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## Psychiatric Disorders and Sexual Risk among Adolescents in Mental Health Treatment

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### Abstract

**Objective**—To examine the relationship between psychiatric disorders and sexual behaviors among adolescents receiving mental health treatment. Adolescents in mental health treatment have been found to have higher rates of HIV risk behavior than their peers, but data concerning the relationship between psychopathology and risk are inconsistent and limited.

**Method**—Eight hundred and forty adolescents (56% female, 58% African American, mean age 14.9 years) and their parents completed computerized assessments of psychiatric symptoms via the Computerized Diagnostic Interview Schedule for Children (C-DISC). Adolescents also reported on sexual risk behaviors (vaginal/anal sex, condom use at last sex) and completed urine screens for a sexually transmitted infection (STI).

**Results**—Adolescents meeting criteria for Mania, externalizing disorder (Oppositional Defiant, Conduct, and Attention Deficit Hyperactivity Disorders) or comorbid internalizing (Major Depressive, Generalized Anxiety, and Post-Traumatic Stress Disorders) and externalizing disorders were significantly more likely to report a lifetime history of vaginal or anal sex than

those who did not meet criteria for any psychiatric disorder (OR = 2.0, 2.3 and 1.9, respectively). Adolescents meeting criteria for Mania were significantly more likely to have two or more partners in the past 90 days (OR= 3.2) and test positive for a STI (OR = 4.3) relative to adolescents who did not meet criteria for a psychiatric disorder.

**Conclusions**—The presence of internalizing and externalizing disorders, especially Mania, suggests the need for careful screening and targeting of adolescent sexual behavior during psychiatric treatment.

### Keywords

adolescents; mental health; sexual risk

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In the United States, youth under age 25 account for nearly half of newly diagnosed sexually transmitted infections (STIs) annually, including HIV (CDC, 2005). Youth with psychiatric disorders or with a history of psychiatric hospitalizations initiate intercourse at an earlier age, are less likely to use condoms, have higher rates of STIs, have more unintended pregnancies, and have more sexual partners than adolescents without a history of mental illness (Baker & Mossman, 1991; DiClemente & Ponton, 1993; Valois, Bryant, Rivard, & Hinkle, 1997). The Social Personal Framework is a broad contextual model that posits the important role of personal attributes, peer /partner factors, family influences and the community in determining risk. It accounts for the increased risk among youth with psychiatric disorders by emphasizing the unique role of psychopathology (a personal attribute) because of its association with factors such as impulsivity, lack of judgment, cognitive misperception, sensitivity to partner rejection, sexual trauma and low self-esteem (Donenberg & Pao, 2005). Although psychopathology in general is associated with sexual risk, few studies have examined the relationship between groupings of disorders and risk. This project sought to extend previous research by documenting the additional risk associated with internalizing, externalizing, co-morbid disorders and Mania, compared to those adolescents who did not meet criteria but were in mental health treatment.

Some psychiatric disorders may be more strongly associated with sexual risk than others because of differences in behaviors or attitudes (e.g., impulsivity associated with Conduct Disorder and ADHD; poor self-esteem associated with Depressive Disorders). Cross-sectional studies indicate that externalizing behaviors are linked with early sexual debut and failure to use condoms, and the association between internalizing behaviors and sexual risk behavior is inconsistent (Abrantes, Strong, Ramsey, Kazura, & Brown, 2006; Auslander et al., 2002; Donenberg, Bryant, Emerson, Wilson, & Pasch, 2003; Lehrer, Shrier, Gortmaker SL, & Buka, 2006; Lescano, Brown, Hadley, D'Eramo, & Zimskind, 2007; Mazzaferro et al., 2006; Rhode, Noell, Ochs, & Seeley, 2001; Shrier, Harris, Sternberg, & Beardslee, 2001; Waller et al., 2006). Some longitudinal studies suggest that symptoms of conduct disorder/antisocial behavior during childhood and adolescence are the best predictor of sexual risk behaviors during adulthood (Ramrakha et al., 2007). Other studies suggest that adolescent symptoms of anxiety, post-traumatic stress, and depression are predictive of sexual risk behavior as an adult (Stiffman, Dore, Earls, & Cunningham, 1992).

