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Psychiatric patients' return for HIV/STI test results in mental health centers

Devolução dos resultados de exames sorológicos de HIV/IST entre pacientes psiquiátricos nos serviços de saúde mental

ABSTRACT

OBJECTIVE: To assess individual and/or health service factors associated with patients returning for results of HIV or sexually transmitted infection (STI) tests in mental health centers.

METHODS: Cross-sectional national multicenter study among 2,080 patients randomly selected from 26 Brazilian mental health centers in 2007. Multilevel logistic regression was used to assess the effect of individual (level 1) and mental health service characteristics (level 2) on receipt of test results.

RESULTS: The rate of returning HIV/STI test results was 79.6%. Among health service characteristics examined, only condom distribution was associated with receiving HIV/STI test results, whereas several individual characteristics were independently associated including living in the same city where treatment centers are; being single; not having heard of AIDS; and not having been previously HIV tested.

CONCLUSIONS: It is urgent to expand HIV/STI testing in health services which provide care for patients with potentially increased vulnerability to these conditions, and to promote better integration between mental health and health services.

DESCRIPTORS: Mentally Ill Persons. Acquired Immunodeficiency Syndrome, prevention & control. AIDS Serodiagnosis. Psychiatry. Mental Health Services. Sex Counseling. Cross-Sectional Studies.

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RESUMO

OBJETIVO: Analisar fatores associados ao recebimento de resultados de exames sorológicos para HIV e outras infecções sexualmente transmissíveis (IST) entre pacientes psiquiátricos.

MÉTODOS: Estudo de corte transversal multicêntrico nacional de 2.080 participantes selecionados aleatoriamente dentre 26 instituições de saúde mental brasileiras em 2007. O efeito do indivíduo (nível 1) e dos serviços de saúde mental (nível 2) no recebimento dos resultados dos exames foi avaliado utilizando-se regressão logística multinível.

RESULTADOS: A proporção de retorno dos resultados de exames HIV/IST foi de 79,6%. Entre as características individuais, houve associação do desfecho com: viver na mesma cidade onde se encontravam os serviços, ser solteiro, não ter ouvido falar sobre aids e não ter sido previamente testado para HIV. Entre as características dos serviços de saúde, apenas distribuição de preservativos esteve associada ao recebimento dos resultados de exames.

CONCLUSÕES: É urgente promover melhor integração entre os serviços de saúde, além de expandir a oferta de exame anti-HIV e outras IST, em especial em serviços de atenção a pacientes psiquiátricos potencialmente mais vulneráveis a essas condições.

DESCRITORES: Síndrome de Imunodeficiência Adquirida, prevenção & controle. Sorodiagnóstico da AIDS. Psiquiatria. Serviços de Saúde Mental. Aconselhamento Sexual. Estudos Transversais.

INTRODUCTION

Having access to testing for HIV and sexually transmitted infections (STI) to promote early treatment and prevention is an urgent priority in reducing the rate of new infections.[2] In the specific population of psychiatric patients, the prevalence of STI is high in comparison with the general population.[14] For instance, in Brazil the rates of HIV/STI among psychiatric patients are 1.1% for syphilis; 0.8% for HIV; 1.6% for HBsAg; 14.7% for anti-HBc; and 2.6% for anti-HCV.[9] A strong argument has been made that all patients, especially psychiatric patients, who have one STI should be screened for the others.[7] However, psychiatric patients may encounter barriers to medical services due to lack of social support, transportation difficulties, psychotic symptoms and providers' lack of training or experience to support psychiatric patients that have HIV/STI risk behavior.[6,15,17] These barriers represent substantial missed opportunities for STI prevention and treatment. In a review study, Senn & Carey[16] (2009) reported that rates of lifetime HIV testing ranged from 11% to 89% in different populations of psychiatric patients.

