

Sexual Networks and HIV Risk of People with Severe Mental Illness in Institutional and Community-Based Care

Eric R. Wright^{1,3} and Mathew Gayman²

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This study examines the sexual networks and HIV risk of clients with severe mental illness in treatment in institutional and community care settings. Data were gathered through structured interviews with 401 clients at three community mental health centers and two state psychiatric hospitals. Results indicate that community clients are more likely than hospital patients to be currently sexually active and to engage in high-risk sexual behavior whereas hospitalized patients tend to have more transient sexual relationships with partners who also have a mental illness. These findings suggest that mental health treatment settings may be shaping the HIV epidemic among psychiatric patients because of the impact they have on the structure of clients' sexual networks.

KEY WORDS: patients with serious mental illness; HIV/AIDS risk behavior; sexual risk networks; mental health treatment.

INTRODUCTION

Since the early 1990s, several epidemiological studies have documented high seroprevalence levels of HIV among people with severe mental illness (SMI) in the United States (Carey *et al.*, 1995; Cournos *et al.*, 2001; Rosenberg *et al.*, 2001a). Although these estimates are often criticized on methodological grounds, recent data from the Five-Site Health and Risk Study suggest that HIV seroprevalence rates in this population vary between 1.0 and 5.4% (Essock *et al.*, 2003; Rosenberg *et al.*, 2001a). These seroprevalence levels alarm many public health and mental health professionals and have prompted a number of researchers to examine the HIV-related risk behavior of people with SMI more closely (McKinnon, 1996a, 1996b). This article exam-

ines variation in the sexual networks and sexual risk behavior of clients with SMI in community and institutional care settings.

Prior behavioral research has identified a wide-range of clinical and demographic correlates of HIV risk behavior and/or HIV sero-status among SMI clients. "Chronic mental illness" has been identified as a correlate of HIV risk in a number of studies (Chuang and Atkinson, 1996; Kalichman *et al.*, 1996; Kelly *et al.*, 1995; McDermott *et al.*, 1994; McKinnon, 1996a; Steiner *et al.*, 1992) as have specific diagnoses of borderline personality disorder (Zubenko *et al.*, 1987), antisocial personality disorder (Brooner *et al.*, 1993), bipolar disorder (Sacks *et al.*, 1990b), and organic brain syndrome (Sacks *et al.*, 1992). Conversely, one study found a relationship between HIV risk behavior and *not* having a diagnosis of bipolar disorder (Tucker *et al.*, 2003). Studies concerning clinical functioning have identified significant relationships between HIV risk behavior and the severity of symptoms (Cournos *et al.*, 1994; Kalichman *et al.*, 1996; Rosenberg *et al.*, 2001b), limited overall functioning (Cournos *et al.*, 1994; Tucker *et al.*, 2003), and, for those with psychotic disorders, a greater numbers of positive symptoms (Cournos *et al.*, 1994; Tucker *et al.*, 2003). Drug

¹School of Public and Environmental Affairs, Indiana University-Purdue University Indianapolis (IUPUI), Indianapolis, Indiana.

²Department of Sociology, Florida State University, Tallahassee, Florida.

³Correspondence should be directed to Eric R. Wright, School of Public and Environmental Affairs, Indiana University-Purdue University Indianapolis (IUPUI), BS 4059, 801 W. Michigan St., Indianapolis, Indiana 46202; e-mail: ewright@iupui.edu.

and alcohol abuse also has been identified as a correlate of HIV risk behavior in a number of studies (McKinnon, 1996a; Rosenberg *et al.*, 2001b; Susser *et al.*, 1995; Tucker *et al.*, 2003; Weinhardt *et al.*, 2001), particularly when these substances are used proximal to sexual behavior (Kalichman *et al.*, 1996). Younger individuals also have been identified as being more likely to engage in HIV risk behaviors or be HIV positive (Cournos *et al.*, 1993, 1994; Rosenberg *et al.*, 2001b). Gender also has been reported to be correlated with some sexual risk taking, although the particular gender engaging in more frequent risk behavior varies across samples (Kelly *et al.*, 1995; Sacks *et al.*, 1992; Tucker *et al.*, 2003).

Other researchers have explored a number of factors from prominent HIV risk behavior change models as predictors of HIV risk and sero-status including lack of AIDS knowledge (Baer *et al.*, 1988; Carey *et al.*, 1997; Cates *et al.*, 1994; Kalichman *et al.*, 1996; Kelly *et al.*, 1992); infrequent condom use or lack of efficacy in using condoms (Carey *et al.*, 1997; Kelly *et al.*, 1995; Knox *et al.*, 1994); lack of sexual assertiveness, negotiation, and problem solving skills (Carey *et al.*, 1997; Kalichman *et al.*, 1995; Kelly *et al.*, 1995); obtaining sex partners at bars or psychiatric clinics (Carey *et al.*, 1997; Kalichman *et al.*, 1994); and, low distress about AIDS or perceptions of invulnerability (Kalichman *et al.*, 1996; Sacks *et al.*, 1990). Nevertheless, with the possible exception of self-efficacy for condom use (Carey *et al.*, 1997), the available epidemiological and behavioral studies have failed to yield a consistent profile of individual-level correlates or predictors of HIV risk behavior among people with SMI.

