Published in final edited form as:

Drug Alcohol Depend. 2008 January 1; 92(1-3): 296–300. doi:10.1016/j.drugalcdep.2007.07.013.

HIV risk behavior among patients with co-occurring bipolar and substance use disorders: Associations with mania and drug abuse

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Abstract

Background—Bipolar and substance use disorders frequently co-occur, and both are associated with impulsivity, impaired judgment, and risk-taking.

Objectives—This study aimed to: (1) describe the rates of HIV sexual and drug risk behaviors among patients with co-occurring bipolar and substance use disorders, (2) test whether acute mania, psychiatric severity, and drug severity independently predict HIV risk, and (3) examine the relationship between specific substance dependencies and sexual risk behaviors.

Method—Participants ($N = 101$) were assessed for psychiatric diagnoses, substance abuse, and HIV risk behavior using structured clinical interviews and self-report questionnaires.

Results—The majority (75%) were sexually active in the past 6 months and reported high rates of sexual risk behaviors, including unprotected intercourse (69%), multiple partners (39%), sex with prostitutes (24%, men only), and sex trading (10%). In a multivariate linear regression model, recent manic episode, lower psychiatric severity, and greater drug severity were independent predictors of total HIV risk. Cocaine dependence was associated with increased risk of sex trading.

Conclusions—Results underscore the importance of HIV prevention for this population.

Keywords

HIV risk behavior; Bipolar disorder; Substance dependence; Dual diagnosis; Mania

1. Introduction

The prevalence of HIV infection among the severely mentally ill is several times higher than the general U.S. population (Rosenberg et al., 2001a,b). Bipolar disorders (BDs) are a type of severe mental illness that is characterized by the presence of manic, hypomanic, or mixed episodes, often alternating with depressive episodes (American Psychiatric Association (APA), 2000). Manic symptoms, including euphoria, increased energy, grandiosity, hypersexuality, impulsivity, and poor judgment, are present to varying degrees in manic spectrum episodes (APA, 2000). These symptoms often lead to risky behaviors. Over half of individuals with BDs also have lifetime substance use disorders (SUDs) (Regier et al., 1990). Among the severely mentally ill, SUD nearly triples the risk of HIV infection (Beyer et al., 2007; Rosenberg et al., 2001a,b). Thus, the co-occurrence of mania and substance abuse may result in particularly high rates of HIV risk behavior.

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In general, the severely mentally ill engage in high rates of HIV risk behavior, including unprotected intercourse, multiple partners, sex trading, and injection drug use (Meade and Sikkema, 2005). Persons with mood disorders are more likely to be sexually active than those with psychotic disorders, and more severe psychiatric symptoms are predictive of greater HIV risk (Carey et al., 2004; McKinnon et al., 1996; Meade and Sikkema, 2007; Rosenberg et al., 2001a,b). Yet, there has been little research on HIV risk among persons with BDs specifically. In two studies of psychiatric inpatients, individuals with BD were more likely to report increased sexual thoughts, sexual desire, and/or sexual activity (Sacks et al., 1994) and to have had sex with prostitutes (McDermott et al., 1994) prior to hospitalization. However, these studies were limited by small sample sizes, unstandardized HIV risk measures, and reliance on medical records for psychiatric diagnoses.

Psychiatric diagnosis alone may not capture the association between psychopathology and HIV risk behavior. In BDs, depressive episodes are typically more frequent and longer than manic episodes (Grant et al., 2005; Judd et al., 2002), so patients' symptoms may resemble those with depressive disorders. Depression commonly leads to diminished libido, sexual dysfunction, and an overall reduction in sexual activity (Clayton and Montejo, 2006). In contrast, during mania, individuals may engage in high rates of HIV risk behavior. This hypothesis has not previously been empirically tested.

Among the severely mentally ill, current substance use/abuse is consistently associated with greater HIV risk, particularly multiple partners, sex trade, and injection drug use (Carey et al., 2001; Horwath et al., 1996; Meade and Sikkema, 2007; Rosenberg et al., 2001a,b; Weinhardt et al., 2001). Two studies found no relationship between condom use and alcohol use/abuse; but one found that cocaine dependence increased the risk of unprotected intercourse (Susser et al., 1995; Weinhardt et al., 2001). The relationship between specific SUDs and other sexual risk behaviors has not been examined. Furthermore, given the frequent co-occurrence of substance use/abuse and acute mania, it remains unclear whether each independently predicts HIV risk.

This study examined the association between HIV risk behavior and mood episodes, psychiatric severity, and substance abuse in patients with BD and SUD. We hypothesized that participants would engage in high rates of HIV risk behaviors, and that manic spectrum episode, greater psychiatric severity, and greater drug severity would independently predict HIV risk. We also examined whether alcohol, marijuana, and cocaine dependencies were associated with increased rate of sexual risk behaviors.

