HHS Public Access

Author manuscript

J Child Fam Stud. Author manuscript; available in PMC 2022 August 16.

Published in final edited form as:

J Child Fam Stud. 2017 February 20; 26(6): 1635–1645. doi:10.1007/s10826-017-0674-z.

Feelings Matter: Depression Severity and Emotion Regulation in HIV/STI Risk-Related Sexual Behaviors

Bridgette M. Brawner [Assistant Professor of Nursing],
Department of Family and Community Health, University of Pennsylvania School of Nursing, 418 Curie Blvd., 4th Floor, Room 419, Philadelphia, PA 19104-4217

Loretta Sweet Jemmott [Vice President],
Health and Health Equity, Drexel University, Philadelphia, PA

Gina Wingood [Sidney and Helaine Lerner Professor]
Public Health Promotion Sociomedical Sciences, Columbia University Mailman School of Public Health, New York, NY

Janaiya Reason [Research Administrative Coordinator],

Bridget Daly [Statistics Intern],

Kiahana Brooks [Research Assistant]

Department of Family and Community Health, University of Pennsylvania School of Nursing, Philadelphia, PA

Yzette Lanier [Assistant Professor of Nursing]
New York University School of Nursing, New York, NY

Abstract

Human immunodeficiency virus (HIV)/sexually transmitted infection (STI) prevention models may not address psychological complexities among adolescents with mental illnesses. This study examined contextual factors related to HIV/STI risk among heterosexually active Black adolescents with mental illnesses to inform the development of targeted HIV/STI prevention strategies. Black adolescent males and females (aged 14–17) were recruited from outpatient mental health programs in Philadelphia, PA to complete a computer-assisted personalized interview on sociodemographics, sexual behaviors, and emotion regulation ($N = 53$). Two sample t-tests, Wilcoxon Rank Sum tests and regression modeling were used to examine differences in the study measures by gender and relationship status. Reports of sexual partner concurrency were high—both while already in a sexual relationship (67.3%) and multiple sexual partners in the same day (42.3%). Boys reported significantly more risk behaviors than girls. Sadness

Corresponding Author: B. M. Brawner, Assistant Professor of Nursing, Department of Family and Community Health, University of Pennsylvania School of Nursing, 418 Curie Blvd., 4th Floor, Room 419, Philadelphia, PA 19104-4217, brawnerb@nursing.upenn.edu.

1. We have no potential conflicts of interest to disclose.

2. This research involved participation of human participants and was approved by the Institutional Review Boards (IRBs) at the University of Pennsylvania and the Philadelphia Department of Public Health.

3. Informed consent was obtained from all participants. In the state of Pennsylvania, youth aged 14 and older can consent to both HIV/STI testing and mental health treatment, thus parental permission was not required for participation and participants consented rather than assented to the study (Juvenille Law Center, 2006).

dysregulation predicted currently being in a relationship, older age at first oral sex, fewer vaginal sexual partners and fewer unprotected oral sexual encounters. Coping difficulties predicted a greater number of vaginal and oral sexual partners, and a lower age at first vaginal sex. Increasing depression severity was related to older age at first vaginal sex, fewer vaginal sexual partners and fewer unprotected oral sexual encounters in the past 3 months. This formative work suggests that coping mechanisms should be addressed in HIV/STI prevention research through the inclusion of activities targeted toward emotion regulation and decreasing sexual risk behaviors. Psycho-education and skills building may mitigate the psychopathology that contributes to HIV/STI risk in the target demographic.

Keywords

adolescents; depression; emotion regulation; HIV prevention; sexual partner concurrency

Introduction

Nearly half of all adolescents in the United States (U.S.) are sexually active; reports of sexual activity are even higher among Black adolescents (Centers for Disease Control and Prevention [CDC], 2014). Black adolescents also share a disproportionate burden of sexually transmitted infections (STIs), including human immunodeficiency virus (HIV). For example, although Black adolescents only represent 14% of the U.S. population, they account for 63% of new HIV cases among adolescents aged 13 to 19 (CDC, 2013). Sexual contact is the predominant mode of transmission in this demographic, and explicit focus on heterosexually active adolescents is warranted.

Some studies have shown that compared to other racial/ethnic groups, heterosexually active Black adolescents have limited sexual health knowledge and engage in more HIV/STI risk-related sexual risk behaviors such as having unprotected sex, multiple sexual partners/sexual partner concurrency and sex under the influence of drugs and alcohol (Ford, Sohn, & Lepkowski, 2002; Morrison-Beedy, Carey, Crean, & Jones, 2011; Spiegel & Futterman, 2009). Sexual partner concurrency (e.g., having sex with more than one person in the past 30 days) accelerates the spread of HIV/STIs (Adimora et al., 2013; Grieb, Davey-Rothwell, & Latkin, 2012) and increases the risk of acquiring an STI nearly 13 fold (Jørgensen et al., 2015). Fewer studies, however, have examined sexual partner concurrency in adolescent samples (Ford et al., 2002; Lilleston et al., 2015). Unique psychological factors may help explain differences in HIV/STI risk-related sexual behaviors and HIV/STI risk among heterosexually active Black youth with mental illnesses. These include gendered perspectives on sexual activity and relationships, the psychopathology of mental illness, and emotion regulation/management skills

The Substance Abuse and Mental Health Services Administration (SAMHSA) estimates that 2.8 million adolescents experienced a major depressive episode in the past year (SAMHSA, 2015). In both clinical and non-clinical samples, heterosexually active Black adolescents dealing with depressive symptomology may be less likely to use condoms (Brawner, Gomes, Jemmott, Deatrick & Coleman, 2012; Brown et al., 2010; DiClemente et al., 2001; Lehrer,

Shrier, Gortmaker, & Buka, 2006; Seth, Raiji, DiClemente, Wingood, & Rose, 2009), and even if condoms are used, to use them incorrectly (Shrier, Walls, Lops, & Feldman, 2011). In addition, they may be more likely to have sex under the influence of substances, be involved in dating violence, maintain simultaneous male and female partnerships and have sex in exchange for money, drugs and goods (Lehrer et al., 2006; Shrier et al., 2011). Lifetime histories of STIs and pregnancies are also higher in this demographic (Brawner, Davis, Fannin & Alexander, 2012; Lee, O'Riordan, & Lazebnik, 2009; Mazzaferro et al., 2006; Seth et al., 2009; Shrier et al., 2011).