Even with recent public health emphasis on expansion of HIV testing, many of those tested do not learn their test results. The Centers for Disease Control and Prevention (CDC) reports that from 1999 through 2004 a median of 72.2% of the U.S. general population received their HIV test results,[a] i.e., 27.8% did not. By contrast, 10% more of the general population in Brazil or 37.7% of HIV-positive patients tested at public testing centers did not return for the result of their serological anti-HIV or confirmatory tests in 2003, and in 2004 that rate had changed very little to 36.0%.[5]

Until now, there have been few studies about the psychiatric population receiving HIV/STI test results, and none in a representative national sample. Two U.S. studies, one among a homeless psychiatric population and the second one among males with severe mental illness (SMI), showed rates of 89% to 96% of people, respectively, returning for their results.[3,4] It is not clear whether these small cross-sectional studies from the same geographic region are representative of rates of receipt of test results among psychiatric patients elsewhere, particularly in Brazil where no studies of psychiatric population testing rates have been conducted and where the general population rates appear to lag behind those in the U.S.

[a] Centers for Disease Control and Prevention. HIV counseling and testing at CDC-supported sites-United States,1999-2004. Atlanta: US Department of Health and Human Services; 2006 [cited 2011 Oct 09]. Available from: http://www.cdc.gov/hiv/topics/testing/resources/reports/pdf/ctr04.pdf

The aim of this study was to examine characteristics associated with rates of psychiatric patients receiving their serologic test results for HIV and other sexually transmitted infections (STIs).

METHODS

We conducted a cross-sectional multicenter seroprevalence study (PESSOAS Project) for rates of HIV, syphilis, and hepatitis B and C in 11 public psychiatric hospitals and 15 public psychosocial health services throughout Brazil in 2007.[9]

A two-stage probability sample was chosen, proportional to the type of care (hospital or outpatient) and the national distribution of reported AIDS cases by region, yielding a total of 2,475 participants. Eligibility criteria included adult (18+ years old) psychiatric patients under care either at hospitals or adult psychosocial health services who were capable of providing written informed consent as determined by a mental health professional. After signing consent forms, patients were interviewed. Participants who agreed to blood sampling for serological testing (HIV, hepatitis B – anti-HBc and HBsAg, syphilis, and HCV) also underwent pre-test counseling both using standard procedures.[9] A semi-structured person-to-person interview was conducted to obtain sociodemographic, clinical and behavioral data. We also developed a survey to ascertain organizational attributes of treatment settings which was distributed to clinical directors of psychiatric hospitals and to managers of psychosocial health services. The study protocol, questionnaires and procedures were tested in a pilot study, previously described.[8]

A total of 2,475 participants consented to be interviewed and 2,300 consented to blood draws and testing. No statistically significant differences were seen between participants and non-participants regarding age, gender, schooling or psychiatric diagnosis ($p>0.05$).[9] Data regarding returning for test results were recorded by the mental health service and were available for 2,080 (90.4%) of the 2,300 patients who had blood collected.

The dichotomous outcome measure of interest for this analysis was whether or not the participants received HIV, hepatitis B and C, and/or syphilis test results after a maximum of four attempts to deliver results in a face-to-face meeting, as required by law, coordinated by a local supervisor of the service.[9] Results not delivered after four attempts were made available for delivery at each treatment setting whenever patients attended their routine clinical appointments; these contacts were not tracked as part of the study. All local supervisors were mental health professionals who worked at the centers. They were responsible along with service staff to deliver the test results.

All test results were forwarded to the services on the same date. Using the service routine procedures, i.e. mainly with direct contact, telephone, letter, or telegram, all participants were asked to return to their treatment settings for in-person post-test counseling and delivery of results. A follow-up questionnaire was applied to track number of attempts, post-test counseling and referral for care, if needed. In the first part of the questionnaire the contact with participants was described. The number of attempts to contact the participants (up to four) to deliver test results was documented as were participants' stated reasons for not learning their test results. In the second part of the questionnaire, post-test counseling was described regarding to whom the test results were reported, if participants were alone and if they authorized disclosure of their HIV results. Patients' difficulties in understanding the test results and schedule of meetings for post-test counseling were also described. Part three of the questionnaire pertained to participants with positive results. Patients indicated whether they were in treatment for STI before receiving the results and, if necessary, whether they were referred to the STI/AIDS health care network.

