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Gender differences in sexual risk behaviours and sexually transmissible infections among adolescents in mental health treatment

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Abstract

Background—Adolescents with a history of psychiatric disorder(s) are particularly vulnerable to contracting sexually transmissible infections (STIs) as a result of psychological and emotional states associated with higher rates of risky sexual behaviour. The present study examined gender differences in sexual risk behaviours and STI among adolescents in mental health treatment.

Methods—Three hundred and seventy nine sexually active adolescents, aged 13–18 years, from a larger multisite study, who received mental health treatment during the past year, completed an audio computer-assisted self interview assessing sociodemographics, psychiatric symptomatology and HIV/STI risk behaviours, and provided urine specimens tested for STI.

Results—After controlling for covariates, multivariate logistic regression models indicated that female adolescents were more likely to have had an HIV test (adjusted odds ratio (AOR) = 3.2, $P = 0.0001$), obtain their HIV test results (AOR = 2.9, $P = 0.03$), refuse sex out of fear for STI acquisition (AOR = 1.7, $P = 0.04$), or avoid a situation that might lead to sex (AOR = 2.4, $P = 0.001$), and were less likely to have a casual sex partner (AOR = 0.40, $P = 0.002$). Additionally, females were more likely to report inconsistent condom use (AOR = 2.60, $P = 0.001$) and have a STI (AOR = 9.1, $P = 0.0001$) than their male counterparts.

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Conflicts of interest: None declared.

Conclusions—Female adolescents receiving mental health treatment were more than nine times as likely to have an STI and more likely to use condoms inconsistently. The standard of care for mental health practice for adolescents should include referrals for STI screening and treatment as well as assessment and discussion of risky sexual behaviours as part of the treatment plan when indicated. Effective programs should address gender-specific communication and behavioural skills.

Additional keywords

risky sexual behaviour

Introduction

Although adolescents and young adults, between 15–24 years, represent 25% of the sexually active population, they represent 50% of acquired sexually transmissible infections (STIs).¹ It is therefore not surprising that adolescents also continue to be at high risk for contracting HIV. At the end of 2008, 68 600 youth between 13 and 24 years of age were living with HIV, and alarmingly, 58.9% of youth had undiagnosed HIV.² However, adolescents are not a homogenous group; rather, they represent a diverse population, with subgroups engaging in different HIV/STI-risk behaviours. One group at risk for acquiring HIV/STI are adolescents with psychiatric disorders.³ Youth with major mental disorders have been found to have a higher prevalence of engaging in certain HIV/STI risk behaviours than the rates found among samples of youth from the normative population.^{4–6} HIV prevalence among adolescents with psychiatric disorder(s) is less known, but this population is considered particularly vulnerable due to psychological and emotional states associated with higher rates of risky sexual behaviour and lower rates of HIV/STI preventive behaviours.^{3,7} According to cognitive theory,⁸ negative thoughts associated with psychiatric diagnoses influence not only how one feels about him or herself but also influence one's behaviour. This can often lead to unhealthy decision-making in a variety of social contexts, including sexual situations.^{9,10}

Previous research has indicated that adolescents in psychiatric care are more likely to test positive for an STI, become pregnant, and engage in high risk sexual behaviours, including more frequent sexual activity, sex while high on alcohol/drugs, multiple partners, earlier sexual debut, and unprotected sex.^{3,4,7,11–13} Two recent studies with female adolescents found that those experiencing high levels of psychological distress were more likely to have an STI, use condoms inconsistently, have sex while high on alcohol/drugs, have male partners with concurrent female partners, have low sexual self-efficacy, and be more fearful of communicating with their partners.^{14,15}

According to the Theory of Gender and Power, gender-based inequalities and disparities can negatively impact women's health.^{16,17} This theory has been applied in order to gain a better understanding of women's increased HIV risk due to sexual division of labour (e.g. poverty, education levels, ethnic minority, young age), sexual division of power (e.g. abuse history, partner who refuses safe-sex practices, high-risk sexual partner, limited self-efficacy in condom negotiation), and social norms and affective attachments (e.g. older male partner,

family influence, conservative gender and cultural norms, depression).¹⁷ Additionally, women are often considered to be at higher risk for contracting HIV due to partner's risk factors, biological vulnerability, and inequality in sexual relationships, such as fear of physical abuse for negotiating condoms.^{2,17-23}