Most HIV/STI prevention research that incorporates mental health focuses on symptoms in general community samples (e.g., depressive symptomatology; Brown et al., 2014; Paxton & Robinson, 2008; Sales, Lang, Hardin, DiClemente & Wingood, 2010; Seth et al., 2011), with fewer studies conducted in clinical populations seeking treatment for diagnosed mental illnesses (Blank, Hennessy, & Eisenberg, 2014; Brown et al., 2014). While research on broader symptomatology is crucial, the unique psychopathology of mental illness (e.g., impulsivity, engaging in unprotected sex to alleviate depressed mood) may heighten one's HIV/STI risk, thus necessitating explicit focus on unique HIV/STI prevention needs among those coping with diagnosed mental illnesses (Brawner, Davis, et al., 2012; Donenberg, Emerson, Brown, Houck, & Mackesy-Amiti, 2012). A growing body of research demonstrates that adolescents engaged in mental health treatment are at increased risk for HIV/STIs given increased rates of sexual activity (Brawner, Davis, et al., 2012; Brown et al., 2010), earlier sexual debut, and increased numbers of sexual partners (Brawner, Gomes, et al., 2012; Shrier et al., 2011). These findings are not reported to further marginalize or stigmatize this population. Instead, it is a clarion call to better understand unique HIV/STI prevention needs among Black adolescents with mental illnesses.

The contextual factors undergirding increased risk taking behaviors among heterosexually active Black adolescents with mental illnesses are poorly understood. For example, emotion regulation has been linked as an influential factor in the sexual decision-making process (Donenberg et al., 2012; Tice, Bratslavsky, & Baumeister, 2001). Some Black adolescent females with mental illnesses report that they use sex as a means to relieve their symptoms, increase their self-esteem and achieve intimacy with others (Brawner, Davis, et al., 2012). Lower rates of condom use and higher rates of sexual activity may further be explained by the fear that denying sex or requesting condoms could result in abandonment by sexual partners (Brawner, Gomes, et al., 2012; Brown et al., 2008). Condom use rates may also be low because those experiencing depressive symptomology tend to express more negative views about the efficacy of condoms and the impact of condoms on sexual pleasure (Brawner, Davis, et al., 2012; Brown et al., 2008; Reece et al., 2010; Sales, Latham, DiClemente, & Rose, 2010; Seth et al., 2009; Swenson et al., 2010). Thus, emotion inhibition (emotional suppression), dysregulation (culturally inappropriate emotional expression) and coping (adaptive methods of emotion management) are critical to examine in understanding HIV/STI risk among Black youth.

This study was designed to examine contextual factors related to HIV/STI risk among heterosexually active Black adolescents with mental illnesses to inform the development of targeted HIV/STI prevention strategies. Guided by our preliminary work and the extant

literature, we explicitly focused on depression and emotion regulation to uncover how these factors influence sexual decision-making in the target demographic. Although this paper highlights individual-level factors that may place Black adolescents with mental illness at increased risk for HIV/STI transmission, it is equally important to remain cognizant of broader socio-structural influences that shape these disparities—such as poverty and disparate access to comprehensive sexual health education (Cubbin, Brindis, Jain, Santelli, & Braveman, 2010; Kraft, Kulkarni, Hsia, Jamieson, & Warner, 2012). However, lines of inquiry to disentangle relationships among gender, depression severity and emotion regulation are still relevant and may provide additional insight on HIV/STI risk in the general population of heterosexually active Black adolescents.

Method

Participants

For the cross-sectional study, heterosexually active Black adolescents aged 14 to 17 currently seeking outpatient mental health treatment were recruited from community-based mental health provider agencies in Philadelphia, PA. In the state of Pennsylvania, youth aged 14 and older can consent to both HIV/STI testing and mental health treatment, thus parental permission was not required for participation (Juvenille Law Center, 2006). Study inclusion criteria were: 1) 14 to 17 years old, 2) self-identify as Black (inclusive of African American, Caribbean-American, etc.), 3) currently receiving outpatient psychiatric services from a community behavioral health provider, 4) have been a client at the participating community behavioral health provider for at least 1 month, 5) have ever had vaginal sex, 6) able to speak, read and write in the English language, and 7) able to provide signed informed consent. Participants were excluded for cognitive deficits that would impair their ability to complete study procedures, ascertained by trained research staff at the time of screening; active suicidality, ascertained through the Columbia-Suicide Severity Rating Scale (Posner et al., 2008); or if they currently needed psychiatric hospitalization. Data were collected from January 2013 to October 2013.

Procedure

This research was approved by the Institutional Review Boards (IRBs) at the University of Pennsylvania and the Philadelphia Department of Public Health. Participants were informed about the study through provider referrals, waiting room encounters, and flyers posted at each agency. Interested adolescents were screened for eligibility by telephone and in person. Computer-assisted personal interviews (CAPIs) were used for electronic data collection to reduce barriers in collecting data on sexual behaviors (Kissinger et al., 1999; Raiford et al., 2014). The average time to complete the survey was 30 minutes. Thirty-three participants completed the survey as part of a 2-hour focus group discussion, and twenty participants completed the survey-only portion of the study ($N = 53$). The focus group findings are reported elsewhere. All study activities took place at the community behavioral health provider agencies where participants were recruited, or in a private conference room at the University.

Measures

The CAPI consisted of questions on sociodemographics and sexual behaviors, as well as validated scales on the predictor variables of depressive symptoms and emotion regulation. Participants were asked questions about their age, gender, living condition (e.g., whether they lived on their own or with a parent/guardian), relationship status (currently in a relationship, yes/no) and socioeconomic status (e.g., household receipt of public assistance). As the primary outcomes for linear regression models, participants reported their age at first vaginal and oral sex. For the outcomes of the Poisson regressions, participants reported the number of vaginal and oral sexual partners they had since they first started having sex. We also calculated the number of unprotected vaginal and oral sexual encounters in the past three months by subtracting the number of times a condom was used for vaginal and oral sex in the past three months from the number of times they reported having vaginal and oral sex in the past three months respectively. These questions were also asked regarding anal sex, but the counts were too low to include in the models, thus those data are not reported in the paper. For the logistic regression models, we assessed primary outcomes of sexual partner concurrency to determine whether participants had: a) sex with more than one person in the same day (referred to hereafter as same day concurrency), and/or b) sex with someone else while already in a sexual relationship (referred to hereafter as relationship concurrency).

The Patient Health Questionnaire (PHQ-9) is a 9-item depression screening tool (Kroenke, Spitzer, & Williams, 2001) with established reliability and validity in adolescent populations (Richardson et al., 2010). Responses are rated from 0 = not at all to 3 = nearly every day. Respondents rate how often they are bothered by certain problems (e.g., little interest or pleasure in doing things) over the prior two week period, and are categorized based on the severity of their depression: 0–4= “none”, 5–9= “mild depression”, 10–14= “moderate depression”, 15–19= “moderately severe depression”, and 20–27= “severe depression” (Kroenke et al., 2001). The Cronbach’s α in this sample was .71.