Two levels of potential explanatory variables were assessed, individual and institutional. The individual characteristics (level 1) investigated were: sociodemographic variables (gender, age, marital status, literacy, schooling, income in the past six months, health insurance, homelessness, history of incarceration); psychiatric conditions (previous psychiatric admissions, presence of delusions/delirium during the interview; main psychiatric diagnoses were obtained from medical charts and grouped according to the International Classification of Diseases [ICD-10]);[19] HIV-related behavior and risk history characteristics (use of alcohol in the last month, use of crack in the last year, lifetime condom use, knowledge about HIV [score ranging from 0 to 10, as previously described],[12] history of lifetime diagnosis of STI, self-perception of HIV risk, history of previous lifetime HIV serologic testing).

The relevant mental health service-related explanatory characteristics obtained from the institutional survey[11] (level 2) were: type of service setting (psychiatric hospital or psychosocial health service), existence of education programs specific to STI at the institution, and condom distribution by the service.

The analysis was conducted in two stages. We started by including a description of the population and of the follow-up and tracking of receipt of test results. In the first stage, the events of interest, i.e., receipt of the test results, was assessed considering the dependence among units nested in clusters (26 mental health centers) using multilevel logistic regression separately for each explanatory variable. In the second

stage, multilevel logistic regression was used for the multivariate modeling. The initial multivariate model was adjusted with explanatory variables that showed a p-value <0.20 in the preliminary analysis, separately in four main groups (sociodemographic, psychiatric characteristics, HIV-related behavior and risk variables, and mental health services). The effect of the variables related to individual characteristics (Level 1) and the effect of the variables related to mental health services characteristics (Level 2) were taken into account. Only explanatory variables which had a p-value <0.05 were maintained in the final model. The likelihood ratio test was used to compare the models while residual analysis was used to assess the fit of the final model. In order to check for potential multicolinearity, the *variance inflation factor* (VIF) was calculated. Data were stored in Paradox Windows® database and STATA® software systems were used for statistical analysis.

Ethical approval for the study was obtained from Universidade Federal de Minas Gerais' Research Ethics Committee (UFMG/ETIC 125/03) and Conselho Nacional de Saúde (National Ethical Review Board, CONEP 592/2006).

RESULTS

Among the 2,080 participants included in this analysis, 67.0% were recruited from psychosocial health services. In addition, more than half were women (52.4%), 48.3% were older than 40 years of age, 47.8% were single. Thirty-seven percent had no income in the last six months. More than half of the sample (60.7%) had less than five years of schooling, and 18.7% were illiterate. Schizophrenia, other psychotic disorders and bipolar disorder were the most common psychiatric diagnoses (55.2%), followed by depression (13.3%), substance abuse (6.4%), and anxiety (3.9%), and 57.4% had at least one previous psychiatric hospitalization. Fully one-third of the participants (36.3%) had never used condoms in their lives, and 23.7% reported a previous STI diagnosis. While 26.7% of participants had been previously HIV-tested, 58.7% perceived themselves as not being at risk for HIV infection.

Only 26.9% of the treatment settings provided sexual education programs; these programs more often were offered at psychosocial health services (33.4%) compared to psychiatric hospitals (18.2%). Sexual education programs included workshops with the patients dealing with themes such as sexuality and family planning, as well as monthly lectures and/or sexual education courses. Condoms were distributed in only 30.8% of psychiatric treatment settings and just one hospital was among these institutions. The reasons cited for non-distribution of condoms were their availability at primary health care centers and lack of sexual education programs at psychiatric institutions. [11]

Overall, 1,656 (79.6%) individuals actually received their test results (Table 1). Psychosocial health services returned the results to 89.2% of participants and hospitals to 60.2%. The two most frequent reasons for not returning test results were that participants could not be located (24.0%) (e.g., moved to a new, unknown address, no telephone contact); and did not show up for the scheduled visit (19.5%), i.e., did not attend it and did not give any reasons for not showing up (Table 1). Most participants required only one contact to schedule a visit to receive their results while 20.1% required to be contacted more than once, some required up to the maximum of four attempts before receiving their results. The most common way of scheduling a patient visit for delivering test results was direct contact at the treatment center (41.1%) or by telephone (24.8%). Other types of contacts were by letter, telegram or community radio. After PESSOAS Project ended, 73.0% of its participants were still in treatment at the mental health service where they were tested, with appreciably more patients remaining in psychosocial health services (91.4%) than in hospitals (35.6%). The majority of participants came alone (81.2%) for post-test counseling (Table 2) and received the test results alone (85.2%). When they were not alone, they were most often accompanied by family members (59.0%). Regardless of how they received their results, 57.6% of participants authorized the test results to be disclosed to someone else. This percent was higher in hospitals (65.4%) than in psychosocial health services (55.1%). Only 7.5% of the participants reported that the results were difficult to understand and 93.6% completed post-test counseling. The majority of participants scheduled only one post-test counseling session.