Therefore, while examining risky sexual behaviour among adolescents, it is also important to examine gender differences to inform HIV prevention interventions.^{24,25} Although there are similarities in HIV/STI risk factors and behaviours across gender, some differences exist due to the impact of social and intimate relationships on risky behaviour.²⁶ Previous research has indicated that among adolescents, males are more likely to engage in multiple health-risk behaviours than females.²⁷ Factors affecting risky sexual behaviours and STIs among females include lack of control in relationships, longer relationships, fear of condom negotiation, less sexual communication, intimate partner violence, and older sexual partners.^{2,26,28-35} For males, sexual communication with their partners, feelings of contraception responsibility, early phases of a relationship, and perceptions of partners' sexual experience have been associated with HIV/STI protective behaviours, such as increased condom use.^{26,36-39} Among a nationally representative sample of disadvantaged school youth 16-21 years old, young women were 50% more likely to be infected with HIV than young men.⁴⁰ Female adolescents have also reported higher rates of risky sexual practices, lower condom use, and lower risk perceptions of their HIV risk than their male counterparts.^{41,42} However, female adolescents have been found to have higher self-efficacy for making condoms enjoyable and avoiding risky sexual situations but less comfortable in demonstrating their condom-use skills.²⁴

Little research has been conducted on gender differences in HIV-risk behaviour among adolescents with mental health issues or those in mental health treatment. Among adolescents who were receiving psychiatric care, female adolescents reported higher rates of risky sexual behaviour and overall sexual risk taking behaviour, including having sex without a condom and having sex while high on alcohol or drugs, than male adolescents.⁴³ Another study examining HIV/STI-risk behaviours among youth in foster care with mental health problems found that females were more likely to report HIV/STI-risk behaviours than males.⁴⁴

Given that adolescents in psychiatric care are potentially at increased risk for HIV/STIs, it is critical to gain a better understanding of their risk to develop efficacious HIV/STI interventions to curb the burden of disease. Additionally, examination of gender differences is pertinent to the development of HIV/STI interventions that may need to target gender-specific risk behaviours. However, a limited number of studies have examined gender differences in HIV/STI risk behaviours and STIs among adolescents receiving mental health treatment. The aim of the present study is to extend upon previous research examining gender differences in HIV risk behaviour among adolescents and to address a gap in the literature. This is one of a few studies to examine gender differences in HIV/STI risk behaviours and laboratory-confirmed STIs among adolescents receiving mental health treatment.

Methods

Participants

This is a substudy of a larger multisite family-based randomised clinical trial designed to evaluate the efficacy of a HIV/STI intervention for adolescents diagnosed with psychological disorders. Adolescents were eligible if they were between 13 and 18 years, received a mental health treatment during the past year, lived with a parent or guardian who was also willing to participate in the study, and provided informed consent. Adolescents were excluded if they had a history of sexually aggressive behaviour (i.e. sexual assault or molestation), were currently pregnant, were known to have tested positive for HIV, or had cognitive deficits precluding them from completing assessments or participating in group activities. Participants were enrolled in the study at three recruitment sites: Brown University, University of Illinois, Chicago, and Emory University. Clinics and hospitals providing mental health services to adolescents served as recruitment sites. Of 1102 adolescents who met eligibility criteria, 891 (81%) agreed to participate and subsequently completed baseline assessments. A total of 379 participants were sexually active; therefore, analyses for the current study were based on this subsample of adolescents, which consisted of 60.4% females. The Institutional Review Boards at all three sites approved the study protocol.

Measures

Adolescents completed an audio-assisted computerised interview at baseline. The adolescent interview assessed sociodemographic characteristics, sexual behaviour patterns, psychosocial characteristics as well as psychiatric symptomology. Finally, adolescents also provided a urine specimen that was assayed for three common STIs (chlamydia, gonorrhoea, and trichomoniasis).

Sexually transmissible infections

Urine samples provided by adolescents were evaluated for *Neisseria gonorrhoeae*, *Chlamydia trachomatis* and *Trichomonas vaginalis*. Assays were conducted at the Emory University Molecular Diagnostics Laboratory. *Chlamydia trachomatis* and *Neisseria gonorrhoeae* were detected using the BD ProbeTec (Becton Dickinson; Sparks, MD, USA) assay utilising homogeneous strand displacement amplification technology as the amplification method and fluorescent energy transfer as the detection method. *Trichomonas vaginalis* was tested using real time polymerase chain reaction. Adolescents identified with an STI were provided directly observable single-dose STI treatment, received appropriate risk reduction counselling per Center for Disease Control recommendations, and were encouraged to refer sex partners for treatment. Participants who were positive for chlamydia, gonorrhoea, and/or trichomoniasis were categorised as 'STI positive' and subsequently this was considered the main outcome variable of interest.

