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A Model for Adapting Evidence-based Behavioral Interventions to a New Culture: HIV Prevention for Psychiatric Patients in Rio de Janeiro, Brazil

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PRISSMA Project

Abstract

As in other countries worldwide, adults with severe mental illness in Brazil have elevated rates of HIV infection relative to the general population. However, no HIV prevention interventions have been tested for efficacy with psychiatric patients in Brazil. We conducted participatory research with local providers, community leaders, patient advocates, and patients using an intervention adaptation process designed to balance fidelity to efficacious interventions developed elsewhere

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with fit to a new context and culture. Our process for adapting these interventions comprised four steps: (1) optimizing fidelity; (2) optimizing fit; (3) balancing fidelity and fit; and (4) pilot testing and refining the intervention. This paper describes how these steps were carried out to produce a Brazilian HIV prevention intervention for people with severe mental illness. Our process may serve as a model for adapting existing efficacious interventions to new groups and cultures, whether at a local, national, or international level.

Keywords

HIV; Prevention interventions; Adaptation; SMI; Brazil

Introduction

Culture is an essential concept for understanding the prevention of HIV transmission (Parker, 2001). Several approaches specify who should be involved and what should be the goals of a cultural adaptation (Wilson & Miller, 2003), but there is little guidance about the process of cultural adaptation.

We sought to adapt an efficacious HIV prevention intervention for psychiatric patients in Brazil. Documented rates of HIV infection among psychiatric patients around the world (between 1.9% and 23.8%) are much higher than those of the general population in the same regions (McKinnon, Cournos, Herman, & Le Melle, 2005). Yet, few interventions for this population have been tested in randomized controlled trials (RCTs), and these were conducted only in the U.S. Prevalence of HIV infection among people with severe mental illness (SMI) in Brazil is estimated to be 1.5–1.6% compared to 0.3% in the local general population (Almeida & Pedroso, 2004; Ministry of Health, 1996, 2001, 2005a), but until recently people with SMI have not been a focus of HIV prevention initiatives in Brazil (Ministry of Health, 2000) despite studies showing ongoing risk behaviors in the population (Almeida & Pedroso, 2004; Carvalho, Braga, & Galvão, 2004).

Several U.S. interventions demonstrated efficacy at helping psychiatric patients reduce their HIV risk behaviors (Carey, Carey, Maisto, Gordon, Schroder, & Vanable, 2004; Kalichman, Sikkema, Kelly, & Bulto, 1995; Kelly et al., 1997; Otto-Salaj, Kelly, Stevenson, Hoffmann, & Kalichman, 2001; Susser et al., 1998; Weinhardt, Carey, Carey, & Verdecias, 1998). However, each one targeted diagnostically different patient groups and, despite similar theoretical foundations, their implementation differed in terms of gender composition, number of sessions, duration, content, and message delivery strategies. Since there was no single HIV prevention intervention that we could adapt for Brazilian SMI, our process of intervention adaptation involved integrating the existing efficacious interventions, determining their appropriateness to the needs of people with SMI in Brazil, and making modifications responsive to local factors.

Our intervention adaptation process comprised four necessary steps that our research team conceived after reviewing the extant research on intervention adaptation (e.g. Bauman, Stein, & Ireys, 1991; Kelly et al., 2000; Kumpfer, Alvarado, Smith, & Bellamy, 2002; Rogler, 1999); soliciting interdisciplinary critiques from colleagues; and examining principles of

participatory research (Cornwall & Jewkes, 1995). Table 1 depicts the sequence, simultaneity, and duration of our adaptation process. This paper describes how these steps were carried out during the first two years of an NIMH-funded study. Although our target population was Brazilian psychiatric patients, our approach may provide a model for adapting HIV prevention and other behavioral interventions to a variety of populations in ways that increase the likelihood of the intervention's use and sustainability following rigorous testing for efficacy.