We are not aware of any studies that have examined the association of Mania and sexual risk behavior in adolescents. Among adults, a history of Mania is consistently associated with sexual risk behavior, such as high rates of sexual activity, sex with prostitutes, and low rates of condom use (Meade, Graff, Griffin, & Weiss, 2008; Ramrakha, Caspi, Dickson, Moffitt, & Paul, 2000; Sacks, Dermatis, Burton, Hull, & Perry, 1994). Although Mania and Hypomania are not uncommon among adolescents, especially for youth in intensive treatment settings, the association with sexual risk behavior has not been rigorously examined.

The current study used a structured computer interview to examine the relationship between psychiatric disorders (i.e., Major Depressive (MDD), Mania, Hypomania, Generalized Anxiety (GAD), Post Traumatic Stress (PTSD), Conduct (CD), Attention Deficit Hyperactivity (ADHD) and Oppositional Defiant Disorders (ODD)) and sexual risk behaviors. Adolescents meeting criteria were compared to adolescents who did not meet criteria but were in mental health treatment. This analysis accounts for the general factors associated with the need for treatment such as stress, impairment and family dysfunction. Factors, such as the presence of alcohol use and gender, could influence sexual risk and were assessed and adjusted for in tests of risk association. We hypothesized that a lifetime or recent occurrence of vaginal/anal sex, lack of condom use at last sex, number of partners and the presence of a STI would be associated with Mania and/or Hypomania and with disorders commonly thought of as externalizing disorders (CD, ODD, and ADHD) because of characteristic impulsivity and recklessness associated with these disorders (Brown, Lourie, Zlotnick, & Cohn, 2000). We did not have a priori hypotheses for internalizing disorders (MDD, GAD, and PTSD) and their relationships with sexual risk behavior because previous studies have yielded conflicting results.

## Method

### Participants

These data are from Project STYLE, a study testing the comparative efficacy of three group interventions for adolescents in mental health treatment: a family-based HIV prevention program, an adolescent-only HIV prevention program and an adolescent-only general health promotion program. The primary efficacy outcomes have not yet been published. These data are from baseline assessments obtained prior to random assignment to condition. English-speaking parents and adolescents between the ages of 13 and 18 were eligible to participate if they had received mental health treatment in the past year and if they had been living with a parent or caregiver for the previous three months (because all caregivers completed assessments and one intervention condition required participation by a caregiver). Adolescents were excluded if they were knowingly pregnant, had delivered a baby within the past 90 days, were HIV infected by self-report, or were participating in another HIV prevention study. The study was conducted in three sites: Providence, RI, Atlanta, GA, and Chicago, IL. Participants were recruited from ten outpatient settings (hospital, community based, and public) and five inpatient psychiatric units from 2004 to 2007. Project staff worked closely with clinicians, discharge coordinators, and office staff to identify all eligible adolescents in order to avoid possible biases based on “pre-selection” of subjects (e.g. only referring adolescents who were known to be sexually active or families that would be more likely to participate in research). Referrals from clinicians and discharge coordinators accounted for 97% of the sample. Recruitment by posters and flyers was also employed (3%). Among the 1,102 adolescents who met eligibility criteria, 893 (81%) agreed to participate and subsequently completed baseline assessments (see Figure 1).

### Procedures

All procedures were approved by the respective Institutional Review Boards. Adolescents under 18 years of age gave assent; parents gave informed consent for their child’s participation and their own participation. Adolescents over 18 years of age gave informed consent. Participants were asked to complete a private, 90 minute audio computer-assisted self-interview (ACASI). Adolescents and parents were compensated \$50 each for their time and effort.

## Measures

**Background Factors**—Demographic information included gender, age, race, and ethnicity. Parents also reported on adolescent history of psychiatric hospitalization in the past three months (yes/no) and household income. Adolescents reported their alcohol use in the last 30 days (yes/no).