Because of the complex nature of most HIV risk behaviors, recent prevention theory has emphasized the importance of expanding research studies to assess more carefully how specific social environments influence patterns of risk behavior (Friedman *et al.*, 1999; Weir *et al.*, 2003). In the case of people with SMI, psychiatric treatment venues have long been recognized as having a significant impact on many aspects of patients' lives (Braginsky *et al.*, 1969; Goffman, 1961; Pescosolido *et al.*, 1999; Wright *et al.*, 2000). Long-term psychiatric treatment typically involves frequent contact with mental health professionals and, in some cases, hospitalization and/or residential treatment. More important, the medication and other medical treatments, interpersonal and social interactions, and even the physical location and organization of care can have significant consequences regarding the extent and nature of the

sexual relationships among clients with SMI (Deegan, 1999; Wasow, 1980). Here, we argue that mental health treatment programs may shape the sexual networks and risk behavior of clients in three important ways.

First, treatment programs may impose—to varying degrees—restrictions and/or limitations on the opportunities clients have to develop and/or maintain sexual relationships. A number of studies report that psychiatric patients are less likely to be sexually active than individuals in the general population, a pattern typically attributed to individuals' psychopathology, difficulties in finding partners, and/or the impact of psychiatric medication and treatment on individuals' sex drives (Deegan, 1999; Lilleleht and Leiblum, 1993; Wasow, 1980). Comparisons across existing studies indicate that rates of sexual activity among clients with SMI vary across different types of treatment settings, especially between institutional and community care programs. Although many state hospitals justify formal policies prohibiting sexual contact among patients on therapeutic grounds, there is empirical evidence that high risk sexual behavior is difficult to control in institutional care settings and often presents unique clinical and administrative challenges, such as assessing individuals' competence to consent to sex, investigating allegations of sexual abuse, and the management of "conjugal visits" (Buckley *et al.*, 1999a; Cournos *et al.*, 1989; Mossman *et al.*, 1997; Vandereycken, 1993).

Second, treatment programs may influence the types of people with whom clients form sexual partnerships. For example, community treatment may increase the opportunities clients have to engage in sex with other groups known to have high prevalence levels of HIV (e.g., IV drug users, prostitutes) because of the close proximity of many community-based residential and outpatient treatment programs to "high risk" urban areas (Brunette *et al.*, 1999; Cournos *et al.*, 2001; Kalichman *et al.*, 1994; Kelly *et al.*, 1992; McKinnon, 1996a; McKinnon and Cournos, 1999). That is, many researchers believe that the neighborhoods where clients with SMI frequently live and receive care may increase the likelihood that they will interact with individuals who may encourage them to engage in high risk behaviors (e.g., drug dealers, prostitutes) and/or reinforce pre-existing patterns of high risk behavior.

Several researchers also observe that the sexual relationships of SMI clients are often brief and frequently involve partners with SMI. Kelly and

colleagues, in one of the earliest studies in this area, noted that a large percentage of their outpatient sample met their sexual partners “at the clinic” as well as other “risk-producing situations” such as on the street, in parks, or bars (Kelly *et al.*, 1992), a pattern that is also reported in other studies (Gordon *et al.*, 1999). Kalichman *et al.* (1996) warns that “[b]ecause the sexual partners of psychiatric patients are often met in clinics, it is likely that the sexual networks among patients are closed, allowing HIV to spread rapidly among network members.”

Although the factors involved in clients’ choice of sex partners are not well understood, epidemiological research has shown that having a psychiatric disorder can lead to early marriage and early marital disruption and dissolution (Forthofer *et al.*, 1996). The social stigma of mental illness and the generally low socioeconomic status of many clients also may impose significant challenges to finding partners and maintaining longer term-relationships, a tendency which could ultimately reinforce clients’ reliance on finding partners in high risk situations and/or inside the mental health treatment system (Cournos *et al.*, 2001).

Third, treatment programs may shape clients’ sexual behavior patterns and, in particular, the extent they practice safe sex. Hospitalized clients, for example, are likely to have more limited time and space within which to have sex because of dense living arrangements and/or organizational policies that restrict their movement within the facility (Ford *et al.*, 2003; Welch *et al.*, 1999). Furthermore, several studies indicate that mental health professionals vary in the extent and ways that they respond to clients’ sexual needs, with many staff members lacking the willingness and/or knowledge to address basic contraception, HIV, and other STDs (Buckley *et al.*, 1999a; Coverdale and Aruffo, 1992; Dow and Knox, 1991; Vandereycken, 1993). In a recent multi-site survey of front-line mental health care providers, state hospital staff reported being significantly less concerned about and poorly prepared to address the HIV-related needs of their SMI clients than staff in community care settings (Wright and Martin, 2003).