Intervention Adaptation Process

We began the adaptation process with several assumptions based on the literature on international collaboration in HIV/AIDS research (Parker, 2001). Solutions for the problem of the worldwide HIV epidemic will not be global but rather local, emerging from contexts that encourage and reinforce change for a specific population. Collaboration between prevention researchers and people who have first-hand experience with the local cultural, social, and economic milieu must be a bidirectional, long-term process in which all parties are committed to conducting the research, interpreting the resulting data, and disseminating sustainable evidence-based interventions. Participation by key stakeholders who are members of the target group and of its community will ensure that the adapted intervention incorporates relevant cultural, structural, and process factors (Devieux, Malow, Rosenberg, & Dyer, 2004).

We conducted our study at two adjacent public psychiatric hospitals in the capital city of Rio de Janeiro. The State of Rio de Janeiro has the highest AIDS incidence in Brazil (31.6 per 100,000 inhabitants) and its capital city has 89.9% of AIDS cases in the state (Ministry of Health, 2005a). Both study hospitals serve patients residing anywhere in the city, primarily those of low socioeconomic status. One is a university-based hospital serving a broad range of psychiatric conditions, including SMI. The other is a municipal hospital that serves the SMI population. These hospitals have similar staffing patterns, clinician–patient ratios, and services (medication, supportive therapy, and social services).

Individuals in the two clinical settings and in the surrounding community who were involved in the care of people with SMI were recruited to provide input into the adaptation. The four key stakeholder groups were: (1) the research team (RT): U.S. and Brazilian investigators and research assistants ($n = 16$); (2) the Community Advisory Board (CAB): community leaders, patient advocates, other members of the broader community ($n = 10$); (3) ethnography participants: patients ($n = 45$) and hospital staff ($n = 27$); and (4) the intervention adaptation work group (WG): mental health care providers ($n = 20$). A total of 118 stakeholders was involved. Each stakeholder group had clearly delineated roles, tasks, and goals. The RT was the only group that interacted with all other stakeholder groups.

We fostered collaboration among groups by emphasizing that the resulting intervention would belong to all who were committed to completing the process and to disseminating what we learned.

Step 1: Optimizing Fidelity

The goal of this first step was to ground intervention adaptation in evidence-based HIV prevention principles. This required that the RT have a clear understanding of these principles, examine previously tested prevention interventions for our target population, and identify and operationalize the core components of these interventions. We achieved this goal by the following:

Establishing and training a cohesive bicultural research team. The U.S. members of the RT were experienced clinicians, researchers, mental health services advocates, and trainers in HIV prevention. The Brazil members were experienced clinicians and providers of sexual health education programs; AIDS activists; and researchers in psychiatric treatment, social sciences and cultural/linguistic adaptation. All RT members conducted team training about their respective areas of expertise and cultures relevant to our research. Training was conducted in Portuguese and English through simultaneous translation, and covered qualitative and quantitative methods to establish a unifying background in research methodology. Training also focused on the methodology, results, and implications of prior efficacy trials with SMI participants.

Identifying efficacious interventions. Fidelity to an efficacious intervention requires retaining key constructs from the underlying theoretical model of that intervention (Bauman et al., 1991). By 2004 when our project began, six RCTs of HIV prevention interventions involving 919 people with SMI had been published in the peer-reviewed literature (Table 2). The interventions derived from two primary sources: the literature on social skills training and rehabilitation among individuals with SMI (Bellack & Hersen, 1979; Liberman, Mueser, Wallace, Jacobs, Eckman, & Massel, 1986); and the literature on testable models of risk reduction (Bandura, 1977; Catania & Kegeles, 1990; Fishbein, Bandura, & Triandis, 1991; Fisher & Fisher, 1992).

Identifying common content areas and message delivery strategies. The RT identified five core components common to all six tested interventions: (1) providing risk information; (2) enhancing awareness of attitudes, intentions, and readiness for change; (3) acquiring and rehearsing sexual risk-reduction behavioral skills; (4) problem-solving for handling triggers for sexual risk-taking; and (5) reinforcing behavior changes between intervention sessions. The RT also identified 38 HIV risk-reduction messages contained within these five core components (Table 3).