Condom use and partner variables

Participants were asked how often they used condoms with their sexual partners. Answer options ranged from 1) always to 5) never. This variable was recoded such that participants

who indicated they always used condoms with their sexual partner were categorised as 'consistent condom users'. All other participants were categorised as 'inconsistent condom users'. Additionally, participants were asked to indicate whether they ever engaged in sexual activity with a casual partner and whether they had multiple partners (i.e. more than one partner) during the past 3 months. A casual sexual partner was defined as someone with whom the participant does not have a steady relationship. These variables were used as separate outcomes in this study.

Parental norms about sex

Adolescents' perceptions of parents' degree of approval regarding their sexual activity was assessed with this seven-item measure.⁴⁵ Sample questions include "My parent thinks that sex is ok after 1 or 2 dates" or "My parent thinks sex is ok with a person I love". Responses ranged from 1) very true to 5) very false. Cronbach's alpha was 0.80.

Parental-adolescent general communication

This 20-item measure assessed positive and negative aspects of general parent-adolescent communication and was completed by adolescents.⁴⁶ Sample items include 'If I was in trouble, I could tell my parent' or 'I don't think I can tell my parent how I really feel about some things'. Responses ranged from 1) strongly disagree to 5) strongly agree. Scores from two subscales, Open Family Communication and Problems in Family Communication were summed into two separate scores. Internal consistency of the two subscales was 0.78 to 0.90, respectively.

HIV testing behaviour

HIV testing behaviour was assessed by asking adolescents whether they were ever tested for HIV and whether they obtained their test results. Both variables were dichotomous (i.e. yes or no).

Sex refusal and avoidance

Two preventive behaviours were assessed: refusal or avoidance of sex. Adolescent participants were asked 'In the past 90 days, have you refused having sex with someone out of fear of getting an STD?' and 'In the past 90 days, did you avoid a situation that might have led to having sex?' Both variables were dichotomous (i.e. yes or no).

Data analyses

First, descriptive analyses were conducted to obtain means, standard deviations, and proportions for relevant sociodemographic variables. χ^2 and independent *t*-tests were conducted to examine differences in sociodemographic characteristics between male and female adolescents for purposes of determining covariates that would subsequently be statistically controlled for in multivariate analyses. Multivariate logistic regression models were conducted to assess whether males or females were more likely to engage in a variety of high risk sexual behaviours known to be associated with STI/HIV acquisition. For each model, gender was the predictor variable and the specific sexual behaviours were the criterion variables (DV). Laboratory-confirmed STI test results also served as the DV in one

model. Specifically, dependent variables included condom use, sexual behaviour with casual or multiple partners, refusal and avoidance of sex and HIV-testing behaviour after controlling for potential confounders. Each logistic regression model controlled for the following covariates: race/ethnicity, parental norms about sex, problems in family communication, and study site. The model predicting differences in STI(s) by gender was also adjusted for inconsistent condom use.

Results

Of the 891 adolescent and parent dyads completing baseline assessments, 379 (42.5%) adolescents reported a history of sexual intercourse and provided valid assessment data. The average age was 15.27 years (s.d. = 1.29); 39.6% were male ($n = 150$) and 60.4% were female ($n = 229$). When examining racial/ethnic groups, minority participants were combined into one group; however, it is important to note that 60.7% of all participants were African-American. Overall, 15.5% ($n = 59$) tested positive for STI(s), and 10.7% tested positive for chlamydia, 3.1% for gonorrhoea, and 4.9% for trichomoniasis. Seven males (4.6%) tested positive for an STI compared with 50 females (21.7%). Sociodemographic characteristics comparing males and females are presented in Table 1. Of these, race/ethnicity, parental sexual norms, parental communication, and study site were statistically related to gender ($P < 0.15$), and were included as covariates in the multivariate logistic regression model.⁴⁷ Due to its association with STI/HIV acquisition, condom use was controlled for in the multivariate model predicting STI outcome. The other models did not include condom use as a covariate.