At higher levels in the mental health system, though, many program administrators and policy makers have struggled to identify effective ways to address the HIV prevention needs of people with SMI. While a few promising intervention models have been developed (Carey *et al.*, 2004; Otto-Salaj *et al.*, 1996, 2001), the complex and varied nature of the mental health care system continues to make it

difficult to know where and to which client groups to offer such programs. The specialized training required to offer these intervention programs also imposes significant barriers to their implementation within an already-overburdened and resource poor environment of the public mental health system. In this regard, a better understanding of variation in sexual behaviors and risk across mental health treatment settings may aid in the implementation of more effective and efficient HIV prevention programming. However, precise comparisons among studies are currently impossible because there have been few explicit comparative studies of sexual risk behaviors across different treatment settings and because of significant differences in research design. Most behavioral research conducted over the past decade relies on data collected at a single site (see Rosenberg *et al.*, 2003 for an important exception). There also are few systematic studies of long-term inpatient settings such as state psychiatric hospitals (Buckley *et al.*, 1999b). Most hospital-based studies have been limited to case studies involving particularly problematic situations or studies of sex in shorter-term, acute care, hospital settings. Additionally, as Kalichman *et al.* (1996) note, the absence of standardized measures or operational definitions of high risk sexual behavior makes explicit comparisons among existing studies unreliable.

In this paper, we compare the frequency of sexual contact, sexual networks, and risk behaviors of clients/patients with SMI in three CMHCs and two state hospitals. Within each facility, data were collected following parallel protocols designed to construct representative samples of clients. Our central objective, in this study, was to enhance our understanding of the structure of clients’ sexual networks and the variation in sexual risk behavior in community and institutional care settings to better understand the ways mental health treatment settings may be shaping the HIV epidemic among persons with SMI.

METHODS

Participants and Settings

The data for this study come from the Indiana Mental Health Services and HIV Risk Study. As part of this study, face-to-face interviews were conducted with clients in treatment programs for individuals with SMI at three community mental health centers (CMHCs) and two state psychiatric hospitals.

Because our interest was on people with SMI, only clients who met the following clinical criteria were invited to participate: (1) a diagnosis of a SMI (e.g., schizophrenia or schizophrenia-spectrum disorders, bipolar disorder, major depression, or other major mental disorder, involving psychosis or imposing major limitations on daily functioning); (2) a psychiatric treatment history of 2 years or longer; (3) enrolled for treatment at the field site for at least 3 months; (4) not currently subject to criminal charges or residing in jail; and, (5) between the ages of 18 and 55.

Because of differences in the size and structure of the five sites, the sampling process varied slightly. At three facilities (both state hospitals and one CMHC), all eligible clients were invited to participate. At the two large CMHCs, a simple random sample of clients who met the study criteria was drawn using computer records of enrolled clients and only those clients were invited to participate in the study. In each case, CMHC or hospital staff assisted the research team in recruiting potential participants to protect client confidentiality. Participation was completely voluntary, and refusal in no way affected clients' access to services provided by the hospital or CMHC. The study procedures were reviewed and approved by the Institutional Review Board at Indiana University. The final sample included 401 clients across the five facilities. The overall client participation rate was 74%; the client response rates for the three CMHCs and two state hospitals were 77, 60, 80, 82, and 73% respectively.

Measures and Procedures

Specially trained research assistants conducted interviews with individual clients using a semistructured interview schedule in a private location at the treatment facility (a few interviews with CMHC clients were conducted off-site at the request of the participants and with the approval of clinical staff). The study interview protocol contained a number of standardized batteries designed to assess HIV risk behavior, including a modified version of the Sexual Risk Behavior Assessment Schedule or SERBAS (Meyer-Bahlburg *et al.*, 1996). The SERBAS measured sexual behavior using a sexual network methodology. That is, the interviewers began by asking participants to name (using first names, initials, or nicknames) all opposite- and/or same-gender sexual contacts within the past 3 months. This was followed by a series of structured questions about the frequency and type of sexual activity that occurred

with each named partner during past 3 months. The SERBAS items were supplemented with additional questions about the quality of the respondents' relationships with each partner drawn from the National Health and Social Life Survey (Laumann *et al.*, 1994) and several other items developed specifically for this study. Interviews took, on average, about 2 hours to complete, depending on the size of the participants' sexual network and level of clinical functioning. Many interviews were conducted in multiple sessions to accommodate the participant's level of clinical functioning and/or treatment schedules. All participants received \$25.00 upon completion of the interview.

This study used several measures to describe and analyze the sexual networks and sexual activity of participants across the five sites. First, we computed a dummy variable indicating whether or not the participant reported any sexual partners in the past 3 months. For those who reported having one or more sexual partners, we constructed measures to describe and analyze the characteristics of their sexual networks. Several indicators of network demographic characteristics were calculated, including the proportion of all sex partners who were of the same gender, minority status (e.g., African American or other racial or ethnic minority), known to have a mental illness or HIV, and known to use i.v. drugs. In addition, we also computed the proportion of partners with whom money, alcohol, drugs, or other commodities were exchanged for sex. To better assess the quality of these relationships, we constructed network indicators of the average closeness, average frequency of contact, average amount of time before engaging in sexual behaviors, and the average duration of their relationship with the partners they identified.

