and valid risk reduction studies [31,36-38]. These questions include 1.) Have you drank alcohol in the past three months; 2.) how much alcohol and the frequency of drinking participants engaged in over the past three months and during any given week, including binge-drinking (4 or more drinks on any one occasion) [30,31,39].

A brief version of the widely used, psychometrically validated Addiction Severity Index (ASI) [40,41] was used to evaluate drug use [31,36-38]. The first item asks participants to report which drugs they have used in the past 3 months using a checklist of a number of drugs (i.e. marijuana, crack cocaine, cocaine powder, nitrate inhalants, speed, cigarettes, heroin, and ecstasy). Participants were then asked specific questions about their frequency, uptake method (injection), and associated risk factors (e.g. sharing needles) associated with that specific substance (each frequency item has a scale: 0- about every day, 1- several times a week, 2- about one time a week, 3- about one time a month).

Motivations during sexual decision-making were observed using

Table 1: Demographic Characteristics of Participants (n=738).

	Participants N (%)
Race	
Black/African-American	510 (69%)
White/Caucasian	67 (9%)
Mixed/Multiracial	79 (11%)
Other	82 (11%)
Ethnicity	
Hispanic	125 (17%)
Not Hispanic	613 (83%)
Impoverished	
Free Lunch	513 (69%)
No Free Lunch	225 (31%)

an adapted version of the Cooper et al Sex Motives Scale measuring six sex motive domains (Enhancement, Intimacy, Coping, Self-affirmation, Partner approval, and Peer approval) [26]. Originally tested in a study of 1,666 sexually-active adolescents and young adults (M age=21.5 years), strong reliability and validity (construct, content, convergent, discriminant, and incremental) [22,25,26] were demonstrated [22,26,28,30] were demonstrated [26]. Based on evidence indicating strong correlates and factor loading, the *HIPTeens* RCT used 17 items from this scale in their participant questionnaire with a inter-reliability ranging from 0.82 to 0.90 for the subscales. Participants were asked various questions regarding the frequency of sex (e.g. Never/Almost Never, Some of the time, About half of the time, Most of the time, and Always/Almost Always) in relation to the intention behind it (e.g. "How often do you have sex to become closer to your partner," "How often do you have sex just because all of your friends are having sex?") [28,30,31].

Analysis

Baseline data from 738 girls were analyzed using descriptive and inferential statistics to identify overall motivations for sexual risk and any significant differences in motivations for sex by different risk profiles. Using descriptive statistics to provide an overall composite picture of participants, we focused on demographics, motivations, and risk profile responses. We provided stronger interpretation of these data using inferential statistics to identify significant differences in motivations for sex by different risk profiles. We chose to dichotomize variables based on sociodemographic and risk characteristics such as having been depressed or not depressed, using drugs, and drinking alcohol because many intervention programs offered enroll girls with similar categories of risk (e.g. teen mothers, substance users). For descriptive statistics, the subgroup sample sizes are counted by using SAS PROC FREQ and the means and standard deviations for the sex motive measure were computed by using SAS PROC MEANS in different subgroups. We compared each motive subscale as well as differences across sample characteristics with group comparisons using two sample t-test implemented in SAS PROC TTEST. All analyses were performed by using Window's SAS 9.2.

Results

The more than 700 girls enrolled in this study reflected the

Table 2: Social Aversive Sex Motives Domain by Risk Categories.

	Peer Pressure Motives M(SD)	Partner Approval Motives M(SD)
Demographic Variables		
Younger Girls (n=353)	0.09(0.49)	0.72(1.82)
Older Girls (n=382)	0.22(0.74)	0.98(2.27)
<i>t-test</i>	-2.84**	-1.59
Non-Black (n=224)	0.09(0.49)	0.90(2.12)
Black (n=511)	0.19(0.67)	0.84(2.04)
<i>t-test</i>	-2.29**	0.35
Reproductive Health Variables		
Never Pregnant (n=543)	0.19(0.68)	0.86(2.12)
Ever Pregnant (n=192)	0.06(0.37)	0.87(1.92)
<i>t-test</i>	2.55**	-0.03
No Child (n=663)	0.17(0.65)	0.86(2.08)
At Least One Child (n=72)	0.03(0.17)	0.88(1.99)
<i>t-test</i>	4.43***	-0.06
No STI (n=449)	0.18(0.65)	0.82(2.01)
STI (n=286)	0.12(0.58)	0.93(2.15)
<i>t-test</i>	1.17	-0.68
Mental Health Variables		
Not Depressed (n=607)	0.13(0.52)	0.61(1.55)
Depressed (n=128)	0.30(0.95)	2.06(3.40)
<i>t-test</i>	-1.98**	4.71***
No Drug Use (n=401)	0.14(0.64)	0.76(1.93)
Drug Use (n=334)	0.17(0.60)	0.99(1.97)
<i>t-test</i>	-0.81	-1.61
No Alcohol Use (n=508)	0.12(0.52)	0.71(1.89)
Alcohol Use (n=286)	0.23(0.8)	1.21(2.39)
<i>t-test</i>	-1.96	-2.82**
p<.05, *p>.0001		