Among those participants who received their test results (n=1,656), 377 (22.8%) had at least one positive test result for HIV, hepatitis B and C, or syphilis (Table 2). The following positive rates were identified among those receiving their results: HIV (n=11), syphilis (HAI positive=29, VDRL positive= 62), hepatitis B (HBsAg positive=35, anti-HBc total positive=278); and hepatitis C (anti-HCV positive=39). All four HIV positive patients whose results were not delivered up to the fourth attempt already knew their positive status, as registered in medical records. Referral for care was attempted for most positive patients. However, a medical visit was actually scheduled for nine HIV-positive patients (81.8%), for 47 patients with serological markers for syphilis (51.6%), and 212 patients with serological markers for hepatitis B or C (60.2%). In order to schedule a referral visit, direct contact with regional/municipal STI service coordination was required for 67.4% of the mental health care centers (84.2% of psychosocial health services and 41.6% of hospitals). Among these, 78.7% reported that this service-to-service contact facilitated the patient's attendance at the STI service (96% of psychosocial health services and 25% of hospitals). A counter-referral

Table 1. Descriptive characteristics of the attempts to contact participants for delivery of HIV, syphilis, hepatitis B and C test results. Brazil, 2007.

Variable	Hospital n=686		Psychosocial health services n=1394		TOTAL n=2080	
	n	%	n	%	n	%
Delivery of the test results						
Yes	413	60.2	1243	89.2	1656	79.6
No	273	39.8	151	10.9	424	20.4
Reasons for not returning the results[a]						
Patient was not located	92[a]	33.7[a]	10[a]	6.6[a]	102[a]	24.0[a]
Did not show up for visit	23	8.4	60	39.7	83	19.5
Did not show interest in knowing the results	35	12.8	1	0.7	36	8.4
Did not have money/transportation	26	9.5	0	0.0	26	6.1
Other situations (death, illness, hospitalizations and work)	43	15.7	17	11.2	60	14.3
Information unknown	54	20.0	63	41.8	117	27.7
Status of the participant after the project						
Remains in treatment at the service	244	35.6	1274	91.4	1518	73.0
Moved to other mental health service	320	46.6	19	1.4	339	16.3
Other	122	17.8	101	7.2	223	10.7
First attempt to contact was made						
At the services	151	17.7	703	50.4	854	41.1
By telephone	299	43.6	216	15.5	515	24.8
Other	236	38.7	475	34.1	711	34.1
Number of effective attempts to contact						
Only one	431	62.8	1198	85.9	1629	78.3
2 to 4	229	33.4	187	13.5	416	20.1
Unknown	26	3.8	9	0.6	35	1.6

[a] Percent of those whose test results were not delivered

from the referral service back to the psychosocial care center was made for 85.7% of HIV-positive patients, 66.6% for syphilis patients, and 67.3% for hepatitis B and C patients.

The univariate analysis showed that, among the sociodemographic variables, living in the same city where the services were located and being single had a positive association with receiving the test results (Table 3). Among the clinical and behavioral variables, those that showed association with receiving the test results were: delusional/delirious behavior during the interview, substance use as main psychiatric diagnosis, use of crack in the last year, having heard of AIDS, low score in knowledge about HIV, and previous HIV testing. In addition, services that provide free condoms to patients and patients in treatment at psychosocial health services showed a positive association with not receiving the test results.