To measure sexual behavior, we created two sets of measures for our sexually active clients. In the first set, we computed the number of clients who reported having engaged in genital touching, giving and receiving oral sex, vaginal sex, and anal sex. For oral, vaginal, and anal sex, we also counted the number of clients who reported engaging in these behaviors without protection (i.e., where no latex barrier was used to protect the participant from HIV/STD transmission). In the second set, we computed mean frequency measures for each type of sex act for those who reported engaging in the behaviors. As a general measure of risk, we calculated the relative percent of sex acts—in which HIV could possibly be transmitted (e.g., oral, vaginal, anal)—that were reported as being

unprotected (i.e., the act occurred “without a condom or other latex protection”). Although some may question the degree of risk associated with unprotected oral sexual contact, especially receiving oral sex, the CDC continues to warn the public that oral sex is potentially risky sexual activity (e.g., see: <http://www.cdc.gov/hiv/pubs/faq/faq19.htm>). Moreover, the CDC emphasizes that the risk associated with oral sex is increased when oral hygiene is poor, a situation that is, unfortunately, especially common among persons with SMI (Stiefel *et al.*, 1990). For these reasons, we included unprotected oral sex in our computation of the percent of sex acts that were “risky.” Nevertheless, given that recent research on the relative risk of unprotected oral sex (Page-Shafer *et al.*, 2002), we may overestimate somewhat the true probability of the risk of HIV transmission in the participants in our study.

Finally, we included several demographic (i.e., gender, age, race, sexual identity, marital status, education) and clinical variables (i.e., diagnosis, global assessment of functioning [GAF] score) to describe the sample and for use as controls in our multivariate analyses. Both diagnosis and GAF scores were collated from enrolled clients’ clinical records. In the multivariate analyses, we used dummy variables to indicate the three most common primary diagnoses (i.e., schizophrenia/schizophrenia-spectrum disorders, bipolar disorder, and major depression with and without psychotic features). We also created a fourth dummy variable to model “other” severe mental disorder diagnoses present in the sample but too small to treat as independent predictors in the models (e.g., psychosis otherwise-specified, borderline personality disorder, antisocial and personality disorders, obsessive-compulsive/anxiety disorders). Because of the truncated variance in GAF scores due to the overall severity of clients in this sample, we identified individuals as having a higher functioning using a dummy variable to indicate having a GAF score of 55 or better ($1 = \text{GAF} \geq 55$, $0 = \text{GAF} < 55$). We chose this cut point because it is the midpoint of the middle range of the GAF scale (Endicott and Jacob, 1976). It also identified the group of participants who fell in the top third (29.0%) of the overall sample’s distribution in levels of functioning.

To examine differences in the sexual networks and risk behavior of clients in community and institutional care, we compared the clients in the two treatment facility types in terms of the likelihood that

they were currently sexually active. Binomial logistic regression analysis was used to examine the effect of facility type, demographic characteristics, and clinical functioning on the likelihood that clients reported one or more current sex partners. In addition, for the subset of sexually active individuals, we examined the characteristics of their sexual network. Chi-square analysis and *t*-tests were used to compare the sex network characteristics and frequency of sexual behavior between the two treatment modalities.

RESULTS

Table I presents the demographic and clinical characteristics of the community and hospital subsamples as well as the total sample. There were some significant differences in the distributions of these characteristics between the two subsamples. On average, the hospital patients were younger ($t = 4.07$, $p < .001$) and more likely to be male ($\chi^2 = 20.30$, $p < .001$) than CMHC clients. In addition, CMHC clients were more likely to report being married than those surveyed in a state hospital ($\chi^2 = 8.78$, $p < .01$). We found no significant differences in the overall diagnostic profiles of the community and hospital samples, with the vast majority having a primary diagnosis of schizophrenia or schizoaffective disorder. The level of clinical functioning, as measured by average GAF scores, was significantly lower among hospitalized patients than CMHC clients ($t = 11.10$, $p < .001$).

The Likelihood of Sexual Activity in Community and Institutional Care Settings

Overall, the majority of participants indicated that they were not currently sexually active ($N = 281$, 70.1%). There was, however, a significant difference in the likelihood of being currently sexually active by treatment setting. Nearly 1 out of 5 ($N = 41$, 21.8%) state hospital patients reported a recent sexual relationship whereas close to 40% ($N = 79$, 37.1%) of the community client subsample indicated being currently sexually active ($\chi^2 = 11.12$, $p < .001$). Among those who reported being sexually active, the typical number of sexual partners in the past 3 months was one, regardless of whether they were in treatment in a CMHC or state hospital (79.7 and 65.9% respectively).