**Sexual Behaviors**—The Adolescent Risk Behavior Assessment (ARBA) (Donenberg, Emerson, Bryant, Wilson, & Weber-Shifrin, 2001) is a computer-assisted structured interview designed specifically for use with adolescents to assess sexual and drug behaviors that are associated with HIV infection. This measure is derived from five well-established measures of sexual behavior and drug use (Dowling, Johnson, & Fisher, 1994; Needle & et al., 1995; Weatherby, Needle, & Cesari, 1994).

*Sexual activity status* was obtained by asking adolescents about the occurrence of vaginal or anal intercourse (lifetime history and recent sex occurring in the past 90 days). Oral sex was not included because most participants who had oral sex also had vaginal or anal sex; very few had oral sex only (n=29). Vaginal and anal sex were combined because very few participants had anal sex only (n=2). Those who reported sex in the last 90 days, reported the number of sexual partners.

*Condom use* was measured by asking adolescents if they used a condom the last time they had sexual intercourse (yes/no). This item was selected because it is thought to be a reliable indicator of general condom use.

*Sexually transmitted infection* was obtained by urine screen for three prevalent sexually transmitted pathogens: *N. gonorrhoeae*, *C. trachomatis*, and *T. vaginalis*. Polymerase chain reaction assays tested for chlamydia, gonorrhea and trichomonas.

**Psychiatric Disorders**—The **Computerized Diagnostic Interview Schedule for Children (C-DISC-IV)** is a structured audio computer-assisted diagnostic interview that screens for a full range of DSM-IV diagnoses (Shaffer, 2000; Shaffer, 2000) and was administered to caregivers and adolescents separately. Caregivers reported on adolescent symptoms only. The Present State Youth version was used with variable timelines for each diagnosis and for specific symptoms. Reliability and validity of the C-DISC are acceptable and represent the gold standard in the field (Shaffer et al., 2008). The following disorders were assessed: MDD, GAD, PTSD, Mania, Hypomania, ODD, CD, and ADHD. Validity and reliability are generally poor for youth reports of ADHD (Schwab-Stone, 1996); therefore, data for ADHD diagnoses were from caregivers only.

## Data Analysis

Eight hundred and forty adolescents (94% of the 893 enrolled) had complete diagnostic data on the C-DISC and comprised the sample for these baseline, cross-sectional analyses. Because both adolescent and caregiver reports for all of the diagnoses (except for ADHD as described above) were available, these data were combined in order to capture if either caregiver or adolescent endorsed each disorder. This method reflects the largest sample of adolescents who met criteria for each disorder, is similar to clinical practice where all available data (i.e., both parent and adolescent report) determines diagnoses and informs treatment, and is consistent with other studies (Garland, Hough, McCabe, Yeh, & Wood, 2001). Kappa values for youth and caregiver reports ranged from (.12–.21), similar to a previous study examining parent-child diagnostic agreement on the C-DISC (Jenson et al., 1999). In addition to combining parent and child report, subthreshold and threshold categories were collapsed as an indicator of psychiatric diagnosis. Subthreshold diagnoses

were included in the current study given that subthreshold conditions in adolescents have predictive validity as precursors for full syndrome disorders (Fergusson, Horwood, Ridder, & Beautrais, 2005; Klein, Shankman, Lewinsohn, & Seeley, 2009; Shankman et al., 2009), and studies have documented significant functional impairment, disability, and psychological distress among subjects with subthreshold disorders (Briggs-Gowan et al., 2003; Rucci et al., 2003).