The multivariate analysis was conducted using a hierarchical logistic regression model including the characteristics of individuals at level 1 and the characteristics of the mental health services at level 2 (Table 4). First, a null model (1) was adjusted, i.e., without any explanatory variables (model with intercept only). Model 2 was adjusted with individual variables without any contextual variables (centers). The final model (model 3) was adjusted to include both individual and contextual variables. The following individual variables were independently associated with receiving test results: living in the same city where the treatment centers were located (OR=1.47, 95%CI 1.00;2.16); being single (OR=1.37, 95%CI 1.03;1.83); not having heard of AIDS (OR=3.13, 95%CI 1.23;7.98); and not having been previously HIV tested (OR=1.36, 95%CI 1.00;1.85). The only characteristic related to the mental health services that showed an independent association with receiving test results was regular free distribution of condoms to patients (OR=5.69, 95%CI 1.23;26.29). The variance among centers was reduced from 0.54 (model 1) to 0.52 (model 2) after including the individual characteristics of patients (i.e., 3.7% of the variance of level 2 can be explained by the heterogeneity in the composition of patients in treatment at

Table 2. Descriptive characteristics of participants during delivery of HIV, syphilis, hepatitis B and C test results. Brazil, 2007.

Variable	Hospital n=413		Psychosocial health services n=1243		TOTAL n= 1656	
	n	%	n	%	n	%
Showed up alone at the center						
Yes	280	67.8	1064	79.2	1344	81.2
No	125	30.2	172	13.8	297	17.9
Unknown	8	1.9	7	0.6	15	0.9
If not alone, with whom[a]						
Parents	30	24.1[a]	37	21.5[a]	67	22.6[a]
Partners	13	10.4	22	12.8	35	11.8
Other family member	34	27.2	39	22.6	73	24.6
Other	48	38.3	74	43.1	122	41.0
Were alone when receiving results						
Yes	310	75.1	1102	88.7	1412	85.2
No	92	22.3	120	9.7	212	12.8
Unknown	11	2.6	21	1.8	32	2.0
Authorized disclosing HIV results to someone else						
Yes	270	65.4	685	55.1	955	57.6
No	93	22.5	476	38.3	569	34.4
Unknown	50	12.1	82	6.7	132	8.0
Had difficulties in understanding HIV results						
Yes	43	10.4	81	6.5	124	7.5
No	347	84.0	1134	91.2	1481	89.4
Unknown	23	5.6	28	2.1	51	3.1
Post-test counseling carried out						
Yes	381	92.3	1169	94.0	1550	93.6
No	8	1.9	51	4.1	59	3.6
Unknown	24	5.8	23	1.8	47	2.9
Positive serological test results:						
Any positive result	149	36.0	228	18.3	377	22.8
HIV/AIDS antibody (anti-HIV 1 and 2 [ELISA] confirmed by Western Blot)	4	0.9[b]	7	0.6[b]	11	2.9[b]
Syphilis						
(HAI positive)	16	3.9	13	1.0	29	1.7
(VDRL positive)	23	3.1	39	5.7	62	3.7
Hepatitis B						
(HbsAg positive)	16	3.9	22	1.8	38	32.1
(Anti-Hbc total positive)	113	27.4	165	13.3	278	16.8
Hepatitis C						
(Anti-HCV positive)	19	4.6	20	1.6	39	2.4

[a] Percent of those receiving test results accompanied
[b] Percent identified with positive test results.
HAI: Indirect hemagglutination test; VDRL: Veneral Disease Research Laboratory

each center). The remainder of the variance (94.3%) pertained to the contextual effect (i.e., variability due to heterogeneity among mental health services). Part of this difference can be accounted for by the variable free condom distribution, a level 2 contextual characteristic, which reduced the variance to 0.43 (model 3), a reduction of 11%. There was no indication of collinearity (mean VIF= 1.05)

Table 3. Univariate multilevel logistic regression for each explanatory variable considering the dependence among units nested in clusters (26 mental health centers). Brazil, 2007.