At the end of the first step, the core intervention components and prevention messages were ready to be adapted.

Step 2: Optimizing Fit

Modifying existing interventions to produce optimal “fit” with the values and beliefs of a specific cultural group (Castro, Barrera, & Martinez, 2004; Devieux et al., 2005; Kumpfer et al., 2002) requires awareness of the ways in which concepts are verbally conveyed among its members (Bayer, 1995–1996). Understanding the cultural contexts in which risk behaviors occur and protective factors develop, and refining culturally specific message delivery

strategies also are necessary (Marin, 1993; Wilson & Miller, 2003). The goal of this second step was to determine optimal fit by the following:

Creating a culturally informed and cohesive research team. The diversity of our RT (ethnicity, gender, disciplines, project role, educational level, socioeconomic level, sexual orientation, marital status, country of origin, age, HIV status, and sexual risk history) allowed us to explore and challenge assumptions about our respective cultures, roles, and control over the project, and to build cohesion among team members and their approaches to health behavior change. Formal experiential (e.g., role plays) and informal social (e.g., meals, dancing) activities facilitated this process.

Fostering local collaboration and acceptability. A CAB was formed to help shape and monitor research activities and the intervention adaptation process; inform the community's leaders about HIV-related issues that SMI patients reported facing; solicit input regarding intervention content; cultivate a partnership for problem-solving barriers or difficulties confronted in the study; and enhance motivation to support and disseminate the intervention. By consensus, the RT selected ten community representatives based on their commitment, diversity, and leadership. CAB members held three meetings per year and received no compensation.

Eliciting the HIV-related needs and risk contexts of the target population. We used qualitative ethnographic methods to characterize the experiences of psychiatric patients in their own terms (Collins, 2001; Patton, 1990; Strauss & Corbin, 1994), eliciting the culturally specific themes, value systems, worldviews, and contexts in which risk behaviors occur. A full year of naturalistic observation, focus groups, and in-depth interviews involving 45 patients and 27 hospital staff members informed the specific changes we made in content, message delivery strategies, and format of intervention. This phase of the study has been described in detail elsewhere (Wainberg et al., under revision). Results suggested preference for a prevention intervention that would be structured, focused on the reduction of sexual risk behaviors, and offered in mixed-gender group sessions facilitated by trained providers. Table 4 summarizes patient, institution, and intervention factors the adaptation needed to address.

Identifying local cultural principles relevant to HIV prevention. In addition to the ethnographic factors, the Brazilian members of the RT and the CAB prioritized the values of social responsibility, sexual expression, and self-expression. Messages highlighting "the social responsibility for fighting the disease while emphasizing the value of life and individual sexual freedom" are part of Brazil's ongoing HIV prevention campaigns (Daniel & Parker, 1993). Sexuality and sexual expression are integral to life in Brazil, and the country's effective response to the epidemic is based on the capacity of HIV prevention programs to address sexuality more openly than in most other countries (Daniel & Parker, 1993; Paiva, 2003). Self-expression of oppressed people is highly valued in Brazil. In the early 1970s, Augusto Boal originated *Teatro do Oprimido* or Theater of the Oppressed (TO) to serve as a vehicle for freedom of political expression under dictatorship (Boal, 1974). TO encouraged active participation by both actors and audience, fostering democratic and cooperative

forms of interaction among participants ("spect-actors") who engaged in self-empowering dialogues that facilitated critical thinking and action. Since then, TO has been adopted by a variety of groups, including psychiatric patients, who use the medium of drama to enhance ways of communicating and to gain self-efficacy (Ministry of Health, 2005b; http://www.theatreofthoppressed.org/en/index.php?nodeID=23).