Even with this large sample, the small number of youth with only one disorder limited the power to distinguish differences associated with specific diagnoses. In order to maximize predictive ability and maintain consistency with existing psychiatric categorizations, subjects were grouped into five categories: *None*, *Internalizing*, *Externalizing*, *Comorbid*, and *Mania*. The “*None*” category was comprised of adolescents who did not reach threshold or subthreshold criteria for any of the assessed psychiatric diagnoses. This group likely included adolescents with psychiatric symptoms who did not meet criteria for any of the diagnoses that were assessed, whose symptoms had remitted due to treatment, and/or patients who presented to treatment for adjustment disorders. Three diagnostic categories, consistent with common clinical groupings, were created (e.g., *Internalizing*, *Externalizing*, and *Comorbid* groups) using all remaining participants who were not categorized into “*None*” or “*Mania*” (see below). These three categories were mutually exclusive of one another, but reflected the fact that comorbidity is common among “near-neighborhood” disorders (Regier, Narrow, Kuhl, & Kupfer, 2009). The “*Internalizing*” group consisted of only those adolescents who met subthreshold or threshold criteria for GAD, MDD, or PTSD but not any other disorder. The “*Externalizing*” group was comprised of only those individuals who met sub or threshold criteria for ADHD, ODD, or CD but not any other disorder. The “*Comorbid*” category included individuals who met criteria for both an internalizing and externalizing disorder but did not report a manic episode. The “*Mania*” group consisted of adolescents who met sub- or threshold level for either Mania or Hypomania but could also have met criteria for another diagnosis. We chose to examine this group as a discrete category since the data on the sexual risk among adolescents with Mania is extremely limited. Analyses compared each of the four diagnostic categories (i.e., *Internalizing*, *Externalizing*, *Comorbid*, and *Mania*) to the *None* category (those who did not meet criteria for any diagnosis).

Analysis of variance and chi-square tests were conducted to examine differences across the five diagnostic categories in demographic/background variables (i.e., age, gender, race, and alcohol use). These variables were selected because of their association with sexual risk behavior (Houck et al., 2006). Logistic regression analyses were used to assess the relative odds of engaging in sex risk behavior [i.e., ever had vaginal/anal sex, no condom use at last sex, sex in the last 90 days, number of partners (dichotomized into  $\leq 1$  or  $\geq 2$  based on median split) and presence of an STI by urine screen]. Adjusted odds ratios were calculated for each psychiatric category relative to those adolescents who did not meet criteria for a psychiatric diagnosis, after controlling for demographic/background variables found to be significant in the earlier comparisons. In these analyses the African-American category was compared to all other racial groups combined (e.g., White, Native Hawaiian/Pacific Islander, Asian, and American Indian/Alaskan Native) due to the low number of participants belonging to the latter groups.

## Results

Demographics and sexual risk behavior for the 840 participants are reported in Table 1. The median annual household income was \$15,000 and 31% of the sample had been psychiatrically hospitalized within the last 90 days. The mean age was 15 years old and over half of the sample (54%) reported a history of vaginal or anal intercourse. Among those who

were sexually active, 29% did not use a condom at last sex. Among the 31% who were sexually active in the last 90 days, a mean of 2.1 partners was reported (15% with 4 or more partners) and 14% tested positive by urine screen for an STI.

### Psychiatric Disorders

Rates of diagnoses from the C-DISC were MDD (32%), GAD (34%), PTSD (19%), Mania (24%), Hypomania (22%), ODD (66%), CD (44%), ADHD (58%) and no diagnosis (12%). Table 1 reports the demographic and substance use variables across the five diagnostic categories (e.g., *Mania*, *Internalizing*, *Externalizing*, *Comorbid*, and *None*). There were no differences in age; however, those with *Mania* or *Comorbid* disorders were more likely to be female than those in the other diagnostic groups. Additionally, a significantly greater proportion of adolescents in the *Mania*, *Comorbid*, and *Externalizing* categories reported using alcohol in the last 30 days relative to other groups. A higher proportion of African-Americans were over-represented in the *Externalizing* and *None* groups compared to all other racial categories combined.

### Sexual Risk Comparisons

Comparisons of demographics and substance use behavior relative to the five sexual risk outcomes can be found in Table 2 and confirmed their general association of older age, being female, African-American race, and alcohol use with the risk outcomes.

### History of Vaginal or Anal Sexual Intercourse

Table 3 shows adjusted odds ratios for a lifetime history of ever having vaginal and/or anal sex by psychiatric category relative to those without any diagnosis. The following psychiatric categories were significantly associated with ever having vaginal and/or anal sex, after adjusting for significant demographic/background variables: *Mania* (OR = 2.0), *Externalizing* (OR = 2.3), and *Comorbid* (OR = 1.9).