Multivariate logistic regression models (see Table 2) indicated that after controlling for covariates, compared with male adolescents, female adolescents were more likely to have had an HIV test, obtain their HIV test results, refuse sex out of fear for acquiring a STI, and avoid a situation that might lead to sexual activity. Additionally, female adolescents, compared with males, were 2.6 times more likely to report inconsistent condom use, and nine times more likely to have a laboratory-confirmed STI. Finally, female adolescents were less likely to report having a casual partner. No significant associations were found between gender and multiple sexual partners.

Discussion

The present study is one of a limited number of studies examining gender differences in HIV/STI-risk behaviours among a sample of adolescents in mental health treatment. The findings indicated that despite being more likely to refuse sex due to fear of contracting STI, female adolescents were more than nine times as likely to be STI-positive and more likely to report inconsistent condom use, which ultimately is the strongest determinant of HIV/STI transmission. In contrast, male adolescents were less likely to obtain HIV testing, receive results from most recent HIV testing, refuse sex due to fear of contracting an STI, or avoid a situation that they thought might lead to sexual activity, and were more likely to have a casual sexual partner. In our current sample, these results were observed while controlling for ethnic background, parental norms about sex, problematic family communication patterns and study site.

Compared with adolescents from the general population, the findings from this study are consistent with some previous findings suggesting that female adolescents are less likely to use condoms than male adolescents (69% v. 80%)⁴⁸ (58.1% v. 79.1%).⁴⁹ However, the reports of condom use are lower in the current sample of adolescents, and the differences between female and male adolescents are more pronounced (43.4% v. 66.2%). Studies also have found that female adolescents in the general population were more likely to engage in HIV/STI-risk behaviours.^{41,42} However, other studies have indicated that male adolescents were more likely to engage in HIV/STI-risk behaviours, including an earlier sexual debut, report unprotected sex with multiple partners, and consume alcohol before sex.^{27,50,51} In the limited research conducted on adolescents in psychiatric care, females were more likely to engage in HIV/STI-risk behaviours. This is, in part, consistent with the findings from the current study suggesting that female adolescents were more likely to report using condoms inconsistently and were also more likely to test positive for an STI.^{43,44}

According to the Theory of Gender and Power, gender-based inequalities or cultural/gender norms may lead to negative health outcomes among women, including increased HIV-risk behaviours and acquisition of HIV/STI.^{16,17} Previous research has indicated that women are often considered to be at higher risk for contracting HIV/STI due to lack of recognition of partner's risk factors, intimate partner violence, and inequality in sexual relationships, such as fear of physical/sexual abuse for negotiating condoms.^{2,18,20,21,34} Biological factors, which lead to infections more easily transmitted from men to women, also contribute to women's increased risk of being susceptible to HIV/STI.^{17,22} These psychosocial, structural, and biological factors seem to play a significant role in explicating the gender differences in HIV/STI risk behaviours as well as STI acquisition found in the present study. Given that key factors affecting HIV/STI risk among female adolescents include lack of relationship control, fear of condom negotiation, less frequency of sexual communication, and older sexual partners,^{2,26,28-34} these factors may be associated with the decreased likelihood that female adolescents in mental health treatment would negotiate condom use with their sexual partners, resulting in a higher likelihood of inconsistent condom use. The absence of consistent condoms use among female adolescents in our sample coupled with the increased biological susceptibility of STI transmission from males to females, explains the current findings of significantly higher STI rates among female adolescents in this study. Although female adolescents were more likely to use condoms inconsistently and test positive for an STI, they also were more likely to engage in protective behaviours, such as refusing sex out of fear of contracting an STI and obtaining an HIV test. These findings indicate that when compared with male adolescents, females take the initiative to reduce certain health risks. Therefore, although differences may exist, both male and female adolescents engage in risky sexual behaviours, which points to the importance of gender-specific prevention interventions.

There are limitations to the present study. First, the findings can only be discussed as associations and do not provide information regarding causality. The confidence interval for the STI finding was large. It was likely driven by overall low sample of STI positive participants and possible to the low number of STIs among males. However, this also could be due to the fact that the true value of the effect is still large at either end of the confidence

interval. Therefore, the adjusted odds ratio estimate should be interpreted with caution. Additionally, the data on risky sexual practices rely on retrospective self-report data. It is possible that participants had difficulty recalling important information, and/or they provided socially desirable responses to sensitive questions. As a result, participants' self-reported behaviours could be conservative estimates of their actual behaviour. However, although health and risky sexual practices were self-reported, all STIs were laboratory-confirmed. Despite these limitations, the potential implications of the findings for public health practice are significant.