Characteristics	Total[a] (n=2080)	Received test results			
		n	%[b]	OR (95%CI)	p-value
Sociodemographic					
Marital status					
Single	996	808	81.1	1.40 (1.05;1.85)	0.019*
Other	1084	848	78.2	1	
Schooling					
>5 years	817	636	77.8	1	
≤5 years	1263	1020	80.8	1.22 (0.92;1.60)	0.154
Live in the same city where the services are located					
Yes	1663	1417	85.6	1.48 (1.01;2.15)	0.039*
No	417	178	57.3	1	
Retirement or job dismissal due to illness					
Yes	759	632	83.3	1.21 (0.90;1.63)	0.20
No	1313	1017	77.5	1	
Psychiatric conditions					
Delusional/delirious behavior during the interview					
Yes	229	184	80.3	1.56 (0.95;2.56)	0.076
No	1851	1472	79.5	1	
Main psychiatric diagnosis					
Anxiety	82	62	75.6	0.83 (0.44;1.55)	0.567
Depression	278	230	82.7	0.78 (0.51;1.19)	0.257
Substance use	134	66	49.3	0.63 (0.38;1.05)	0.078
Other	436	374	85.8	1.15 (0.79;1.67)	0.446
Psychoses and bipolar disorder	1150	924	80.3	1	
Knowledge about psychiatric medicine					
Yes	1321	1085	82.1	1.25 (0.93;1.70)	0.133
No	647	476	73.6	1	
HIV-related risk and behavior					
Use of crack in the last year					
Yes	100	50	50.0	0.59 (0.33;1.03)	0.068
No	1980	1606	81.1	1	
Having heard of AIDS					
Yes	1934	1521	78.6	1	
No	128	119	93.0	3.24 (1.37;7.68)	0.007*
Knowledge about HIV					
Above average	1471	1153	78.4	1	
Below average	554	452	81.6	1.34 (0.97;1.85)	0.074
Previous HIV testing					
Yes	556	432	77.7	1	
No	1441	1153	80.0	1.43 (1.05;1.94)	0.027*
HIV risk self-perception					
High risk	379	310	81.8	1	
Medium risk	434	344	79.3	0.85 (0.54;1.34)	0.500
No risk	667	521	78.1	0.72 (0.47;1.11)	0.141
Did not know	490	389	79.4	0.71 (0.46;1.11)	0.141

To be continued

Table 3 continuation

Characteristics	Total[a] (n=2080)	Received test results n	% [b]	OR (95%CI)	p-value
History of STIs					
Yes	486	386	79.4	1.14 (0.83;1.58)	0.398
No	1564	1244	79.5	1	
Mental health services					
Free condom distribution by centers					
Yes	753	703	93.4	5.70 (1.14;28.45)	0.034*
No	1327	953	71.8	1	
Type of mental health service					
Psychosocial health services	1394	1243	89.2	7.82 (1.96;31.25)	0.004*
Hospital	686	413	60.2	1	

STIs: Sexually transmitted infections
[a] n (total) varies according to unknown information
[b] Number and proportion of participants receiving test results in each variable
* Statistical significance p<0.05

Table 4. Multivariate multilevel logistic regression based on delivering of test results fitted to levels 1 (individual) and 2 (centers). Brazil, 2007.

Fixed-parameter characteristics[a]	Model 1 with intercept only	Model 2 without condom distribution OR (95%CI)	Complete model 3 with condom distribution OR (95%CI)
Intercept			
Single		1.37 (1.03;1.84)*	1.37 (1.03;1.83)*
Live in the same city where the services are located		1.49 (1.01;2.19)*	1.47 (1.00;2.16)*
Not having heard of AIDS		3.11 (1.21;7.97)*	3.13 (1.23;7.98)*
Not having been previously HIV tested		1.36 (1.00;1.86)*	1.36 (1.00;1.85)*
Level 2 (centers)			
Free condom distribution by centers			5.69 (1.23;26.29)
Random parameters[b]	Coefficients	Coefficients	Coefficients
Level 2 (centers) σ_{u0} [b]	0.54	0.52	0.46
-log likelihood	–745.46	–710.94	–708.63

[a] Fixed parameter obtained through multilevel logistic regression
[b] Random parameter obtained through multilevel logistic regression
* p<0.05

DISCUSSION

The rate of delivering HIV/STI test results to patients in 26 psychiatric settings throughout Brazil (79.6%) was similar to those reported in general population studies in the U.S. At publicly funded testing sites, the CDC showed that 25% of people who tested HIV-positive and 33% of those who tested HIV-negative in 1995 did not return for their results.[1] Though in this multicenter national study in Brazil it was intended to deliver test results to participants, standard clinical care rates for delivery of test results at mental health services may be even lower because patients in many cases need to navigate between mental health and health care systems to provide blood samples and then return to get the test results, which may be intimidating for many people with severe psychiatric disorders. The majority of mental health treatment centers in Brazil do not provide these tests on-site[11] and patients need to be referred to other treatment centers, possibly an insurmountable barrier for patients to follow through with STI treatment. In the U.S., Satriano et al[15] (2007) observed that often the only access to health care for the serious mental illness population is through their mental health centers, yet among the 26 mental health services in Brazil evaluated, 15.4% reported not offering HIV testing to patients.[11]