2. Methods

2.1. Participants and procedures

This study used baseline data collected from two clinical trials of manualized group therapy for patients with BD and SUD (see Weiss et al., 2000, 2007 for details). Inclusion criteria were current diagnoses of BD and alcohol/drug dependence, substance use in past 60 days, and a mood stabilizer regimen. Exclusion criteria included current psychosis (active delusions or hallucinations) and concurrent group and/or residential treatment. Of the 191 who met screening criteria, 39 were ineligible, 45 decided not to participate, and 107 enrolled. Six participants had incomplete data, yielding a sample size of 101.

Participants provided written informed consent. The 4.5 h assessment combined structured interviews with self-report questionnaires. Participants were compensated US\$ 25. This protocol was approved by the McLean Hospital Institutional Review Board.

2.2. Measures

The Risk Assessment Battery (RAB) is a self-administered questionnaire designed for substance-abusing populations to assess HIV risk behavior in the past 6 months (Metzger et al., 2001). It is comprised of two subscales: sex risk (nine items, e.g., number of sex partners; frequency of unprotected intercourse) and drug risk (seven items, e.g., number of people shared needles/works with). Sexual and drug risk subscales are summed for total risk (range 0–64). Axis I psychiatric diagnoses, including BDs and SUDs, were based on the Structured Clinical Interview for DSM-IV (SCID) (First et al., 1996). Data were also collected on the type and timing of the most recent mood episode. “Recent manic episode” was defined as a manic, hypomanic, or mixed episode in the past month. The Addiction Severity Index (ASI) was administered to assess severity of past month drug, alcohol, and psychiatric problems (McGahan et al., 1986; McLellan et al., 1992).

2.3. Data analysis

Ordinary least-squared regression predicted total HIV risk from demographic variables, recent manic episode, and ASI psychiatric, drug, and alcohol severity. Variables significant in bivariate analyses ($p < 0.05$) were retained in the multivariate model. Chi-square tests compared rates of sexual risk behaviors by current cocaine, marijuana, and alcohol dependence (the most frequently abused substances). Data analysis used SPSS 14.0.2 (SPSS, 2005).

3. Results

The sample included 54 women and 47 men. Participants were 18–63 years old ($M = 39.33 \pm 10.10$), primarily Caucasian (91%), and well-educated (96% high school graduates, 47% college graduates); 55% were currently unemployed; and 50% had an annual household income less than US\$ 35,000. Most were unmarried (47% never, 30% divorced/separated, 2% widowed). One person was HIV-positive.

All participants had co-occurring BD and SUD. For BD diagnoses, 81% had bipolar I, 16% bipolar II, and 3% bipolar not otherwise specified. Most (84%) experienced a mood episode within the past month, and 49% were categorized as having a recent manic episode. All participants had a substance dependence disorder: 25% both drug and alcohol, 50% alcohol alone, and 25% drug alone. Among drug-dependent participants, the most common primary drugs were cocaine (41%) and marijuana (41%).

3.1. Rates of HIV sexual and drug risk behaviors

Most participants (75%) were sexually active in the past 6 months. Among these, 39% had multiple partners and 69% engaged in unprotected intercourse. Men were more likely to have multiple partners (52% vs. 29%; $\chi^2(1) = 4.10, p = 0.04$) and sex with prostitutes (24% vs. 0%; $\chi^2(1) = 11.40, p = 0.001$). Women were marginally more likely to have traded sex (19% vs. 6%; $\chi^2(1) = 2.16, p = 0.08$). Injection drug use was rare ($n = 3$); but each injection drug user shared needles, used unsterile needles, and went to shooting galleries. Fig. 1 illustrates the rate of HIV risk behaviors in this sample. As a point of comparison, the rate of these behaviors in the U.S. adult population is provided. Despite the shorter timeframe in the current study, participants engaged in strikingly higher rates of multiple partners, sex trading, sex with prostitutes, and injection drug use.

3.2. HIV risk predictors

The mean RAB scores were 3.86 ± 3.28 for sexual risk (range 0–13), 0.29 ± 2.03 for drug risk (range 0–17), and 4.14 ± 4.33 for total risk (range 0–30). Table 1 presents the results of the multivariate linear regression model predicting total HIV risk. Recent manic episode, lower

psychiatric severity, and greater drug severity were significant independent predictors of increased HIV risk. A sub-analysis showed even stronger results for participants with bipolar I disorder. In a post hoc analysis, recent manic episode was associated with increased likelihood of sex with prostitutes among men (19% vs. 3%; $\chi^2(1) = 5.22, p = 0.02$).

3.3. Association between specific substance dependencies and sexual risk behaviors

Current cocaine dependence was associated with increased likelihood of sex trading (44% vs. 5%; $\chi^2(1) = 17.23, p < 0.001$), and marginally associated with sex with prostitutes among men (50% vs. 17%, $\chi^2(1) = 3.21, p = 0.07$). However, cocaine dependence was unrelated to multiple partners (50% vs. 34%; $\chi^2(1) = 1.42, p = 0.23$) and unprotected intercourse (71% vs. 63%; $\chi^2(1) = 0.43, p = 0.51$). Neither alcohol dependence nor marijuana dependence were associated with sexual risk behaviors.