Step 3: Balancing Fidelity and Fit

Failure to attend to the competing aims of fidelity and fit results in interventions that are (a) culturally satisfying but have little efficacy, or (b) adherent to the original models but fail to meet the needs of the new population (Castro et al., 2004). We balanced fidelity and fit by the following:

Creating and training an intervention adaptation workgroup. Twenty mental health care providers were recruited from the two host institutions based on their knowledge of sexual health issues, communication skills, and willingness to engage patients in candid discussions of sexuality. The 6 men and 14 women who became the workgroup (WG) represented all disciplines (psychiatrists, psychologists, social workers, occupational therapists, nurse technicians, nurse, drama therapist, music therapist, sociologist) involved in the care of patients at the two hospitals. Members of the WG were compensated for their participation.

The WG underwent a two-day training conducted by the RT to review the goals and objectives of our study, to learn about the theoretical underpinnings of the existing interventions, and to enhance information, attitudes, and skills. Training topics included: (1) epidemiology and transmission of HIV, sexually transmitted infections (STIs), and hepatitis; (2) risk and protective factors associated with HIV transmission; (3) the right of psychiatric patients in Brazil to sexual and reproductive freedom; (4) prevalent risk behaviors and efficacious risk reduction interventions with the SMI; (5) proper condom use; (6) patients' perceptions of personal risk and positive norms for safer sex; (7) comfort discussing risky behaviors with patients; and (8) stigma associated with race, class, gender, sexual orientation, psychiatric illness, and HIV/AIDS that may impinge upon sexual behavior. This training was designed to optimize fidelity.

To optimize fit, training explored local ethnographic findings (see Table 4). The WG members' experience working with psychiatric patients in Brazil was an essential source of knowledge regarding theoretical approaches and practical experience with health behavior change strategies that worked best with their patients. The WG and RT also participated in intensive group exercises suggested by members from both countries to facilitate sexual desensitization, cultural proficiency, and values clarification. Training was done in Portuguese and English through simultaneous translation.

Culturally translating efficacious interventions.—The manuals of the six efficacious U.S. interventions (see Table 2) were translated into Portuguese by experienced and certified translators. The correspondence between the original and the translated versions took into

account sociocultural aspects of language use (Pinto, 1997), with special attention given to terms describing body parts and sexual practices.

Building consensus and completing adaptation through experiential workshops.—Intervention adaptation was carried out by the WG and the RT in a series of three three-day workshops conducted over two months. The goal of the workshops was to build consensus about which components of the existing U.S. interventions were relevant to a Brazilian intervention, to modify existing components for the local context, and to add local techniques deemed more relevant than what was available, but only if the replacement met the established fidelity criteria (i.e., retaining five core intervention components).

Throughout the workshops, team-building was promoted through group exercises. We explicitly addressed how aspects of our individual histories and of our group dynamics would be experienced in similar ways by intervention participants. We cultivated this phenomenon of parallel process (Yerushalmi, 1999) to clarify experiences that intervention participants might have, and to understand what is necessary for incremental change over the 2-month intervention. To reinforce our group identity, we named our study PRISSMA, *Projeto Interdisciplinar do Sexualidade, Saúde Mental e Aids*—Interdisciplinary Project in Sexuality, Mental Health, and AIDS—emphasizing our interdisciplinary collaboration and our project's focus.

Workshop 1. Review, evaluate, and determine adaptations of messages and their delivery strategies.—We determined the *content* of the Brazil intervention using ethnographic findings, experiences of WG members with the SMI population, and the prevention messages of the previously tested U.S. interventions. The WG identified eight content areas (information about HIV/AIDS/STIs; sexuality; HIV prevention; communication; intimate relationships; mental illness stigma; cultural aspects related to gender, religious and folk beliefs, values; and family/providers/friends) derived from the ethnographic methods that became the working modules of the intervention. The tested interventions' prevention messages then were grouped within these working modules, and their appropriateness to Brazilian SMI patients was determined based on: (1) relevance; (2) cultural appropriateness; and (3) feasibility of implementation. Recommendations were made as to whether each prevention message should be retained as is, modified, or excluded (see Table 3).