Given the limited research on this population and the alarmingly higher likelihood of females being STI-positive, further examination is warranted. Psychiatrists, psychologists, or mental health counsellors who are most likely to see these adolescents for mental health treatment should assess and address risky sexual behaviours as part of the treatment plan.⁵² Additionally, standard of care for mental health practice for adolescents should include referrals for STI screening and treatment when indicated. Clinicians should provide comprehensive information regarding risky sexual behaviours and the importance of HIV/STI testing. By coordinating medical and mental health care, early detection of potential mental and physical problems will be facilitated. Since psychological resources serve as a protective agent against the effects of these risk factors, there is a need to identify and intervene early rather than dismiss these psychiatric symptoms as transitory experiences. Prevention and interventions at an earlier stage can lead to lower costs and less negative consequences for adolescents, families, and communities.

The findings also underscore the importance of gender-sensitive HIV/STI programs for adolescents receiving mental health treatment. For example, female adolescents are often more likely to experience low self-esteem and are more likely to experience depression, mania, and comorbid disorders.^{4,35,53} Male adolescents often make the decisions about condom use, whereas, female adolescents often have to rely on their negotiation skills, or lack thereof, and many female adolescents may be fearful of abuse resulting from condom negotiation, despite having greater knowledge about STIs.²³ Effective programs should address gender-specific communication and behavioural skills. Based on the findings from this study and previous research, intervention and treatment approaches with female adolescents should focus on skills such as increasing self-efficacy, condom negotiation, and sexual communication.^{14,15,35} Among male adolescents the focus should be on reducing risky partnerships, improving communication skills, contraception responsibility, and discussing HIV/STI testing with their partners.^{26,36–39,54} Overall, condom use and protective sex behaviours should be discussed as normative behaviours that will protect themselves and their sexual partners.

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Table 1
Sociodemographic characteristics of male and female adolescents

	Male adolescents (<i>n</i> = 150)		Female adolescents (<i>n</i> = 229)		<i>P</i>
	Mean (s.d.)	<i>N</i> (%)	Mean (s.d.)	<i>N</i> (%)	
Age of adolescent	15.37 (1.35)		15.20 (1.24)		0.20
Ethnic group					0.006
Caucasian		34 (23.1)		81 (36.8)	
Minority		113 (76.9)		139 (63.2)	
Parent marital status					0.26
Parent in committed relationship		43 (28.7)		79 (34.2)	
Single parent		107 (71.3)		152 (65.8)	
Household income (<20K/year)					0.27
<20K/year		68 (48.6)		93 (42.7)	
>20K/year		72 (51.4)		125 (57.3)	
Study site					0.003
Atlanta		67 (44.4)		69 (29.9)	
Chicago		57 (37.7)		91 (39.4)	
Providence		27 (17.9)		71 (30.7)	
Parental norms about sex ^A	21.07 (6.77)		25.44 (6.08)		0.001
Parent-adolescent communication ^A	65.03 (12.39)		62.64 (14.57)		0.12

^ABased on adolescent report.

Table 2
Gender differences in sexually transmissible infections (STI), risky sexual behaviours, HIV testing behaviours, and sex refusal and avoidance among adolescents

Bold typeface represents associations that were significant

	Male adolescents N= 150	Female adolescents N= 229	Prevalence ratio	AOR ^A	95% confidence interval	P
STI-positive	7 (4.6)	50 (21.7)	4.7	9.1	2.91–28.23	0.0001
Casual partners	124 (84.9)	158 (70.9)	0.8	0.4	0.19–0.69	0.002
Multiple partners	42 (29.8)	46 (21.2)	0.7	0.6	0.36–1.15	0.14
Inconsistent condom use	48 (33.8)	124 (56.6)	1.7	2.6	1.50–4.30	0.001
Ever had an HIV test	45 (30.8)	123 (53.7)	1.7	3.2	1.87–5.41	0.0001
Obtained results of HIV test ^B	28 (60.9)	101 (82.1)	1.3	2.9	1.12–7.67	0.03
Refused sex due to fear of STI	53 (36.1)	98 (44.7)	1.2	1.7	1.04–2.93	0.04
A void situation leading to sex	34 (22.8)	106 (46.1)	2.0	2.4	1.41–4.14	0.001

^A Adjusted odds ratio (AOR) using male adolescents as the referent category; models are controlling for race/ethnicity, parental norms about sex, problems in family communication, and study site; the STI model also controls for inconsistent condom use.

^B N (%) based on the number that reported ever being tested for HIV.