4. Discussion

To our knowledge, this is the first study to report on HIV risk behavior among persons with co-occurring BD and SUD. As expected, participants reported high rates of sexual risk, including multiple sex partners, sex with prostitutes, and sex trading. Men were more likely to report multiple partners and sex with prostitutes, while women were marginally more likely to report sex trading. Relative to sexual risk, the rate of HIV drug risk was low in this sample. Nevertheless, among participants who injected drugs, all reported high-risk practices, such as using unsterile needles and sharing needles with multiple people.

Results support the hypothesis that recent manic episode and greater drug severity are associated with increased HIV risk. Nearly a quarter of men reported paying to have sex with a prostitute, primarily in the context of manic episodes, and cocaine-dependent men were more likely to have engaged in this behavior. Sex trading was also relatively common: 19% of females and 6% of males reported this behavior. The economic consequences of addiction may in part drive this association (Golder and Logan, 2007; Royse et al., 2000). Impulsivity, hypersexuality, and other manic symptoms, especially in the context of substance abuse (Salloum et al., 2002), may further explain this relationship. As in other high-risk samples (El-Bassel et al., 1997; Goodman and Fallot, 1998; Vaddiparti et al., 2006), sex trading was more likely among cocaine-dependent participants. The direct effects of stimulants on sexual functioning, including increased stimulation and libido, likely contribute to both sex trading and sex with prostitutes (Rawson et al., 2002; Volkow et al., 2007). In contrast, alcohol and marijuana dependence were not associated with increased sexual risk behavior. Hence, acute mania and cocaine dependence seem to be risk factors for sexual risk behavior.

Psychiatric severity was negatively associated with HIV risk, suggesting that those more seriously impaired by mental illness were less likely to engage in sexual and drug risk behaviors. The ASI psychiatric severity composite is a non-specific measure of psychiatric symptoms excluding mania. This finding may reflect greater depression, anxiety, and/or psychosis, which in turn may lead to reduced sexual activity.

Several limitations should be noted. First, the RAB assessed a longer period (6 months) than the SCID and ASI (1 month). Hence, we missed manic episodes occurring 2–6 months prior to the assessment. However, given that most participants were recruited during an acute mood episode, most recent mood episodes occurred in the past month and thus were thus captured by our assessment. Second, this was a cross-sectional study that could not test the direction or nature of associations. Longitudinal, within-subjects designs are needed to determine whether the frequency of HIV risk behavior varies within individuals over time in relation to mood episodes and drug abuse severity. Third, self-report data are subject to response bias. However, this remains the current standard, and other studies of psychiatric patients have documented

test–retest reliability and predictive validity of self-reported sexual and drug use behaviors (McKinnon et al., 1993; Weiss et al., 1998). Fourth, reliability estimates for the SCID and ASI interviews are not available. However, interviewers were well-trained and supervised in these standardized instruments, and diagnoses were reviewed by a group of clinicians. Finally, use of a convenience sample of volunteers for a group treatment study raises the possibility of selection bias. Results may not generalize to adults with BDs not in psychiatric treatment, without co-occurring SUDs, of different ethnic and cultural backgrounds, and/or living in non-urban areas or other regions of the U.S.

In conclusion, results suggest that patients with BD and SUD are at high risk for HIV infection, that there are gender differences in the types of risk behaviors reported, and that recent manic episode and greater drug severity are risk factors for these behaviors. As HIV infection continues to spread among vulnerable populations, persons with co-occurring BD and SUD are in need of targeted HIV prevention services, particularly sexual risk reduction.

Acknowledgements

This study was supported by grants K02 DA00326, R01 DA15968, and T32 DA01536 from the National Institute on Drug Abuse.

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Fig. 1.

Rates of HIV risk behaviors in the current sample and the general U.S. adult population. (a) Among sexually-active participants only, (b) among men only, (c) from the National Opinion Research Center's General Social Survey (Smith, 1998), (d) from the National Survey of Family Growth Cycle 6 (Chandra et al., 2005; Martinez et al., 2006), (e) from the National Survey of Family Growth Cycle 6 (Anderson et al., 2006), (f) from the Substance Abuse and Mental Health Services Administration (SAMHSA) National Survey on Drug Use and Health (SAMHSA, 2005).

Table 1
Multivariate linear regression model predicting total HIV risk

Predictors ^a	All participants, $N = 101$ ^b		Bipolar I participants only, $N = 82$ ^c	
	Beta	<i>t</i> -Value	Beta	<i>t</i> -Value
Acute mania	0.19	2.02*	0.234	2.37*
Psychiatric severity	-0.26	-2.83**	-0.351	-3.60**
Drug severity	0.32	3.59**	0.322	3.27**
Alcohol severity	-0.08	-0.84	-0.073	-0.73

^aDemographic factors (age, gender, race, marital status, educational attainment, employment status, and income) were not significantly associated with HIV risk and therefore were not included in the multivariate model.

^b $F(4,96) = 6.65, p < 0.001; R^2 = 0.217$, adjusted $R^2 = 0.186$.

^c $F(4,77) = 7.28, p < 0.001; R^2 = 0.274$, adjusted $R^2 = 0.237$.

*
 $p < 0.05$.

**
 $p < 0.01$.