The Children’s Emotion Management Scale (CEMS; (Zeman, Shipman, & Penza-Clyve, 2001) was used to assess self-reported sadness (11 items) and anger (12 items) management. A Likert scale of 1 (hardly ever), 2 (sometimes), or 3 (often) scored responses to three subscales: 1) Inhibition, emotional suppression (e.g., “I get sad inside but I don’t show it”); 2) Dysregulated Expression, culturally inappropriate emotional expression (e.g., “I say mean things to others when I am mad”); and 3) Emotion Regulation Coping, adaptive methods of emotion management (e.g., “When I am feeling sad, I do something totally different until I calm down”). Higher scores reflect more of the construct. The anger and sadness Cronbach’s α were .59 and .75 respectively. The subscale Cronbach’s α in this sample were as follows: anger inhibition (.69), anger dysregulation (.71), anger coping (.59), sadness inhibition (.82), sadness dysregulation (.60), and sadness coping (.73).

Data Analyses

Descriptive statistics (including mean, standard deviation, frequency, and percent) were used to describe demographic characteristics, depressive symptoms, emotion regulation and sexual behaviors. Fisher’s Exact tests, two-sample t-tests, and Wilcoxon Rank Sum tests were used to examine differences in study measures according to current relationship

status (in a relationship vs. not in a relationship) and sexual partner concurrency (same day concurrency and relationship concurrency). Linear regression models were generated to regress continuous outcomes of age at first vaginal sex and age at first oral sex with depressive symptoms (PHQ-9 depression severity) and emotion regulation (anger dysregulation, anger coping, anger inhibition, sadness dysregulation, sadness coping and sadness inhibition). Poisson regression models were generated to regress count outcomes of number of vaginal and oral sexual partners since first vaginal and oral sex, and number of unprotected vaginal and oral sexual encounters, with the same set of depressive symptoms and emotion regulation predictor variables described above. Logistic regression modeling was used to assess associations between current relationship status and both measures of sexual partner concurrency, again with the same predictor variables. The small sample size and limited power did not support multivariable regression modelling or tests for gender moderation effects.

In the distribution of the data, there were clusters of participants who reported higher than average values for some of the risk behaviors (e.g., number of vaginal sexual partners). Given that it was not just one outlier that skewed the data, we chose to leave these cases in the analyses and report of the findings. For the number of unprotected vaginal sex encounters, however, there were two outliers. To increase the validity of the data, we ran the regression models with and without these outliers. The level of significance changed with the outliers removed (i.e., predictors that were significant with the outliers included became insignificant without them), thus the regression data reported are findings with the outliers removed. Data were analyzed using SAS V9.4 (SAS, 2012).

Results

Table 1 describes the study sample. The mean age of the sample was 16.2±0.9. Sixty percent (32/53) were boys and 39.6% (21/53) were girls. Majority of participants (79.2%, 42/53) lived in a house that their parent/guardian either owns or rents. Depression severity was relatively low (4±3.7), indicative of “no” to “mild” depression. Participants also reported moderate levels of anger dysregulation (culturally inappropriate expression of anger; 2.0±0.6) and coping (adaptive methods of coping with anger; 2.1±0.4), and sadness inhibition (suppression of sadness; 2.1±0.6). Participants were approximately 13.5 years old when they first had vaginal and/or oral sex. Only 17% of participants (9/52) reported they never used condoms when they had sex in the past 3 months. There was an average of 2.3±4 unprotected vaginal encounters and 4.7±10.7 unprotected oral encounters in the past 3 months.

There was a significant association between gender and current relationship status (p = 0.004), with 51.3% of those participants in a relationship being girls. Participants currently in a relationship tended to be higher in anger (2.1±0.6 vs. 1.7±0.4, p = 0.02) and sadness (1.7±0.5 vs. 1.3±0.4, p = 0.017) dysregulation, but lower in anger coping (2.0±0.4 vs 2.3±0.5, p = 0.035). That is, those in relationships have more culturally inappropriate expression of anger and sadness and less adaptive methods to cope with anger. Those who were in a relationship also had significantly more unprotected vaginal sexual encounters (2.7±4.3 vs 0.2±0.4, p = 0.009). While there was no statistically significant difference by

relationship status, there were high reports of sexual partner concurrency in the sample for same day (42.3%, 22/52) and relationship (67.3%, 35/52) concurrency. There were no significant differences in the other variables with respect to relationship status.

Significant differences in sexual partner concurrency were noted (see Table 2). Among those who reported either type of sexual partner concurrency, there was a significant association between gender and both types of sexual partner concurrency (same day concurrency, p=0.001; relationship concurrency, p=0.003). Fewer females than males reported same day (13.6%, 3/22) or relationship concurrency (25.7%, 9/35). While there was a significant association between gender and sexual partner concurrency, further examination of the differences for each gender in the relationship between sexual partner concurrency and depressive symptoms and emotion regulation were prohibited by the small sample size. Those who reported same day concurrency had earlier vaginal sexual debut (12.7±1.2 vs. 13.7±1.6, $p = .017$), more oral sexual partners (5.3±3.3 vs. 3.1±2.6, $p = .019$) as well as a greater number of unprotected oral encounters in the past 3 months (9.6±15.1 vs. 0.9±1.9, $p = .001$). They also had higher adaptive methods for coping with sadness (2.3±0.5 vs. 2±0.5, $p = .020$). Earlier oral sexual debut approached statistical significance (12.9±1.7 vs. 14.3±1.8, $p = .054$). Those who reported relationship concurrency reported more vaginal sexual partners (9.1±8.3 vs. 3.8±2.8, $p = .009$) and a greater number of unprotected oral encounters in the past 3 months (6.8±13 vs. 1.1±2.6, $p = .040$). There were no other significant differences in sexual partner concurrency by depressive symptoms or the emotion regulation factors.

Table 3 shows the Pearson Correlations among the study variables. Some of the predictor variables were correlated with each other, such as higher levels of anger dysregulation with higher levels of sadness dysregulation (ρ=0.46, p=0.0006). Several of the predictor and outcome variables had positive correlations, with increased depression severity for those who were older at first vaginal sex (ρ=0.30, p=0.04), more culturally inappropriate expressions of sadness for those who were older at first oral sex (ρ=0.41, p=0.01) and an increased number of vaginal partners for those with more adaptive ways of coping with sadness (ρ=0.39, p=0.007). Negative correlations were also observed between the predictor and outcome variables with younger age at first vaginal sex associated with more adaptive ways of coping with sadness (ρ =−0.30, p=0.04), less culturally inappropriate expression of sadness associated with an increased number of vaginal sexual partners since first vaginal sex (ρ=−0.31, p=0.03), lower levels of anger suppression associated with an increased number of unprotected vaginal encounters in the past 3 months (ρ=−0.32, p=0.03) and less culturally inappropriate expression of anger associated with an increased number of unprotected oral sexual encounters in the past 3 months (ρ=−0.33, p=0.03).