The WG found most of the 38 risk-reduction messages used in the original six interventions relevant to psychiatric patients in Brazil but requiring modification in content (e.g., risk information), message delivery strategy (e.g., role-play), or format (e.g., didactic versus experiential).

Workshop 2. Consolidate and refine content, message delivery strategies, and materials.—Content not addressed in existing U.S. interventions but deemed necessary for Brazilian SMI (see Table 3) was incorporated into the Brazilian intervention through assertive communication exercises and role-plays of patients interacting with relatives and mental health care providers. We added stigma related to having a mental illness to the module on assertive communication and triggers of unsafe sex. We also added sections on

the potential impact of beliefs on sexual risk and on the importance of social responsibility in maintaining sexual health, encouraging participants to serve as peer educators and to communicate their sexual health needs to relatives. Illiteracy issues dictated the need for exclusively verbal message delivery strategies rather than written ones.

WG members practiced exercises from each module and elicited extensive feedback from the entire WG. Full-group discussion of the recommendations from each sub-group resulted in further refinement from both fit and fidelity perspectives as to which exercises would be retained, modified, eliminated, or replaced.

For example, to enhance assertive communication and negotiation of less-risky behavior, we replaced U.S. role-plays with a TO exercise in which different nonverbal communication styles are used to demonstrate how intonation and body language can either undermine or enhance the effectiveness of a communication. Other modifications included interactive and expressive activities to initiate sessions, stimulate group formation, promote ice-breaking, and introduce all skills-building exercises. Concepts and information were similarly introduced so that an interactive activity would "ready" participants for the new skills and ideas. The WG also emphasized that Brazilians view popular music as the foundation for a unified national culture to bridge racial and regional divisions (McCann, 2004; Henriques, 1996). Thus, singing a popular song with HIV prevention lyrics ("*A nova Onda*"—The New Wave; by Martinho da Vila; permission to use obtained) was incorporated into the intervention. Initial drafts of the intervention sessions were given to WG members to review prior to Workshop 3.

Workshop 3. Consolidate sessions and flow of the intervention.—We examined the sessions for fidelity (retaining core components) to the tested U.S. interventions and to the primary aim of the intervention (HIV risk reduction). Then we evaluated the sessions using our fit criteria (relevance for the target population; cultural appropriateness; and feasibility of implementation). In addition, we diagrammed the sequencing of the adapted intervention and compared it to the sequencing of the original U.S. interventions to determine the final flow and structure. The result was eight sessions to be administered one per week.

The output from the workshops was the HIV prevention intervention, "*HIV, tô de olho em você*," ("HIV, I have my eye on you") with training guidelines for mental health care providers that detail the specific content, procedures, exercises, and activities for each session.

Step 4: Pilot Testing and Refining

We finalized the intervention by the following:

Training intervention facilitators to pilot the sessions. We hired three male and three female WG members as facilitators. Although familiar with the content and delivery strategies, they needed training and practice to implement the intervention. The six facilitators formed three pairs (one male and one female), and each pair co-facilitated

a session while being observed and supervised by one of three RT members with appropriate expertise.

Piloting and refining the intervention sessions. The eight intervention sessions were piloted with four groups of eight patients (16 men and 16 women). Facilitators were compensated for their participation, but consistent with Brazilian research standards, patient participants were not. These sessions were videotaped and a member of the RT rated each session for content and format fidelity, materials used, difficulties observed, and group reactions. Feedback from patient participants and facilitators about content, flow, engagement, etc., was obtained and incorporated into the final draft.

Approving and manualizing the intervention. Following approval by PRISSMA (WG, CAB, and RT), the manualized intervention was completed. Back-translation of the manual from Portuguese to English was performed to check for errors and fidelity to tested HIV prevention models. A review of fit and fidelity for each session was conducted by the RT as the final step. This protocol will be tested in an RCT.