demographic characteristics of many urban settings (predominantly young women of color and impoverished). They reported numerous baseline behaviors that put them at risk for HIV, STIs, and unintended pregnancy including multiple sex partners, unprotected intercourse and previous sexual histories confirming ongoing risk behaviors (e.g. pregnancy, treatment for STIs). Similar to adolescents across the U.S., they engaged in use of drugs and alcohol (despite being underage) and many of these girls reported depressive symptoms [11]. Overall, participants had the highest mean scores for enhanced (M=4.95) and intimacy (M=7.69) motives. Conversely, the other mean scores were less than 1.5 for the coping, partner approval, peer pressure, and self-affirmation motives. When comparing groups of girls with different risk profiles, significant differences in sex motives across demographic, reproductive health, and psychosocial participant characteristics were identified.

Social aversive motives

These reasons are driven by the desire to avoid social threats,

Table 3: Social Approach Sex Motive Domain by Risk Categories.

Demographic Variables	
	Intimacy Motives M(SD)
Younger Girls (n=353)	7.33(3.55)
Older Girls (n=382)	8.01(3.19)
<i>t-test</i>	-2.73**
Non-Black (n=224)	7.32(3.42)
Black (n=511)	7.85(3.36)
<i>t-test</i>	-1.96**
Reproductive Health Variables	
Never Pregnant (n=543)	7.79(3.36)
Ever Pregnant (n=192)	7.40(3.45)
<i>t-test</i>	1.36
No Child (n=663)	7.75(3.39)
At Least One Child (n=72)	7.08(3.33)
<i>p-value</i>	1.59
No STI (n=449)	8.00(3.23)
STI (n=286)	7.19(3.57)
<i>p-value</i>	3.13**
Mental Health Variables	
Not Depressed (n=607)	7.87(3.30)
Depressed (n=128)	6.83(3.67)
<i>t-test</i>	3.17**
No Drug Use (n=401)	7.69(3.44)
Drug Use (n=334)	7.68(3.32)
<i>t-test</i>	0.51
No Alcohol Use (n=508)	7.82(3.37)
Alcohol Use (n=286)	7.39(3.41)
<i>t-test</i>	1.60
** <i>p</i> <.05, *** <i>p</i> >.0001	

experiences, or situations. In our analyses, peer pressure motives differed across every demographic category (age, race, pregnancy history, and parental status); (Table 1 and Table 2). Among age groups, older girls (18-19 years old) had significantly higher peer pressure mean scores ($t=-2.88$, $p<0.05$) than younger girls (15-17 years old). Peer pressure motive mean scores were almost 2.5 times higher among older girls than younger girls. Black participants reported significantly higher peer pressure mean scores ($t=-2.29$, $p<0.05$); these mean scores were over two times higher when compared to other racial groups. Participants who had ever been pregnant had mean peer pressure motive scores 3 times higher than their never-pregnant counterparts. Peer pressure motive mean scores for childless girls were 6 times higher than girls with at least one child. Our analyses also revealed that peer pressure motive mean scores were four times higher among girls with depressive symptoms (high CESD scores). In addition, for these girls with depression, partner approval scores were significantly higher than for those not depressed ($t=4.71$, $p<0.001$). Girls engaged in underage drinking also reported higher peer pressure and partner approval motive scores than girls who did not consume alcohol.

Table 4: Self-Focused Motive Domain by Risk Category.