The results of significant relationships in the regression modeling are shown in Table 4. Participants with culturally inappropriate expressions of anger and sadness were 4 and 6 times as likely, respectively, to be in a relationship (OR = 4.29, 95% CI [1.2, 15.6], $p < .05$; OR = 5.98, 95% CI [1.2, 29.4], $p < .05$). Anger coping was also inversely related to relationship status as those with less adaptive methods to cope with anger were more likely to be in relationship ($p < .05$). Age at first vaginal sex increases with the elevation of depressive symptom severity (Estimate=0.12, p=0.039), while age at first oral sex increases

with the elevation of sadness dysregulation (Estimate=1.42, p=0.014). Age at first vaginal sex decreases with less adaptive methods for coping with sadness (Estimate=−0.96, $p < .05$).

The number of vaginal partners increases with decreasing depressive symptom severity (Estimate=−0.05, p=0.002) and less culturally inappropriate expression of sadness (Estimate=−0.68, $p <.0001$). On the other hand, less adaptive methods to cope with anger (Estimate=0.70, $p < .0001$) and sadness (Estimate=0.9, $p < .0001$) and suppression of sadness (Estimate=0.22, p=0.03) are associated with fewer vaginal partners. The number of oral partners increases with less culturally inappropriate expression of anger (Estimate=−0.43, p=0.007), and decreases with more adaptive methods to cope with anger (Estimate=0.75, $p <.0001$) and sadness (estimate=0.76, p=0.0005). The number of unprotected vaginal encounters in the past 3 months increases with less suppression of anger (Estimate=−0.78, p=0.012). The number of unprotected oral encounters in the past 3 months increases with decreasing depression severity (Estimate=−0.14, p=0.002), anger inhibition (Estimate=−0.93, p=0.002), anger dysregulation (Estimate=−1.36, p<0.001), anger coping (Estimate=−0.49, p=0.036) and sadness dysregulation (Estimate=−1.08, p<0.001). Depressive symptom severity and the emotion regulation factors were not significantly related to same day concurrency or relationship concurrency.

Discussion

Blacks, adolescents and people suffering from mental illnesses are all disproportionately affected by HIV/STIs. Contextual factors including the experience of depressive symptoms and the ability to regulate one's emotions are associated with HIV/STI risk. Yet, the intersection of these factors alongside other demographics (e.g., gender) among heterosexually active Black adolescents with mental illnesses is poorly understood. These findings indicate that different nuances of an adolescent's ability to regulate his/her emotions influence his/her behaviors, including decisions about sexual partnerships. That indeed, feelings (i.e., anger, sadness) do matter, particularly as they relate to one's efficacy in the sexual decision-making process. Most notably, anger and sadness coping were significantly associated with several sexual risk behaviors. While at first glance this finding appears to contradict what would normally be expected (e.g., those with more adaptive methods of emotion management should have fewer risk behaviors), consideration of sexual behavior as the adaptive coping method sheds insight on the interpretation.

While not statistically associated with depression severity or emotion regulation, rates of sexual partner concurrency in the sample were alarmingly high compared to other reports (Hess et al., 2012; Towner, Dolcini, & Harper, 2015)—both within the same day and while already in a sexual relationship. Further, those who reported any form of sexual partner concurrency had higher reports of numbers of sexual partners than national averages (CDC, 2014). In defining multiple sexual partners, not only is it important to consider both sequential, short gap length and concurrent partnerships (Adimora et al., 2013; Boily, Alary, & Baggaley, 2012; Jørgensen et al., 2015), but also the nature of concurrent partnerships in high risk populations (e.g., same day concurrency versus 12-month overlapping relationships). Consistent with other literature, the direct line of

questioning about sexual partner concurrency provided more complete data than soliciting dates of overlapping partnerships which may confuse participants (Nelson et al., 2007).

These findings contradict previous research that documents a positive relationship between depressive symptom severity and sexual risk behaviors among adolescents (Brawner, Gomes, et al., 2012; Jackson, Seth, DiClemente, & Lin, 2015). This may, however, be due to the predominantly male gender composition, overall lower depressive symptom severity and limited variability in depressive symptoms in the study sample. Given that almost two-thirds of the study sample was male, the reverse relationship uncovered between depressive symptom severity and sexual risk behaviors may confirm findings of gender differences in psychopathologic expression of sexual risk (Braje, Eddy, & Hall, 2015). The authors of this paper hypothesize that the psychopathology of different mental illnesses may cause males to engage in different sexual risk behaviors than females (e.g., males engage in sexual partner concurrency for validation, females engage in noncondom use for fear of loss of relationship). However, the sample for our study was too small to assess gender moderation effects to confirm the hypothesized gender differences in psychopathologic expression.

Participants in this study reported multiple HIV/STI risk-related sexual behaviors including sexual partner concurrency, early sexual debut, and a high number of vaginal and oral sexual partner since initiation of sexual activity. Condom use, however, was high with almost half of the sample reporting that they used condoms every time they had sex, and averages of unprotected vaginal and oral sex were low in the past 3 months. Altogether, the results highlight the need for more comprehensive sexual health assessments for youth by both mental and physical health providers (Brawner, Alexander, Fannin, Baker, & Davis, 2016). Yet we know that not all providers are comfortable discussing sexual health issues with their clients (Goyal et al., 2013; Quinn, Happell, & Browne, 2011; Slinkard & Kazer, 2011). Frank questioning may lead to discomfort for providers and/or clients, however, it is imperative to discuss sexual health topics to promote wellness. These results further emphasize the need for future research to standardize sexual health assessment and intervention in mental health treatment (Brawner, Fannin, Reason, & Weissinger, 2016). So as not to further marginalize youth and silence their resilience, it would be important to assess risk and provide appropriate sexual health information from an affirming, positive framework (Aggleton & Campbell, 2000).

Limitations of this work should be considered. The cross-sectional nature of the study limits the ability to determine causality. With the small sample and distribution of the data we had to use the conservative Wilcoxon for some variables and exclude two outliers which may have limited our ability to detect differences between groups. Given the temporality of depression, without repeated measures it is difficult to determine the influence of depressive symptoms on past and/or current behaviors. Using a convenience sample of youth who had accessed services limits the findings to those who sought out and accessed care. Lastly, self-report data may be biased and result in skewing of the data (e.g., participants may over or under report their actual risk behaviors). Longitudinal trials with larger samples are needed to further explore these relationships.

This formative work suggests that coping mechanisms may be important to address in HIV/STI prevention research through the inclusion of activities targeted toward reducing depressive symptom severity and improving emotion regulation. Future research is needed to determine whether HIV/STI psycho-education and skills building can mitigate the psychopathology (e.g., sadness, difficulty coping) that contributes to HIV/STI risk among heterosexually active Black adolescents with mental illnesses. Further, additional research to better understand multiple forms of sexual partner concurrency, including having sex with more than one person in the same day, is warranted. Results from the larger ongoing randomized controlled trial will ultimately determine the value of such intervention models in reducing HIV/STI risk within the target demographic.