To better understand the likelihood of a particular client being currently sexually active, we used

Table I. Demographic and Clinical Characteristics of the CMHC and Hospital Subsamples and the Full Sample^a

	N (%)		
	CMHC (N = 213)	Hospital (N = 188)	Total (N = 401)
Gender			
Men	101 (47.4)	131 (69.7)	232 (57.9)
Women	112 (52.6)	57 (30.3)	169 (42.1)
Age			
18–29	21 (10.5)	45 (23.9)	66 (16.5)
30–39	59 (29.5)	55 (29.3)	114 (29.4)
40–49	74 (37.0)	69 (36.7)	143 (36.9)
50 or older	46 (23.0)	19 (10.1)	65 (16.8)
Race			
Caucasian or white	131 (62.1)	126 (67.0)	257 (64.4)
African American or black	73 (34.6)	44 (23.4)	117 (29.3)
Other	7 (3.3)	18 (9.6)	25 (6.3)
Sexual identity			
Straight or heterosexual	172 (85.6)	144 (86.7)	316 (86.1)
Bisexual	8 (4.0)	12 (7.2)	20 (5.4)
Gay/lesbian	9 (4.5)	2 (1.2)	11 (3.0)
Asexual	4 (2.0)	5 (3.0)	9 (2.5)
Don't know or other	8 (4.0)	3 (1.8)	11 (3.0)
Marital status			
Married or cohabitating	32 (15.0)	11 (5.9)	43 (10.7)
Divorced or separated	54 (25.4)	41 (21.8)	95 (23.7)
Widowed	5 (2.3)	0 (0.0)	5 (1.2)
Never married	122 (57.3)	136 (72.3)	258 (64.3)
Education			
0–7 Years	9 (4.4)	13 (7.0)	22 (5.6)
8–11 Years	69 (33.7)	78 (41.9)	147 (37.6)
12 Years or GED	73 (35.6)	60 (32.3)	133 (34.0)
Some college or more	54 (26.3)	35 (18.8)	89 (22.8)
Diagnosis			
Schizophrenia/schizoaffective disorder	145 (68.1)	137 (72.9)	282 (70.3)
Bipolar disorder	20 (9.4)	13 (6.9)	33 (8.2)
Major depressive disorder	34 (16.0)	17 (9.0)	51 (12.7)
Other psychotic/SMI disorder	14 (6.6)	21 (11.2)	35 (8.7)
Age, <i>M</i> (<i>SD</i>)	41.36 (8.80)	37.43 (10.13)	37.74 (9.65)
Level of functioning (GAF Score), <i>M</i> (<i>SD</i>)	53.25 (12.78)	39.39 (12.12)	46.76 (14.25)

^aPercentages may not sum to 100% because of rounding; cases with missing data on a variable are excluded.

binomial logistic regression to examine the relationship between the treatment setting and being currently sexually active (see Table II). Because prior research suggests that age, gender, race, marital status, as well as diagnosis and clinical functioning might influence the sexual activity of clients, we included measures of these characteristics in the model. These analyses indicated that older clients were significantly less likely to report a recent sexual relationship. In contrast, being non-White and being married were associated with a greater likelihood of having

a recent sexual relationship. Even after controlling on these demographic characteristics, clients in institutional treatment settings were significantly less likely to be sexually active than those in treatment at CMHCs. In fact, after controlling for demographic and clinical variation, the predicted probability of a state hospital patient being sexually active was .22 whereas the corresponding probability for a CMHC client was .33. That is, being hospitalized reduces the probability of being sexually active by approximately 33%.

Table II. Logistic Regression Analysis of the Likelihood Clients are Currently Sexually Active (*N* = 401)

	Likelihood of being sexually active in past 3 months	
	OR	95% confidence interval
<i>Demographic characteristics</i>		
Age (years)	.972*	.946–.997
Gender (female)	1.332	.804–2.209
Race (non-white)	1.802*	1.083–3.000
Sexual identity (gay/lesbian/bisexual)	2.067	.989–4.321
Education (in years)	1.047	.960–1.142
Marital status (married or cohabitating)	4.060***	1.975–8.348
<i>Clinical characteristics</i>		
Schizophrenia ^a	.742	.389–1.414
Bipolar disorder ^a	1.130	.222–5.739
Major depression ^a	1.671	.675–4.133
Higher level of functioning (GAF > 55)	1.347	.788–2.301
<i>Treatment setting</i>		
State hospital	.576*	.341–.972
Overall χ^2	49.486***	
Log likelihood	-211.933	
R^2_{Effron}	.129	

^aThe comparison category is “other severe mental illness.”

****p* < .001; ***p* < .01; **p* < .05.

Characteristics of Sexual Networks

Table III presents the descriptive characteristics of the sexual networks of the respondents who reported being currently sexually active. Overall, clients in community and institutional care had similar sexual networks, with a few important differences. The average number of partners, average number of encounters, and average number of sex acts performed during an encounter were not significantly different between the two groups. Similarly, the networks of both groups included similar proportions of same gender partners (between 5.49 and 12.68%), partners who were known to be HIV positive (.63–5.49%), partners believed to use IV drugs (4.43–4.07%), or partners with whom money or goods were exchanged for sex (4.22–8.62%). The overall emotional qualities of hospital and community-care participants’ sexual relationships also were similar. There were three areas, however, where there were significant differences. Clients in community settings (85.02%) were significantly more likely than state hospital patients (60.65%) to have sex with partners who are members of a minority group. In addition, on average, three quarters (74.80%) of the partners

of state hospital patients’ were known or believed to have a mental illness, nearly double the average proportion in community clients’ sexual networks (37.55%). Finally, the sexual relationships of state hospital patients were significantly shorter in duration (on average approximately “1–2 years”) than the relationships of consumers in community treatment (average duration “More than 6 years”). In fact, one quarter (26.8%) of the state hospital participants reported knowing their sex partner(s) less than 6 months whereas nearly half (46.8%) of the CMHC clients report their sexual partnerships lasting 6 years or longer.