Demographic Variables		Enhanced Motives M(SD)
Younger Girls (n=353)		5.47(3.13)
Older Girls (n=382)		4.48(2.98)
<i>t-test</i>		4.38***
Non-Black (n=224)		5.46(3.2)
Black (n=511)		4.73(3.02)
<i>t-test</i>		2.93**
Reproductive Health Variables		
Never Pregnant (n=543)		4.84(3.03)
Ever Pregnant (n=192)		5.27(3.24)
<i>t-test</i>		-1.60
No Child (n=663)		4.93(3.11)
At Least One Child (n=72)		5.19(2.88)
<i>t-test</i>		-0.70
No STI (n=449)		4.83(3.06)
STI (n=286)		5.14(3.14)
<i>t-test</i>		-1.33
Mental Health Variables		
Not Depressed (n=607)		4.91(3.04)
Depressed (n=128)		5.15(3.33)
<i>t-test</i>		-0.78
No Drug Use (n=401)		4.56(3.03)
Drug Use (n=334)		5.43(3.10)
<i>t-test</i>		-4.09***
No Alcohol Use (n=508)		4.72(3.05)
Alcohol Use (n=286)		5.48(3.12)
<i>t-test</i>		-3.11**
		** <i>p</i> <.05, *** <i>p</i> >.0001

Social approach motive (Intimacy)

Social approach motives are characterized by the need increase intimacy or positively connect or be loved by a partner or social group. Differences in intimacy sex motives, a protective factor, were identified across different age and racial groups, reproductive health history, and mental health status (Table 3). Older girls had significantly higher intimacy scores than younger girls, findings identified in previous studies ($t=-2.73$, $p<0.05$) [26]. Black participants reported significantly higher intimacy motives than their non-black counterparts ($t=-1.96$, $p<0.05$). Study participants who reported ever having been treated for an STI had significantly lower intimacy motive mean scores than girls who had never been treated for an STI. Intimacy motive mean scores were significantly higher among participants with less depressive symptoms as well.

Self-focused motive (Enhanced)

Adolescents motivated by thrill-seeking, excitement, or pleasure-seeking for sex are examples of the self-focused motive or enhancement motive. Enhancement motive scores, those with a proclivity for risk taking, were higher for those with a history of

Table 5: Self-Focused Aversive Motives Domain by Risk Categories.

	Coping Motives M(SD)	Self-Affirmation Motives M(SD)
Demographic Variables		
Younger Girls (n=353)	1.16(2.17)	0.98(2.07)
Older Girls (n=382)	1.15(1.97)	0.98(2.03)
<i>t-test</i>	0.05	0.01
Non-Black (n=224)	0.95(1.78)	1.13(2.34)
Black (n=511)	1.25(2.18)	0.91(1.91)
<i>t-test</i>	-1.94**	1.20
Reproductive Health Variables		
Never Pregnant (n=543)	1.18(2.14)	0.99(2.02)
Ever Pregnant (n=192)	1.10(1.85)	0.95(2.13)
<i>t-test</i>	0.45	0.23
No Child (n=663)	1.15(2.08)	0.98(2.05)
At Least One Child (n=72)	1.21(1.96)	0.96(2.05)
<i>t-test</i>	-0.22	0.08
No STI (n=449)	1.14(2.06)	0.97(1.96)
STI (n=286)	1.19(2.09)	0.99(2.19)
<i>t-test</i>	-0.29	-0.13
Mental Health Variables		
Not Depressed (n=607)	0.95(1.84)	0.76(1.69)
Depressed (n=128)	2.15(2.72)	2.00(3.07)
<i>t-test</i>	-4.76***	-4.43***
No Drug Use (n=401)	0.97(1.95)	0.82(1.82)
Drug Use (n=334)	1.38(2.18)	1.17(2.28)
<i>t-test</i>	-2.63**	-2.22**
No Alcohol Use (n=508)	0.95(1.8)	0.76(1.73)
Alcohol Use (n=286)	1.62(2.52)	1.46(2.57)
<i>t-test</i>	-3.59**	-3.72**
** <i>p</i> <.05, *** <i>p</i> >.0001		

sexual risk (STI, pregnancy, child-bearing status) reflecting findings from previous literature [26]. Younger ($t=4.38, p<0.0001$), non-black ($t=2.93, p<0.05$), drug ($t=-4.09, p<0.001$) and alcohol use ($t=-3.11, p<0.05$) participant subgroups all had significantly higher enhanced motives for engaging in sex (Table 4).

Self-focused aversive motives

We identified differences in self-focused aversive motives include coping and self-affirmation motives—the motivations for sex to manage sadness and personal trauma or to boost one's self-esteem or feeling of self-worth (Table 5). Similar to findings from previous studies, black participants had higher mean scores for those coping motives that are used to decrease sadness, depression or loneliness. When examining mental health and sex motives, we identified differences between girls with higher depressive symptoms and girls with lower depressive symptoms. Coping ($t=4.76$) and self-affirmation ($t=-4.43$) motive mean scores were significantly higher among girls reporting higher CESD scores than their lower CESD scoring counterparts ($p<0.0001$); the high CESD mean score for each motive was more

than double the low CESD mean scores. Girls who reported using drugs in the past three months had significantly higher coping ($t=-2.63, p<0.05$) and self-affirmation ($t=-2.22, p<0.05$) motive mean scores than girls that reported no drug use. Coping ($t=-3.59, p<0.05$) and self-affirmation ($t=-3.72, p<0.05$) motives were significantly higher among girls that had at least one drink per week.