References

Adimora AA, Schoenbach VJ, Taylor EM, Khan MR, Schwartz RJ, & Miller WC (2013). Sex ratio, poverty, and concurrent partnerships among men and women in the United States: A multilevel analysis. Annals of Epidemiology, 23(11), 716–719. doi: 10.1016/j.annepidem.2013.08.002 [PubMed: 24099690]

Aggleton P, & Campbell C (2000). Working with young people-towards an agenda for sexual health. Sexual and Relationship Therapy, 15(3), 283–296. doi: 10.1080/14681990050109863

Blank MB, Hennessy M, & Eisenberg MM (2014). Increasing quality of life and reducing HIV burden: The PATH+ Intervention. AIDS and Behavior, 18(4), 716–725. doi: 10.1007/s10461-013-0606-x [PubMed: 24000053]

Boily M-C, Alary M, & Baggaley R (2012). Neglected issues and hypotheses regarding the impact of sexual concurrency on HIV and sexually transmitted infections. AIDS and Behavior, 16(2), 304–311. doi: 10.1007/s10461-011-9887-0 [PubMed: 21279678]

Braje SE, Eddy JM, & Hall GCN (2015). A comparison of two models of risky sexual behavior during late adolescence. Archives of Sexual Behavior, 45(1), 73–83. doi: 10.1007/s10508-015-0523-3 [PubMed: 25925897]

Brawner BM, Alexander KA, Fannin EF, Baker JL, & Davis ZM (2016). The role of sexual health professionals in developing a shared concept of risky sexual behavior as it relates to HIV transmission. Public Health Nursing, 33(2), 139–150. doi: 10.1111/phn.12216 [PubMed: 26184496]

Brawner BM, Davis ZM, Fannin EF, & Alexander KA (2012). Clinical depression and condom use attitudes and beliefs among African American adolescent females. Journal of the Association of Nurses in AIDS Care, 23(3), 184–194. doi: 10.1016/j.jana.2011.03.005

Brawner BM, Fannin EF, Reason JL, & Weissinger G (2016). Addressing unmet sexual health needs among Black adolescents with mental illnesses. Journal of Black Sexuality and Relationships, 2(3), 75–91. doi: 10.1353/bsr.2016.0007

Brawner BM, Gomes MM, Jemmott LS, Deatrick JA, & Coleman CL (2012). Clinical depression and HIV risk-related sexual behaviors among African-American adolescent females: Unmasking the numbers. AIDS Care, 24(5), 618–625. doi: 10.1080/09540121.2011.630344 [PubMed: 22292603]

Brown JL, Sales JM, Swartzendruber AL, Eriksen MD, DiClemente RJ, & Rose ES (2014). Added benefits: Reduced depressive symptom levels among African-American female adolescents participating in an HIV prevention intervention. Journal of Behavioral Medicine, 37(5), 912–920. doi: 10.1007/s10865-013-9551-4 [PubMed: 24366521]

Brown LK, DiClemente R, Crosby R, Fernandez MI, Pugatch D, Cohn S, … Schlenger WE (2008). Condom use among high-risk adolescents: anticipation of partner disapproval and less pleasure associated with not using condoms. Public Health Reports, 123(5), 601–607. [PubMed: 18828415]

Brown LK, Hadley W, Donenberg GR, DiClemente RJ, Lescano C, Lang DM, … Oster D (2014). Project STYLE: A multisite RCT for HIV prevention among youths in mental health treatment. Psychiatric Services, 65(3), 338–344. doi: 10.1176/appi.ps.201300095 [PubMed: 24382603]

Brown LK, Hadley W, Stewart A, Lescano C, Whiteley L, Donenberg G, & DiClemente R (2010). Psychiatric disorders and sexual risk among adolescents in mental health treatment.

Journal of Consulting and Clinical Psychology, 78(4), 590–597. doi: 10.1037/a0019632 [PubMed: 20658815]

Centers for Disease Control and Prevention. (2014). Youth Risk Behavior Surveillance--United States, 2013 Retrieved February 9, 2016, from http://www.cdc.gov/mmwr/pdf/ss/ss6304.pdf

Centers for Disease Control and Prevention (CDC). (2013). HIV Surveillance — Adolescents and Young Adults. National Center for HIV/AIDS, Viral Hepatitis, STD & TB Prevention Retrieved February 9, 2016, from http://www.cdc.gov/hiv/pdf/statistics_surveillance_Adolescents.pdf

Cubbin C, Brindis CD, Jain S, Santelli J, & Braveman P (2010). Neighborhood Poverty, Aspirations and Expectations, and Initiation of Sex. Journal of Adolescent Health, 47(4), 399–406. doi: 10.1016/j.jadohealth.2010.02.010

DiClemente RJ, Wingood GM, Crosby RA, Sionean C, Brown LK, Rothbaum B, … Davies S (2001). A prospective study of psychological distress and sexual risk behavior among Black adolescent females. Pediatrics, 108(5), e85. [PubMed: 11694669]

Donenberg GR, Emerson E, Brown LK, Houck C, & Mackesy-Amiti ME (2012). Sexual experience among emotionally and behaviorally disordered students in therapeutic day schools: An ecological examination of adolescent risk. Journal of Pediatric Psychology, 37(8), 904–913. doi: 10.1093/jpepsy/jss056 [PubMed: 22467883]

Ford K, Sohn W, & Lepkowski J (2002). American adolescents: Sexual mixing patterns, bridge partners, and concurrency. Sexually Transmitted Diseases, 29(1), 13–19. [PubMed: 11773873]

Goyal MK, Dowshen N, Mehta A, Hayes K, Lee S, & Mistry RD (2013). Pediatric primary care provider practices, knowledge, and attitudes of human immunodeficiency virus screening among adolescents. The Journal of Pediatrics, 163(6), 1711–1715. doi: 10.1016/j.jpeds.2013.08.023 [PubMed: 24084105]

Grieb SD, Davey-Rothwell M, & Latkin C (2012). Concurrent sexual partnerships among urban African American high-risk women with main sex partners. AIDS and Behavior, 16(2), 323–333. doi: 10.1007/s10461-011-9954-6 [PubMed: 21538086]

Hess KL, Gorbach PM, Manhart LE, Stoner BP, Martin DH, & Holmes KK (2012). Risk behaviours by type of concurrency among young people in three STI clinics in the United States. Sexual Health, 9(3), 280–287. doi: 10.1071/SH11047 [PubMed: 22697146]

Jackson JM, Seth P, DiClemente RJ, & Lin A (2015). Association of depressive symptoms and substance use with risky sexual behavior and sexually transmitted infections among African American female adolescents seeking sexual health care. American Journal of Public Health, 105(10), 2137–2142. doi: 10.2105/ajph.2014.302493 [PubMed: 25905854]

Jørgensen MJ, Maindal HT, Larsen MB, Christensen KS, Olesen F, & Andersen B (2015). Chlamydia trachomatis infection in young adults—association with concurrent partnerships and short gap length between partners. Infectious Diseases, 47(12), 838–845. doi: 10.3109/23744235.2015.1071916 [PubMed: 26211606]

Juvenille Law Center. (2006). Consent to treatment and confidentiality provisions affecting minors in Pennsylvania (2nd Edition ed.). Philadelphia, PA: Juvenille Law Center.