Conclusions

We have described our process of HIV prevention intervention adaptation so that it can be compared to emerging approaches to adaptation and contribute to the creation of a model for adaptation that is international, intercultural, and interdisciplinary. Since we initiated our adaptation work, a handful of intervention developers have described their own processes for adapting HIV prevention interventions (e.g., Devieux et al., 2004; Freier, McBride, Hopkins, Babikian, Richardson, & Helm, 2005; Schensul, Natasi, & Verma, 2006; Sivaram et al., 2004). None of these models or frameworks describes the adaptation of multiple efficacious interventions through a process that addresses both fit and fidelity. This paper fills that critical gap.

Our adaptation process taught us invaluable lessons about how culture affects our assumptions about HIV prevention. For instance, agreement on intervention content was clear and easily established, but the diversity of backgrounds regarding theoretical models and approaches to working with patients required more work to build consensus. The WG identified a lack of “Brazilian vitality” in most of the U.S. interventions, which they ascribed to the U.S. reliance on cognitive-behavioral theory (CBT) which is foreign to the psychodynamic orientation commonly used with Brazilian SMI patients. Also, WG members introduced local approaches to content delivery derived from the Theater of the Oppressed (TO). As we rehearsed CBT exercises and TO activities, we realized that they could be combined to complement one another. For example, TO activities addressing assertive communication could introduce CBT exercises. This process shed light on how the team could achieve cohesion in the face of other “differences” (i.e., social, economic, ethnic, discipline, citizenship, gender, sexual orientation) and how this could parallel the “differences” that intervention participants would need to manage within their groups (Yerushalmi, 1999).

Our target population was Brazilian psychiatric patients, but our approach has relevance to the adaptation of HIV prevention interventions for other populations and cultures. We will confirm its utility as a model for adaptation when we test the adapted intervention for efficacy in the next phase of the PRISSMA project.

Whether one is working to prevent AIDS in one's own neighborhood or in another country, having a tested model of intervention adaptation would provide much needed structure, reassurance, and concrete guidance about how to achieve balance between fidelity to efficacious intervention models and fit within the specific context and world view of those who constitute the intervention target group.

Although intervention adaptation poses innumerable challenges, it can be an immensely rewarding learning experience, a collaborative way of working, and, ultimately, a method for translating gains from one locality's fight against HIV to another's.

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Table 1

Adaptation model timeline: sequence, simultaneity, and duration of the four steps

Step		Year 1						Year 2					
Step 1: Optimizing Fidelity	Establishing and training a cohesive bicultural research team												
	Identifying efficacious Interventions												
	Identifying common content areas and message delivery strategies												
Step 2: Optimizing Fit	Creating a culturally informed and cohesive research team												
	Fostering local collaboration and acceptability												
	Eliciting the HIV-related needs and risk contexts of the target population												
	Identifying local cultural principles relevant to HIV prevention												
Step 3. Balancing Fidelity and Fit	Creating and training an intervention adaptation workgroup												
	Culturally translating efficacious interventions												
	Building consensus and completing adaptation through experiential workshops												
Step 4. Pilot Testing and Refining	Training intervention facilitators to pilot the sessions												
	Refining the intervention sessions												
	Approving and manualizing the intervention												

Each cell represents 2 months

Table 2

HIV prevention interventions for people with SMI tested in randomized controlled trials and published by start of study in 2004