### No Condom Used at Last Vaginal or Anal Sexual Intercourse

Adjusted odds ratios for not using a condom at last sexual intercourse by psychiatric category are shown in Table 3. There were no significant associations with any category after adjusting for significant demographic/background variables.

### Number of Partners and Sexually Active in Last 90 Days

As shown in Table 3, after adjusting for significant demographic/background variables, those who met criteria for *Mania* were more likely to have reported having two or more partners in the last 90 days (OR=3.2). Sexual activity in the last 90 days was not associated with any psychiatric category (data not reported).

### Sexually Transmitted Infection

As shown in Table 3, after adjusting for significant demographic/background variables, only *Mania* revealed a significant association with a STI positive urine screen (OR=4.3).

### Discussion

This large sample of youth with psychiatric disorders provides a more rigorous test of the diagnostic associations of sexual risk behavior than available in prior research. These data are a significant advance over previous studies since they are based on a diverse sample from three cities and informed by a standard, reliable diagnostic assessment, and a detailed sexual interview. Previous research has suggested that sexual risk is elevated in those in mental health treatment. Compared to age and race adjusted national data from the YRBS



and ADD Health (CDC, 2005; Halifors, Iritani, Miller, & Bauer, 2007), this sample of youth in mental health treatment was no different in report of condom use but they appear to be more likely to be sexually active (54% vs. 43%), to report four or more sexual partners (15% in the last 90 days vs. 14% lifetime) and to have a STI (14% via urine screen vs. 6% lifetime history). This project extends previous findings by documenting the additional risk associated with meeting criteria for externalizing disorders or Mania, even when compared to those adolescents who did not meet criteria but were in mental health treatment. Adolescents with a range of externalizing psychiatric disorders and those with both an externalizing and an internalizing disorder were more likely to be sexually active relative to those adolescents in treatment who did not meet criteria for any psychiatric disorder. These data suggest the need for increased screening and intervention concerning safer sexual behavior for these youth.

This is the first report that systematically documents the sexual risk of adolescents with a history of Mania. Specifically, adolescents within the *Mania* group were more likely to be sexually active, have two or more partners in the past 90 days and to test positive for a STI. Since condom use was just as common among those in the *Mania* group, a greater number of partners and/or selection of partners with a greater likelihood of infection might account for the increased rate of STIs in this group.

Similar to previous studies (Donenberg et al., 2003), we found that adolescents meeting criteria for only an internalizing disorder did not engage in higher rates of sexual risk behaviors relative to their peers in mental health treatment. Several factors may account for this lack of association. The small number of adolescents meeting criteria for internalizing disorders (n=48) limited our ability to discern differences between the *Internalizing* group and the *None* group. Also, the *Internalizing* group may contain disorders that might lead to less sexual risk because of avoidance, such as GAD. Future studies among adolescents should continue to examine these divergent internalizing diagnoses and their unique association with sexual risk behaviors.

Despite the numerous strengths of this study, there are limitations. Although the psychiatric inquiry was comprehensive and focused on the diagnoses most commonly seen in practice, not every disorder was assessed (e.g., Enuresis, Psychosis) in order to minimize subject burden and because these were less germane to the aims of the study. Even though the C-DISC has been shown to be valid and reliable, no single diagnostic measure categorizes patients perfectly and a clinical interview may have added further details about the timing of symptoms and sexual risk behavior. Notably, adolescents were recruited from three different cities and the enrollment rates were excellent; however, the sample was recruited to participate in a health intervention study and may not be representative of all youth in mental health treatment. Lastly, assessments of sexual behavior were based on self-report and thus susceptible to subject biases. Nonetheless, the assessments were completed on a private computer with due attention to confidentiality. This is a procedure that has been found to increase the accuracy of such reports of sensitive data (Romer et al., 1997). Finally, the project included a non-self report measure of unprotected sex (urine screen for STIs).