Kissinger P, Rice J, Farley T, Trim S, Jewitt K, Margavio V, & Martin D (1999). Application of computer-assisted interviews to sexual behavior research. American Journal of Epidemiology, 149, 950–954. [PubMed: 10342804]

Kraft JM, Kulkarni A, Hsia J, Jamieson DJ, & Warner L (2012). Sex education and adolescent sexual behavior: Do community characteristics matter? Contraception, 86(3), 276–280. doi: 10.1016/j.contraception.2012.01.004 [PubMed: 22325112]

Kroenke K, Spitzer RL, & Williams JBW (2001). The PHQ-9: Validity of a brief depression severity measure. Journal of General Internal Medicine, 16(9), 606–613. doi: 10.1046/j.1525-1497.2001.016009606.x [PubMed: 11556941]

Lee S, O'Riordan M, & Lazebnik R (2009). Relationships among depressive symptoms, sexually transmitted infections, and pregnancy in African-American adolescent girls. Journal of Pediatric and Adolescent Gynecology, 22(1), 19–23. doi: 10.1016/j.jpag.2007.12.003 [PubMed: 19232298]

Lehrer JA, Shrier LA, Gortmaker S, & Buka S (2006). Depressive symptoms as a longitudinal predictor of sexual risk behaviors among US middle and high school students. Pediatrics, 118(1), 189–200. doi: DOI 10.1542/peds.2005-1320 [PubMed: 16818565]

Lilleston PS, Hebert LE, Jennings JM, Holtgrave DR, Ellen JM, & Sherman SG (2015). Attitudes towards power in relationships and sexual concurrency within heterosexual youth partnerships in Baltimore, MD. AIDS and Behavior, 19(12), 2280–2290. doi: 10.1007/s10461-015-1105-z [PubMed: 26054391]

Mazzaferro KE, Murray PJ, Ness RB, Bass DC, Tyus N, & Cook RL (2006). Depression, stress, and social support as predictors of high-risk sexual behaviors and STIs in young women. Journal of Adolescent Health, 39(4), 601–603. doi: 10.1016/j.jadohealth.2006.02.004

Morrison-Beedy D, Carey MP, Crean HF, & Jones SH (2011). Risk behaviors among adolescent girls in an HIV prevention trial. Western Journal of Nursing Research, 33(5), 690–711. [PubMed: 20921127]

Nelson SJ, Manhart LE, Gorbach PM, Martin DH, Stoner BP, Aral SO, & Holmes KK (2007). Measuring sex partner concurrency: It's what's missing that counts. Sexually Transmitted Diseases, 34(10), 801–807. doi: 10.1097/OLQ.0b013e318063c734 [PubMed: 17551413]

Paxton KC, & Robinson WL (2008). Depressive symptoms, gender, and sexual risk behavior among African-American adolescents. Journal of Prevention & Intervention in the Community, 35(2), 49–62. doi: 10.1300/J005v35n02_05 [PubMed: 19842358]

Posner K, Brent D, Lucas C, Gould M, Stanley B, Brown G, … Oquendo M (2008). Columbia-Suicide Severity Rating Scale (C-SSRS). New York: New York State Psychiatric Institute.

Quinn C, Happell B, & Browne G (2011). Talking or avoiding? Mental health nurses' views about discussing sexual health with consumers. International Journal of Mental Health Nursing, 20(1), 21–28. doi: 10.1111/j.1447-0349.2010.00705.x [PubMed: 21199241]

Raiford JL, Herbst JH, Carry M, Browne FA, Doherty I, & Wechsberg WM (2014). Low prospects and high risk: Structural determinants of health associated with sexual risk among young African American women residing in resource-poor communities in the South. American Journal of Community Psychology, 54(3–4), 243–250. doi: 10.1007/s10464-014-9668-9 [PubMed: 25134798]

Reece M, Herbenick D, Schick V, Sanders SA, Dodge B, & Fortenberry JD (2010). Condom use rates in a national probability sample of males and females ages 14 to 94 in the United States. The Journal of Sexual Medicine, 7(S5), 266–276. doi: 10.1111/j.1743-6109.2010.02017.x [PubMed: 21029384]

Richardson LP, McCauley E, Grossman DC, McCarty CA, Richards J, Russo JE, … Katon W (2010). Evaluation of the Patient Health Questionnaire-9 Item for Detecting Major Depression Among Adolescents. Pediatrics, 126(6), 1117–1123. doi: 10.1542/peds.2010-0852 [PubMed: 21041282]

Sales JM, Lang DL, Hardin JW, DiClemente RJ, & Wingood GM (2010). Efficacy of an HIV prevention program among African American female adolescents reporting high depressive symptomatology. Journal of Women's Health, 19(2), 219–227. doi: 0.1089/jwh.2008.1326

Sales JM, Latham TP, Diclemente RJ, & Rose E (2010). Differences between dual-method and non-dual-method protection use in a sample of young African American women residing in the Southeastern United States. Archives of Pediatriacs and Adolescent Medicine, 164(12), 1125–1131. doi: 10.1001/archpediatrics.2010.230

SAS. (2012) (Version 9.3). Cary, NC.

Seth P, Patel SN, Sales JM, DiClemente RJ, Wingood GM, & Eve S Rose. (2011). The impact of depressive symptomatology on risky sexual behavior and sexual communication among African American female adolescents. Psychology, Health, and Medicine, 16(3), 346–356. doi: 10.1080/13548506.2011.554562

Seth P, Raiji PT, DiClemente RJ, Wingood GM, & Rose E (2009). Psychological distress as a correlate of a biologically confirmed STI, risky sexual practices, self-efficacy and communication with male sex partners in African-American female adolescents. Psychology, Health & Medicine, 14(3), 291–300. doi: 10.1080/13548500902730119

Shrier LA, Walls C, Lops C, & Feldman HA (2011). Correlates of Incorrect Condom Use among Depressed Young Women: An Event-level Analysis. Journal of pediatric and adolescent gynecology, 24(1), 10–14. doi: 10.1016/j.jpag.2010.04.002 [PubMed: 20493734]

Slinkard MS, & Kazer MW (2011). Older adults and HIV and STI screening: The patient perspective. Geriatric Nursing, 32(5), 341–349. doi: 10.1016/j.gerinurse.2011.05.002 [PubMed: 21839545]