Characteristics of Sexual Acts

To better understand the nature of risky sexual behaviors among persons with SMI, we also examined the sexual activities that the participants reported engaging in with their partners. Table IV presents the number and percent of the sexually active clients engaging in the particular sex acts (Column I) as well as the frequency of the sex acts for those who reported engaging in the behaviors (Column II). In general, we found few significant differences between clients in the two types of treatment settings with regard to their reported sexual activities. The most common form of sexual activity was genital touching with 90% of the sample reporting having engaged in this type of sexual activity with one or more of their partners. Approximately half of the participants in both treatment environments reported either giving or receiving oral sex from a partner, whereas relatively few indicated that they had participated in anal sexual contact. There was, however, a significant difference with regard to vaginal sex. Approximately four out of five (82.3%) of the sexually active community care clients indicated having vaginal sex at least once during the past 3 months whereas only 61 percent of the state hospital patients reported doing so. This difference also was reflected in the frequency that clients reported having vaginal sex, with CMHC clients stating they engaged in vaginal sex more frequently than state hospital patients.

We also computed the number clients who engaged in one or more unprotected acts of oral, vaginal, and anal sex in the past 3 months. Almost all of the respondents that reported engaging in oral sex also reported at least one unprotected oral sex act. Condoms were most likely to be used during vaginal sex; however, a majority of those who report

Table III. Descriptive Characteristics of Clients' Sexual Networks by Treatment Facility Type ($N = 120$)

	Mean (<i>SD</i>)			<i>t</i>
	CMHC ($N = 79$)	State Hospital ($N = 41$)	Total ($N = 120$)	
Average number of sexual partners	1.34 (1.20)	1.80 (1.89)	1.50 (1.48)	-1.64
Average number of sex encounters	12.87 (25.13)	6.53 (16.36)	10.70 (22.65)	-1.46
Average number of sex acts performed during an encounter	2.24 (.91)	2.09 (1.00)	2.19 (0.94)	.785
Mean percent of same gender partners	5.49 (20.80)	12.68 (33.09)	7.94 (25.76)	-1.46
Mean percent of minority status partners	85.02 (34.14)	60.65 (45.38)	76.69 (39.88)	3.30***
Average percent of partners who also have mental illness	37.55 (47.10)	74.80 (42.47)	50.28 (48.73)	-4.25***
Average percent of partners known to be HIV positive	0.63 (5.63)	5.49 (22.02)	2.29 (13.75)	-1.85
Average percent of partners known to use IV drugs	4.43 (19.92)	4.07 (14.80)	4.31 (18.27)	.103
Average percent of partners with whom participant traded sex for money, alcohol, drugs, or other commodity	4.22 (17.80)	8.62 (25.88)	5.72 (20.91)	-1.09
Average closeness ^a	2.55 (0.67)	2.31 (0.74)	2.47 (0.70)	1.80
Average frequency of contact ^b	4.40 (1.16)	4.09 (1.25)	4.29 (1.19)	1.318
Average amount of time before having sexual relations ^c	3.69 (1.49)	3.73 (1.60)	3.70 (1.51)	-.127
Average duration of relationship with partners ^d	3.79 (1.44)	2.89 (4.45)	3.49 (1.50)	3.22**

^aRespondents were asked "How close are you to (NAME)?" and given the following response categories: *Not Very Close* (1), *Sort of Close* (2), and *Very Close* (3).

^bRespondents were asked "How often do/did you see or talk to him/her?" Respondents could answer with the following answers: *Everyday* (1); *Several times a Week* (2); *Several Times a Month* (3); *Once a Month* (4); and *Less than Once a Month* (5).

^cRespondents were asked "How long did you know (NAME) before having sex or engaging in genital touching the first time?" and instructed to respond using the following scale: *Less than 1 Day* (1); *1 Day to 1 Week* (2); *1 Week to 1 Month* (3); *1 Month to 6 Months* (4); *6 Months to 1 Year* (5); *More than 1 Year* (6).

^dRespondents were asked "How long have you known/did you know (NAME)" and asked to answer using the following response categories: *Less than 6 Months* (1) *6 Months to 1 Year* (2); *1-2 Years* (3); *3-6 Years* (4); *More than 6 Years* (5).