This study suggests that although adolescents in mental health treatment are at risk for HIV and other STIs, particular diagnoses convey additional risk. Those with externalizing disorders, even with a co-occurring internalizing disorder, are more likely to be sexually active and thus should be carefully screened for intervention to reduce their risk. Adolescents with a history of Mania are at increased risk because of more sexual partners and STIs. In addition to treatment of psychiatric symptoms, careful monitoring of behavior and contact with lower-risk peers may be helpful. Adolescents in treatment, but without significant symptoms, were the lowest risk group. It is possible that effective mental health

treatment, without specific attention to sexual behavior risk, will reduce HIV/STI risk but longitudinal studies are needed. For now, youth with externalizing disorders and Mania deserve careful attention and all adolescents can benefit from strategies to increase safer sexual behaviors.

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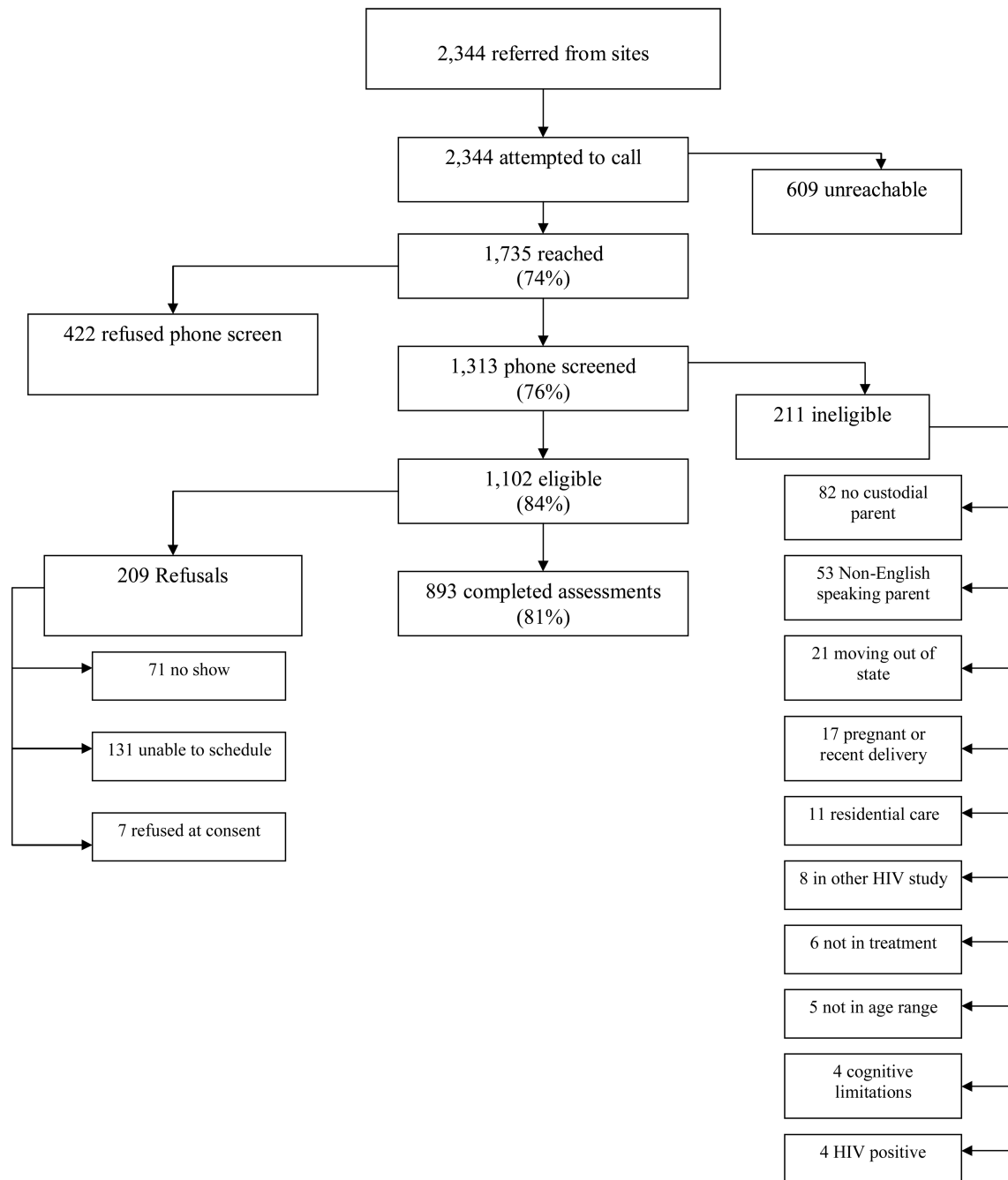
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**Figure 1.**  
Project STYLE Consort.