Authors	Gender	*N*	Psychiatric diagnosis	Intervention description	Findings
Kalichman et al. (1995)	M & F together	52	Primary and secondary: 61% schizophrenia 23% schizoaffective disorder 13% major affective disorder 17% personality disorder	Two conditions compared at post-intervention, 1- and 2-month follow-ups: • Four-session (90 min each) experimental group with risk education, skills training, and self-management and problem-solving training • Control group who were wait-listed for the duration and later received the intervention	*Post intervention.* Compared to the waitlist control group, experimental group: significantly increased knowledge, increased number of conversations about AIDS with sexual partners, and decreased frequency of unprotected occasions. *1 month.* Compared to baseline, those who received the intervention significantly increased knowledge, increased intention to change risk behaviors, increased number of conversations about AIDS, decreased unprotected sex occasions, and increased protected sex occasions. *2 months.* Compared to baseline, experimental group significantly increased knowledge, increased intention to change risk behaviors, and decreased unprotected sex occasions.
Kelly et al. (1997)	M & F together	104	Primary: 58% mood disorder 20% schizophrenia 11% anxiety disorder 11% substance use or personality disorder	Three conditions compared at 3-month follow-up: • Seven-session (90 min each) cognitive-behavioral skills training (CBT) plus advocacy group • Seven-session (90 min each) CBT group • One (60-min) AIDS risk reduction education group	*3 months.* Compared to CBT-only group, CBT + advocacy group significantly decreased number of partners and frequency of unprotected sexual occasions. There were no other between-group differences. Compared to baseline: CBT + advocacy group significantly decreased all risk behaviors; education-only group significantly decreased mean number of sexual partners, percentage of multiple partners, and percentage of unprotected sex occasions; and CBT-only group showed no significant decreases in risk behaviors.
Susser et al. (1998)	M only	59	Primary: 61% schizophrenia or schizoaffective disorder 27% mood disorder 12% other	Two conditions compared at 6- and 18-month follow-ups: • Fifteen-session (60 min each) CBT group • Two-session (60 min each) AIDS education group	*6 months.* Compared to education-only group, CBT group significantly decreased sexual risk score. *18 months.* CBT group demonstrated a continued decrease in sexual risk score but not significantly lower than education-only group.
Weinhardt et al. (1998)	F only	20	Primary: 20% major depressive disorder 50% schizophrenia	Two conditions compared at 2- and 4-month follow-ups: • Ten-session (75 min each) sexual assertiveness skills training, HIV/AIDS information, and HIV risk behavior feedback group	*2 months.* Compared to wait-list control group, assertiveness group significantly improved sexual assertiveness, increased HIV knowledge and number of protected sex occasions.

Authors	Gender	*N*	Psychiatric diagnosis	Intervention description	Findings
			30% bipolar disorder	• Wait-list control group	*4 months*. Compared to wait-list control group, assertiveness group significantly improved sexual assertiveness, increased HIV knowledge, and increased intentions to reduce risk.
Otto-Salaj et al. (2001)	Males separate Females separate	87 102	Primary: 35% schizophrenia 34% affective disorder 18% schizoaffective disorder 13% other	Two conditions compared at 3-, 6-, 9- and 12-month follow-ups: • Seven-session (60–120 min each) CBT group • Seven-session (60–120 min each) attention-matched health education control group	*3, 6, 9 and 12 months*. Compared to control group, males in CBT group significantly increased HIV knowledge. *3, 6 and 9 months*. Compared to control group, females in CBT group significantly increased number of protected sexual occasions. *6 and 9 months*. Compared to control group, females in CBT group significantly increased positive attitudes toward condom use. *12 months*. Compared to control group, females in CBT group no longer showed a significant increase in frequency of protected sexual occasions.
Carey et al. (2004)	M & F together	430	Primary: 66% mood disorder 34% schizophrenia or “other thought disorder” Secondary: 74% comorbid substance use disorder	Three conditions compared at 3- and 6- month follow-ups: • Ten-session (60 min each) information-motivation-behavioral skills (IMB) HIV intervention group • Ten-session (60 min each) attention-matched substance use reduction intervention group • Standard-care outpatient psychiatric control group	*3 and 6 months*. Compared to substance abuse and standard-care groups, IMB group significantly decreased frequency of unprotected sexual occasions and number of casual partners, and increased number of communications about sex.