Discussion

This study of 738 urban girls, ages 15-19, provided detailed information on what specifically motivates them to have sex and examined differences in these motivations across demographics, reproductive health, and psychosocial variables. Previous work has identified coping mechanisms being associated with a profile of risk-taking behavior that can include multiple partners and unsafe sex. This is particularly concerning in those girls with high depressive symptoms, substance use, and underage drinking. Prior studies on depression and substance abuse have demonstrated the increased sexual risk associated with these mental health factors, findings supported by the data from our study [17,42]. Using sex as a tool to cope with sadness [18], to feel good or satisfy one's personal needs, or to improve self-confidence [22] are examples of how sex motives are intrinsically linked to psychosocial risk factors like depression, substance use, and underage drinking. Specific attention needs to be paid to girls with a history of substance use or mental health issues by focusing on tailored intervention strategies. Differences in peer pressure motives for sex identified among many of the subgroups in our study, however, its manifestation was not always anticipated. For instance, age comparison groups demonstrated a significant difference in peer pressure motive scores; older girls reporting higher mean scores. This finding contradicts previous studies on the numerous risks and motivations among younger adolescent girls [4]. This may be explained by differential peer groups (friends vs potential romantic partners). In a previous study, platonic peers influenced adolescent dating initiation while romantic peers affected the sexual and emotional direction of the relationship; these "peer approval" motivations may differ by age of the adolescent [43]. Of note, study participants ranged in age from 15 to 19 and classification of "younger" vs "older" participants may differ across other adolescent investigations. It is also important to point out that the interdependent relationship between sexual risk, substance use, and depression demonstrated in this study make a strong case for tailored components of sexual risk reduction interventions. Understanding that there are both positively and negatively focused motivations for sex and capitalizing on those protective motivations is needed to augment evidence-based interventions targeting adolescents. For example, role play scenarios that highlight hypothetical situations directed to those motives, identified as "problematic" for various subgroups can be developed with extensive skill building activities. Addressing triggers to risk behavior such as depression or sadness, use of drugs and pressures felt from single parenthood in sexual risk reduction interventions, such as is found in *HIPTeens*, have the potential to increase efficacy for these at-risk girls. Understanding the influence of mental health, substance use, and other risk factors on behavioral motivations in sexual risk can help researchers pinpoint intervention components for adaptation or screening tools for participant referral.

Limitations

These data were collected during the course of a randomized controlled trial with more than 700 urban adolescent girls. Using convenience sampling limits generalizability of the findings but these girls reflected the demographics and reported risk behaviors of vulnerable teens. Study limitations include the use of self-reported data and focused on baseline data for analysis; we did not target the intervention to specific risk subgroups and do not extend the findings from this study to long term changes in sex motives across the 12 month follow up period. We employed the use of ACASI to obtain data as it has been identified as a method that increases validity and reliability including increased reporting of risk behaviors [30]. These self-reported motive measures tap self-attributed motivations for sex but there may be other motives that are more implicit and not identified in the report (e.g. survival sex). We were unable to determine if these sex motives differed across different relationship contexts such as in these girls with a long term partner or those with new or anonymous partners. Similarly, there may be a need for multiple ways to assess sex motives and risk behaviors for future work.

Conclusion & Recommendations

Adolescent girls face challenges to making safer sex choices and the high prevalence of depression, drug and alcohol use as well as demographic disparities within this age group can reduce their ability to engage in behaviors that limit their exposure to HIV/STIs and unplanned pregnancy. This study provides data findings from a large number of at-risk urban adolescent girls assessing the nuances within motivation for sex and proclivity for risk behaviors.

Future work addressing how these differences in sex motives may impact both tailoring of intervention components and strategies as well as long term behavioral outcomes is needed. Tailoring interventions that specifically target predominant motivational concerns, including those endorsed the most by girls that suffer from depression, use drugs or alcohol and have different reproductive risk histories can be an important component of improved intervention outcomes. Understanding the “why” sexual behavior choices can lead to improved interventions for the large numbers of vulnerable adolescent girls with depression, substance use history, and young mothers.

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