**Table 1**  
Demographics, Psychiatric Hospitalizations and Substance Use by Diagnostic Category (N=840)

	Full sample (n=840)	Diagnostic Categories					p
		Mania (n=151)	Internalizing (n=50)	Externalizing (n=286)	Comorbid (n=252)	None (n=101)	
Demographics	%/M (SD)	%/M (SD)	%/M (SD)	%/M (SD)	%/M (SD)	%/M (SD)	
Age	14.9 (1.3)	14.9 (1.3)	15.2 (1.5)	14.8 (1.3)	15.1 (1.3)	14.9 (1.3)	.12
Gender (F)	56	68	58	46	62	50	.00
Race (AA)	58	57	55	61	44	81	.00
Substance Use							
Alcohol last 30 days (Y)	22	27	6	31	29	9	.00

Note: F= Female, AA= African-American, Y=Yes

**Table 2**

Sex Risk Behavior by Demographics, Psychiatric hospitalizations, and Substance Use (N=840)

Sexual Risk Behavior	Demographics			
	Age	Gender (F)	Race (AA)	Alcohol last 30 days (Y)
<b>Vaginal/Anal Sex</b>	<b>M (SD)</b>	<b>%</b>	<b>%</b>	<b>%</b>
Yes	15.3 (1.3)*	60*	60*	33*
No	14.4 (1.2)	51	53	10
<b>Unprotected Last Sex<sup>I</sup></b>				
Yes	15.4 (1.3)	78*	46*	42*
No	15.3 (1.3)	54	64	30
<b>Sexually Transmitted Infection<sup>I</sup></b>				
Yes	15.3 (1.3)	90*	86*	24
No	15.0 (1.3)	56	59	33
<b>Number of Partners<sup>I</sup></b>				
2 or more	15.3 (1.3)	52*	59	46*
≤1	15.5 (1.2)	68	50	33

<sup>I</sup> Among sexually active only.

Note: F= Female, AA= African-American, Y=Yes, \*indicate p&lt;.05.



Table 3

## Sex Risk Behavior by Psychiatric Category (N=840)

Diagnostic Category (# of participants, %)	Ever had Vaginal/ Anal Sex			Unprotected Last Sex <sup>l</sup>			Two or More Partners <sup>l</sup>			Sexually Transmitted Infection		
	%	Adj OR <sup>2</sup>	95% CI	%	Adj OR <sup>2</sup>	95% CI	%	Adj OR <sup>2</sup>	95% CI	%	Adj OR <sup>2</sup>	95% CI
Mania (153, 18%)	62	2.0*	1.1–3.7	39	1.7	0.5–5.6	57	3.2*	1.1–9.5	21	4.3*	1.3–13.5
Internalizing (48, 6%)	44	1.0	0.4–2.3	30	1.2	0.2–6.4	44	1.9	0.3–12.1	6	0.7	0.1–6.5
Externalizing (282, 34%)	53	2.3*	1.3–4.0	23	1.8	0.6–5.0	45	1.5	0.5–4.3	12	2.2	0.7–7.3
Comorbid (252, 30%)	56	1.9*	1.1–3.3	32	2.4	0.8–7.1	27	0.6	0.8–1.9	10	2.0	0.6–6.7
None (105, 12%)	43	1.0		12	1.0		30	1.0		9	1.0	

<sup>l</sup> Among sexually active only.

OR adjusted for age, gender, race, alcohol use, and psychiatric hospitalization.

Note: \* indicate p &lt; .05.