The analysis by category of mental health services showed that the psychosocial health services settings had a large advantage in returning test results, showing a seven-fold greater likelihood in contrast with psychiatric hospitals. Delivering test results in psychiatric hospitals may be a challenge because many patients do not remain in long-term treatment (35.6% remained in inpatient treatment following the PESSOAS Project versus 91.4% who remained in psychosocial health services). In addition, services that provide free condom distribution as part of their standard care program were more likely to deliver the test results. In fact, proximity to treatment was a predictive factor: when participants did not live in the cities where treatment centers were located, they were at significant disadvantage. This finding soundly reaffirms the policies of decentralization promoted by the Brazilian Health Ministry which provides for services within the communities where patients live. It appears that the concept of regionalization in the provision of mental health services is also important in stemming the AIDS epidemic.[b]

The lower prior HIV testing rate found in this study (27.0%), as previously described,[13] is a concern because the psychiatric population has well-documented high rates of risk behavior for STI.[10] The majority of participants in this study were not aware of their serological status before the beginning of the present study, especially regarding syphilis and hepatitis B and C, underscoring the importance to check all STIs, not only HIV.

After referring patients for treatment, the mental health services received a counter-referral for only 68.0% of the patients from the STI/AIDS treatment centers. This situation indicates the difficult coordination between mental health and STI treatment services and highlights a barrier to providing comprehensive health care to people with two severe conditions, psychiatric disorder and STI. Failure of services to work jointly puts patients at risk as both identified conditions are not adequately addressed. Many authors have discussed the vulnerability of psychiatric patients who have other comorbid clinical conditions.[17,18] Even before the HIV epidemic, public health systems had difficulty providing adequate physical health care: about 50% of serious physical disorders among severe psychiatric patients who were receiving psychiatric treatment went undetected.[6]

Until now, there have been few studies on psychiatric population receiving HIV/STI test results, and none in a national representative sample or in Brazil. In the U.S., Desai & Rosenheck[3] (2004) found that returning for results was associated with more education, not having a disability, having fewer drug problems, not having an STI, having been previously HIV-tested, and having previously received HIV test results. Our findings from this Brazilian multicenter sample are in stark contrast; the multilevel analysis showed that people who had never heard about AIDS before and people who had never been tested for HIV before were more likely to return for their results, and it also identified proximity to the treatment center as critical.

This analysis is innovative because it introduces contextual variables (mental health services) to assess the differences between the participants receiving test results or not. However, only having routine free condom distribution in place in the treatment setting significantly affected whether patients received their test results or not. This finding raises questions about the role of mental health services in preventing this population's HIV/STI risk behavior. A previous study[11] reported that mental health services had difficulty establishing referral and counter-referral with the health care network, which is worsened by a lack of basic clinical support and understaffing in most treatment centers. Mental health services are still ill-prepared to address adequately issues related to STI prevention, as well as to offer effective care. It is important to point out that we examined only a small number of treatment setting factors due to power limitations and other factors including funding streams for specific tests should also be investigated.

In Brazil STI/AIDS prevention and intervention policies for the psychiatric population have been up to now insufficient despite awareness that this group is potentially more vulnerable to HIV infection than the general population. Our study findings point to what remains to be strengthened. Better integration between services needs to be implemented. Mental health care providers must urge their psychiatric patients to get tested, not only for HIV but for all STIs. A change in the Brazilian policy for HIV testing introduced rapid testing in selected health facilities in order to expand availability of testing.[c] It should be discussed whether the psychiatric population and mental health care services will benefit from this public policy given the limitations of health and mental health service integration. It is a critical time to make decisions about policies for HIV and mental health in Brazil. Permanent adequate educational strategies for providers working in mental health services should be developed. Our results point to the need to create and reinforce public policies which promote preventive measures as part of comprehensive health care offered to this population.

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