Table 3

Intervention content areas adapted from existing interventions or added to address local needs in Brazil

Core component (5)	Risk-reduction messages from US interventions (38)	Specific content adapted for Brazil	Specific content added for Brazil
Risk information	• HIV basic information • Sexual transmission • Other sources of transmission • Condom facts • SMI vulnerability to HIV/AIDS • HIV treatment and adherence • Re-infection • STIs • IDU, needle-cleaning methods	• Myths/misconceptions and facts about HIV/AIDS – address beliefs and religiosity • Brazil-Rio-SMI vulnerability • Needle availability	• Sex and healthier/safer sexuality
Enhance awareness of attitudes, intentions, and readiness for change	• Personalizing risk • Relative risk of behaviors • Building motivation • Empowerment • Commitment • Masculinity • Homosexuality • Peer advocacy and education/training • Ethics of transmitting HIV	• HIV testing	• Social responsibility—protecting self and the community • Self-expression and sexual freedom
Acquire and rehearse sexual risk-reduction behavioral skills (e.g., condom use, sexual assertiveness, and negotiation of safer sex practices)	Condom use • Pros and cons of condom use • Barriers to condom use • Condom-use demonstration and practice • Dental dam-use demonstration and practice • Female condom-use demonstration and practice • Self-efficacy using condoms • Lubricant information and demonstration Sexual assertiveness • Empowerment • Applying safer sex skills Negotiation of safer sex practices • Negotiating condom use	Sex exchange • Focus exercises to address • Make condom use sexy using local content Intimate relationships • Address mental illness stigma • Address gender issues	• Communication exercises using local model (Theater of the Oppressed)

Core component (5)	Risk-reduction messages from US interventions (38)	Specific content adapted for Brazil	Specific content added for Brazil
	Modeling communication	• Refusal to have sex and sexual violence	
Problem-solve how to handle factors that precipitate high-risk sex (including those in which alcohol and other drug use plays a role)	• Strategies to avoid risky situations • Reframing unsafe sex experiences into safer experiences • Consolidating problem solving • Consolidating condom skills • Triggers to unsafe sex • Identifying individual risk scenarios for managing risky behaviors • Alcohol and drugs	• Stigma added to triggers	• Communication with health care providers about the impact of psychiatric medications on sexual health and risk behaviors
Reinforce behavior changes made between intervention sessions and post-intervention	• Relapse prevention • Goal maintenance	• Homework to address peers and sexual partners	• Homework to address family and relatives • Song with lyrics about safer sex, social responsibility and maintenance of a healthier/safer sexuality

Table 4

Key findings from ethnographic methods with Brazilian SMI and caregivers that guided adaptation of the HIV prevention intervention for psychiatric patients in Brazil

Patients' risk behaviors	The institutional setting	Intervention content	Intervention format and delivery strategies
• Patients are sexually active. • Patients have knowledge of HIV and risk behaviors. • Patients use condoms infrequently. • Patients are subject to SMI stigma, which may increase their HIV risk.	• There are no explicit policies regarding sexual behavior. • Mental Health Care Providers (MHCPs) address HIV prevention idiosyncratically; there is need for training and for systematic HIV prevention interventions. • Patients' sexuality tends to be viewed by MHCPs as connected to psychiatric instability and not as a normal human behavior; communication with MHCPs about safer sex/sexuality must be addressed.	• Patients are comfortable talking about sex and want to learn HIV prevention skills. • Patients want to learn about HIV testing. • Stigma about homosexuality and about people living with HIV/AIDS must be addressed. • Gender roles must be addressed. • Patients can and want to function as prevention agents; the intervention should include the locally valued prevention message of "social responsibility" and communication with other patients and staff. • Patients feel excluded from romantic relationships; families are key in promoting safer and healthier sexuality and in intervention participation; how to communicate with relatives about intervention content and participation must be included. • Religious and other beliefs (e.g., "magical thinking") regarding HIV risk must be addressed. • Sexual violence and "desperation sex" (i.e., sex trading and sex work) must be addressed.	• Patients requested a closed-group intervention (no new members after group begins), with anywhere from 6–10 weekly sessions, including men and women together. • Patients expected the intervention would use interactive approaches (including movement and music) and exercises that increase knowledge, motivation and prevention skills acquisition. • MHCPs and patients chose the content of the control intervention: common chronic medical conditions that are comorbid with psychiatric illness.