Spiegel HM, & Futterman DC (2009). Adolescents and HIV: prevention and clinical care. Current HIV/AIDS Reports, 6(2), 100–107. [PubMed: 19358781]

Substance Abuse and Mental Health Services Administration (SAMSHA). (2015). Results from the 2014 National Survey on Drug Use and Health: National Findings, from http://www.samhsa.gov/data/sites/default/files/NSDUH-FRR1-2014/NSDUH-FRR1-2014.pdf

Swenson RR, Rizzo CJ, Brown LK, Vanable PA, Carey MP, Valois RF, … Romer D (2010). HIV knowledge and its contribution to sexual health behaviors of low-income African American adolescents. Journal of the National Medical Association, 102(12), 1173. [PubMed: 21287898]

Tice DM, Bratslavsky E, & Baumeister RF (2001). Emotional distress regulation takes precedence over impulse control: if you feel bad, do it! Journal of Personality & Social Psychology, 80(1), 53–67. [PubMed: 11195891]

Towner SL, Dolcini MM, & Harper GW (2015). Romantic relationship dynamics of urban African American adolescents: Patterns of monogamy, commitment, and trust. Youth & Society, 47(3), 343–373. doi: 10.1177/0044118×12462591 [PubMed: 26691404]

Zeman J, Shipman K, & Penza-Clyve S (2001). Development and initial validation of the Children's Sadness Management Scale. Journal of Nonverbal Behavior, 25(3), 187–205.

Table 1.

Descriptive Statistics by Current Relationship Status.

Variables	Total Participants (N=53)	In a Relationship (N=39)	Not in a Relationship (N=14)	P-value
	n **(%)**	***n*** **(%)**	***n*** **(%)**	
Gender				0.004[a]
Male	32 (60.4)	19 (48.7)	13 (92.9)	
Female	21 (39.6)	20 (51.3)	1 (7.1)	
Living Condition				0.595[a]
In a house that my parent/guardian owns	28 (52.8)	19 (48.7)	9 (64.3)	
In a house that my parent/guardian rents	14 (26.4)	10 (25.6)	4 (28.6)	
In a shelter	1 (1.9)	1 (2.6)	0	
Other	10 (18.9)	9 (23.1)	1 (7.1)	
Sex with more than one person same day				0.540[a]
Yes	22 (42.3)	15 (39.5)	7 (50.0)	
No	30 (57.7)	23 (60.5)	7 (50.0)	
Sex with someone else while in a relationship				1.000[a]
Yes	35 (67.3)	26 (66.7)	9 (69.2)	
No	17 (32.7)	13 (33.3)	4 (30.8)	
Frequency of condom use in the last 3 months (N = 52)				0.317[a]
Never	9 (17.3)	8 (21)	1 (7.1)	
Sometimes	19 (36.5)	15 (39.5)	4 (28.6)	
Every time	24 (46.5)	15 (39.5)	9 (64.3)	
	mean (std.)	**mean (std.)**	**mean (std.)**	
Age	16.2 (0.9)	16.1 (0.8)	16.3 (1.0)	0.570[b]
Depression Severity	4.0 (3.7)	3.9 (3.5)	4.2 (4.3)	0.984[c]
Anger Dysregulation	2.0 (0.6)	2.1 (0.6)	1.7 (0.4)	0.020[b]
Anger Coping	2.1 (0.4)	2.0 (0.4)	2.3 (0.5)	0.035[b]
Anger Inhibition	1.9 (0.5)	1.8 (0.5)	2.0 (0.4)	0.248[b]
Sadness Dysregulation	1.6 (0.5)	1.7 (0.5)	1.3 (0.4)	0.017[c]
Sadness Coping	2.1 (0.5)	2.1 (0.5)	2.2 (0.3)	0.751[c]
Sadness Inhibition	2.1 (0.6)	2.1 (0.6)	2.1 (0.6)	0.998[b]
Age at First Vaginal Sex	13.3 (1.5)	13.2 (1.5)	13.5 (1.6)	0.457[b]
Age at First Oral Sex	13.6 (1.9)	13.7 (2.0)	13.3 (1.6)	0.407[c]
Number of vaginal sexual partners since first vaginal sex	7.0 (7.2)	7.0 (7.4)	7.0 (6.8)	0.830[c]
Number of oral sexual partners since first oral sex	4.0 (3.0)	4.0 (3.3)	3.9 (2.1)	0.633[c]

Number of unprotected vaginal encounters in the past 3 months	2.3 (4.0)	2.7 (4.3)	0.2 (0.4)	0.009[c]
Number of unprotected oral encounters in the past 3 months	4.7 (10.7)	4.7 (12)	4.4 (4.7)	0.160[c]

[a] Fisher's Exact test comparing in a relationship to not in a relationship

[b] Two-sample t-test comparing in a relationship to not in a relationship

[c] Nonparametric Wilcoxon Rank Sum comparing in a relationship to not in a relationship

Table 2.

Descriptive Statistics by Sexual Partner Concurrency.

Variables	Total Participants	Sex with more than one partner in a day	No sex with more than one partner in a day	P-value	Sex with someone else while in a relationship	No sex with someone else while in a relationship	P-value
	(N=52)	(N=22)	(N=30)		(N=35)	(N=17)	
	n (%)	*n* (%)	*n* (%)		*n* (%)	*n* (%)	
Gender				0.001[a]			0.003[a]
Male	31 (59.6)	19 (86.4)	12 (40.0)		26 (74.3)	5 (29.4)	
Female	21 (40.4)	3 (13.6)	18 (60.0)		9 (25.7)	12 (70.6)	
Living Condition				0.061[a]			0.434[a]
In house parent/guardian owns	27 (51.9)	16 (72.7)	11 (36.7)		20 (57.1)	7 (41.2)	
In house parent/guardian rents	14 (26.9)	4 (18.2)	10 (33.3)		9 (25.7)	5 (29.4)	
In a shelter	1 (1.9)	0	1 (3.3)		0	1 (5.9)	
Other	10 (19.2)	2 (9.1)	8 (26.7)		6 (17.1)	4 (23.5)	
Frequency of Condom Use in the Last 3 Months (N = 51)				0.744[a]			0.416[a]
Never	9 (17.3)	4 (18.2)	4 (13.8)		5 (14.7)	4 (23.5)	
Sometimes	19 (36.5)	9 (40.9)	10 (34.5)		15 (44.1)	4 (23.5)	
Every time	24 (46.2)	9 (40.9)	15 (51.7)		14 (41.2)	9 (52.9)	
	mean (std.)	**mean (std.)**	**mean (std.)**		**mean (std.)**	**mean (std.)**	
Age	16.2 (0.9)	16.2 (0.7)	16.2 (0.9)	0.950[b]	16.1 (0.9)	16.1 (0.7)	0.881[b]
Depression Severity	4.0 (3.7)	3.1 (3.3)	4.6 (3.9)	0.112[c]	3.7 (3.2)	3.9 (3.5)	0.898[c]
Anger Dysregulation	2.0 (0.6)	1.8 (0.5)	2.1 (0.5)	0.144[b]	1.9 (0.6)	2.2 (0.5)	0.068[b]
Anger Coping	2.1 (0.4)	2.2 (0.5)	2.0 (0.4)	0.194[b]	2.1 (0.4)	2.0 (0.5)	0.304[b]
Anger Inhibition	1.9 (0.5)	1.8 (0.4)	1.9 (0.5)	0.525[b]	1.8 (0.4)	2.0 (0.6)	0.085[b]
Sadness Dysregulation	1.6 (0.5)	1.5 (0.5)	1.6 (0.5)	0.293[c]	1.5 (0.5)	1.7 (0.5)	0.268[c]
Sadness Coping	2.1 (0.5)	2.3 (0.5)	2.0 (0.5)	0.020[c]	2.2 (0.4)	2.1 (0.5)	0.607[c]
Sadness Inhibition	2.1 (0.6)	2.1 (0.6)	2.0 (0.6)	0.504[b]	2.1 (0.6)	2.1 (0.7)	0.881[b]