*** $p < .001$; ** $p < .01$; * $p < .05$.

Table IV. Prevalence and Frequency of Different Sexual Acts by CMHC ($N = 79$), State Hospital ($N = 41$), and All Respondents ($N = 120$)

	I. Number of sexually active clients who engaged in specific sex behaviors during prior 3 months				II. Mean (<i>SD</i>) of the number of instances of specific sex behaviors during prior 3 months (among those reporting the behavior)				<i>t</i>
	CMHC <i>N</i> (%)	State Hospital <i>N</i> (%)	Total <i>N</i> (%)	χ^2	CMHC <i>M</i> (<i>SD</i>)	State Hospital <i>M</i> (<i>SD</i>)	Total <i>M</i> (<i>SD</i>)		
Genital touching	70 (88.6%)	38 (92.7%)	108 (90.0%)	0.498	14.40 (27.2)	13.74 (38.8)	12.75 (30.3)	.005	
Active oral sex	38 (48.1%)	21 (51.2%)	59 (49.2%)	0.105	9.13 (16.5)	7.05 (18.6)	4.13 (12.7)	.317	
Unprotected active oral sex	37 (46.8%)	19 (46.3%)	56 (46.7%)	0.003	9.32 (16.7)	7.53 (19.5)	4.07 (12.7)	.358	
Passive oral sex	39 (49.4%)	18 (43.9%)	57 (47.5%)	0.323	7.56 (13.1)	6.17 (11.3)	3.38 (9.3)	.573	
Unprotected passive oral sex	37 (46.8%)	14 (34.1%)	51 (42.5%)	1.788	7.92 (13.3)	7.43 (12.6)	3.32 (9.3)	.640	
Vaginal intercourse	65 (82.3%)	25 (61.0%)	90 (75.0%)	6.533*	10.55 (12.4)	4.87 (4.3)	6.37 (10.3)	2.151*	
Unprotected vaginal intercourse	36 (45.6%)	13 (31.7%)	49 (40.8%)	2.147	8.81 (8.2)	4.91 (4.4)	4.19 (6.6)	-.614	
Anal intercourse	10 (12.7%)	7 (17.1%)	17 (14.2%)	0.433	10.40 (24.6)	2.71 (3.7)	1.03 (7.4)	.597	
Unprotected anal intercourse	6 (7.6%)	6 (14.6%)	12 (10.0%)	1.486	2.50 (2.0)	2.83 (4.0)	.29 (1.2)	-.943	

*** $p < .001$; ** $p < .01$; * $p < .05$.

engaging in vaginal sex within both treatment groups said they had unprotected vaginal intercourse within the past 3 months (55.4% of CMHC clients and 52.0% of state hospital patients), and there was no difference between the two groups with regard to the frequency of having unprotected vaginal intercourse. Although there were few statistically significant differences with regard to specific risk behaviors, we did find a significant difference between the two groups in terms of their overall or cumulative risk across all sex acts reported. Overall, the majority (80.8%) of the sexually active clients reported engaging in one or more risky sex acts in the preceding 3 months. More important, we found that 73.4% of community clients sex acts were unprotected. In contrast, only 57.8% of the state hospital patients' sex acts involved potential risk for transmitting HIV ($t = 1.989$, $p < .05$). A careful examination of Table IV demonstrates that this difference is the result of an accumulation of small and statistically insignificant differences in the specific sex acts reported by hospitalized and community clients. That is, hospitalized patients appear to be slightly more likely to engage in genital touching and protected oral, vaginal, and anal sex than the sample of clients in community care.

DISCUSSION

Our comparative study of clients in community and institutional care indicates that mental health treatment settings influence the HIV risk of people with severe mental illness primarily by shaping the overall likelihood that clients are sexually active and the composition of their sexual networks. Specifically, state hospital institutions appear to concentrate sexual risk taking with partners who also have mental illness and decrease the likelihood of sexual contact with partners from minority status groups. Clients in community care, in contrast, appear to be somewhat more successful in maintaining longer relationships with their sexual partners than patients in institutional settings, but they also are more likely to engage in unprotected sex acts. We also find, consistent with prior studies (Buckley *et al.*, 1999b), that being non-White and married are associated with a greater likelihood of having one or more current sexual partnerships, while those who are older are significantly less likely to be sexually active. Among those who are sexually active, there are few differences between consumers in community or institutional treatment settings. The majority of both groups report having

engaged in some risky sexual behavior with one or more of their partners during the past 3 months, although hospital care was associated with a lower likelihood of having had vaginal sex and engaging in risky sexual behaviors overall.

These results have implications for public health and mental health professionals' understanding of the nature and course of the HIV epidemic among people with SMI. Prior network studies have shown that the structure of risk networks can influence the speed and patterns of HIV transmission within particular communities (Friedman *et al.*, 1999; Neaigus *et al.*, 1994). Our findings regarding the differences in the composition of clients' sexual networks in community and institutional care show that state hospitals may be facilitating the spread of HIV among individuals with SMI. That is, much like bathhouses and shooting galleries influenced the early spread of HIV among men who have sex with men and i.v. drug users, state hospitals appear to constitute, what Neaigus *et al.* (1994) call, "an institutional form of a risk network" because these settings appear to concentrate sexual risk behavior within smaller, and generally closed networks of persons with SMI. Although some prior researchers have raised concerns about the closed nature of mental illness clients' sexual networks (Kalichman *et al.*, 1996), previous theory and research does not consider the specific contextual influence of the type of treatment setting in organizing the sexual networks of clients.

These findings further underscore the need for more comprehensive HIV prevention efforts that target state hospital patients. Despite the apparent need, HIV prevention programs have not been implemented systematically in institutional care settings, often due to professional beliefs that patients cannot and/or should not engage in sexual activity while hospitalized and that sex education is something that should be provided as part of community-based rehabilitation programs (Buckley *et al.*, 1999a; Ford *et al.*, 2003; Lukoff *et al.*, 1986; Welch *et al.*, 1999; Wright, 2001). These results, though, hint that state-hospital focused HIV prevention programs could potentially have a much broader and longer-term structural impact on the course of the epidemic by limiting the frequency of HIV transmission and/or risk behavior *within* the population of clients and patients with SMI.