J Child Fam Stud. Author manuscript; available in PMC 2022 August 16.

Age at First Vaginal Sex	13.3 (1.5)	12.7 (1.2)	13.7 (1.6)	0.017[b]	13.3 (1.4)	12.9 (1.5)	0.365[b]
Age at First Oral Sex	13.7 (1.9)	12.9 (1.7)	14.3 (1.8)	0.054[c]	13.7 (1.8)	13.5 (2.1)	0.516[c]
Number of vaginal sexual partners since first vaginal sex	6.6 (6.8)	9.4 (9.3)	4.8 (3.8)	0.105[c]	9.1 (8.3)	3.8 (2.8)	0.009[c]
Number of oral sexual partners since first oral sex	4.0 (3.0)	5.3 (3.3)	3.1 (2.6)	0.019[c]	4.6 (3.4)	2.5 (1.3)	0.072[c]
Number of unprotected vaginal encounters in the past 3 months	2.3 (4)	1.3 (2.2)	2.5 (4.1)	0.733[c]	2.3 (3.7)	2.5 (4.8)	0.724[c]
Number of unprotected oral encounters in the past 3 months	4.7 (10.7)	9.6 (15.1)	0.9 (1.9)	0.001[c]	6.8 (13)	1.1 (2.6)	0.040[c]

[a] Fisher's Exact

[b] Two-sample t-test

[c] Wilcoxon Rank Sum

Table 3.

Pearson Correlations.

Vars.	AV	AO	NV	NO	DS	AD	AI	AC	SD	SI	SC	UV	UO
AV	1												
AO	0.76**	1											
NV	−0.18	−0.13	1										
NO	−0.07	−0.04	0.41*	1									
DS	0.30*	0.15	−0.17	0.06	1								
AD	−0.13	0.06	−0.1	−0.3	0.09	1							
AI	0.04	0.17	0.03	0.05	0.09	0.03	1						
AC	−0.09	−0.27	0.32*	0.44**	−0.15	−0.27	0.37**	1					
SD	0.14	0.41*	−0.31	−0.15	0.02	0.46**	−0.04	−0.32*	1				
SI	−0.13	−0.11	0.12	0.16	0.2	0.13	0.35**	0.2	−0.03	1			
SC	−0.30*	−0.17	0.39**	0.39*	−0.15	0.08	0.33*	0.48**	−0.15	0.61**	1		
UV	−0.19	−0.17	0.23	0.13	0.06	0.14	−0.32*	−0.18	0.17	0.02	−0.12	1	
UO	−0.05	−0.09	0.33	0.60**	−0.23	−0.33*	0.01	0.22	−0.29	−0.05	0.06	0.03	1

Abbreviations AV: Age at First Vaginal Sex, AO: Age at First Oral Sex, NV: Number of Vaginal Sexual Partners, NO: Number of Oral Sexual Partners, DS: Depression Severity, AD: Anger Dysregulation, AI: Anger Inhibition, AC: Anger Coping, SD: Sadness Dysregulation, SI: Sadness Inhibition, SC: Sadness Coping, UV: Number of Times Unprotected Vaginal Sex, UO: Number of Times Unprotected Oral Sex.

**: $p<0.01$;

*: $p<0.05$.

Table 4.

Univariate Regression Models.

	Unadjusted Models					
	Parameter Estimate	**Standard Error**	**exp(β)**	**95% CI**		**P-values**
DV: Sex Relationship [1]						
Anger dysregulation	1.46	0.66	4.29	1.18	15.61	0.027
Anger coping	−1.56	0.77	0.21	0.05	0.95	0.043
Sadness dysregulation	1.79	0.81	5.98	1.22	29.38	0.028
DV: Age at First Vaginal Sex [2]						
Depression severity	0.12	0.06	1.13	0.01	0.23	0.039
Sadness coping	−0.96	0.44	0.38	−1.85	−0.06	0.037
DV: Age at First Oral Sex [2]						
Sadness dysregulation	1.42	0.54	4.14	0.31	2.52	0.014
DV: Number of Vaginal Partners [3]						
Depression severity	−0.05	0.02	0.95	−0.09	−0.02	0.002
Anger coping	0.70	0.12	2.01	0.46	0.93	<.0001
Sadness dysregulation	−0.68	0.12	0.50	−0.92	−0.45	<.0001
Sadness inhibition	0.22	0.10	1.25	0.03	0.42	0.027
Sadness coping	0.90	0.13	2.45	0.65	1.14	<.0001
DV: Number of Oral Partners [3]						
Anger dysregulation	−0.43	0.16	0.65	−0.75	−0.12	0.007
Anger coping	0.75	0.19	2.12	0.37	1.13	<.0001
Sadness coping	0.76	0.22	2.14	0.33	1.19	0.0005
DV: Number of Unprotected Vaginal Encounters in the Past 3 Months [3]						
Anger inhibition	−0.78	0.31	0.46	−1.39	−0.17	0.012
DV: Number of Unprotected Oral Encounters in the Past 3 Months [3]						
Depression severity	−0.14	0.05	0.87	−0.25	−0.05	0.002
Anger inhibition	−0.93	0.25	0.39	−1.43	−0.44	0.002
Anger dysregulation	−1.36	0.22	0.26	−1.80	−0.92	<.0001
Anger coping	−0.49	0.24	0.61	−0.95	−0.03	0.036
Sadness dysregulation	−1.08	0.23	0.34	−1.53	−0.61	<.0001

[1] Logistic regressions

[2] Linear regressions

[3] Poisson regression