In contrast, clients in outpatient care are more likely to be more successful in maintaining longer-term sexual relationships and having relationships

with individuals *outside* of the mental health care system. Community-care clients' success in maintaining longer-term sexual partnerships represents an important strength that could have implications for HIV prevention programming. The protective benefits of monogamous long-term sexual relationships is well established and often touted as an HIV prevention strategy for people in the general population. Yet, people with SMI often report being discouraged from getting married and/or trying to form long-term sexual relationships (Deegan, 1999). In this regard, our findings hint that mental health professionals could help to stem the spread of HIV indirectly by helping their clients, regardless of the treatment setting, to develop long-term relationships to meet their sexual needs. More generally, this finding highlights that prevention programs emphasizing safer-sex negotiation and relationship skills, especially relationship skill-building interventions (Carey *et al.*, 2004; Otto-Salaj *et al.*, 2001), may be particularly effective in community care settings because clients' existing sexual partnerships will offer mental health clinicians critical opportunities to counsel clients about HIV and help them practice risk reduction skills.

The increased likelihood of having sexual relationships with people outside of the mental health system, however, also may increase the chance of coming into contact with HIV because of a greater likelihood for contact with individuals from other high-risk groups where the reservoir of HIV is much larger. Given the theoretical concerns raised by other researchers about the proximity of many outpatient mental health facilities to high-risk behavior settings (Cournos *et al.*, 2001; Kelly *et al.*, 1992), this pattern may indicate that the current relative risk of HIV exposure may actually be greater for outpatients than long-term inpatients. In this regard, the structure of outpatients' sexual networks also may constitute an important epidemiological bridge that connects clients with SMI to other high-risk groups.

Although differences in the nature of sexual networks and risk behavior between the two types of settings exist, it is important to remember that it is common for clients with severe and persistent mental illness to move back-and-forth between institutional and community care settings (McGrew *et al.*, 1999; Polgar and Morrissey, 1999). Indeed, the long-term trend towards deinstitutionalization has reduced the typical length of stay in long-term institutions (Dowdall, 1996) and increased the diversity of service settings where consumers receive treatment (Polgar and Morrissey, 1999). In this regard, we

should expect that as clients move around within the mental health treatment system, the contextual pressures on their sexual relationships and sexual risk behavior also will change. Our study would suggest that these differences will be particularly apparent in transfers to and from state hospitals and community-care settings, but there may be other more subtle differences among clients receiving different forms of community care. Regardless of differences in the sexual networks or HIV risk behavior, HIV prevention efforts should be a regular and continuous feature of psychiatric treatment in order to help clients with SMI succeed in reducing their risk and maintaining lower risk behavior patterns (Cournos *et al.*, 2001).

This study has several limitations. First, it relied on subjective reports of sexual networks and activities from persons with psychiatric illness. Although the general population and some researchers continue to stereotype people with psychiatric disorders as "unreliable" respondents, analyses of survey data collected from people with SMI have demonstrated that valid and reliable data can be collected from people with SMI, especially when study protocols are designed to accommodate psychiatric disabilities (Dworkin, 1992; Klinkenberg *et al.*, 2002; Wright and Pescosolido, 2002). In this study, we implemented many well established strategies to minimize potential respondent difficulties, including using interviewers trained to recognize symptoms of mental illness, probing of inconsistent responses, giving respondents frequent breaks when necessary, and selecting instruments that were developed for and tested with participants who had psychiatric disabilities (e.g., the SERBAS).

More importantly, our cross-sectional data did not capture the clearly dynamic nature of many clients' sexual relationships. A number of participants, for example, reported having many short-term sexual relationships. Even among those who were not currently sexually active, in other data from this same study, we found that our respondents typically mentioned having had multiple prior sex partners (available upon request), hinting further that partner change is a routine feature of many clients' sex lives but at intervals not adequately captured in the SERBAS' 3 month window. More work is needed to examine long-term patterns of sexual relationships and their impact on risk behavior and HIV transmission in this population.

In conclusion, this study offers empirical evidence that mental health programs may be influencing the spread of HIV and other STDs among people

with SMI, primarily in the ways these settings influence the likelihood that clients will engage in sexual activity and the structure of their sexual networks. Indeed, we found only minimal differences in the actual sexual risk behaviors of sexually active clients in the two types of treatment settings. Although more research is needed to better understand the nature of this contextual influence, our comparison of hospitals and community care settings highlights the special importance of the array of opportunities and constraints that treatment programs create for clients to form and/or maintain sexual partnerships. Most important, our study points to the special structural influence that institutional care may be having in fueling the HIV epidemic within this group. Ultimately, we believe our study instructs researchers, program managers, and policy makers to consider more carefully the structure of the mental health system in their efforts to monitor the HIV/AIDS epidemic and develop HIV prevention initiatives for people with SMI.

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