

Gay Identity, Interpersonal Violence, and HIV Risk Behaviors: An Empirical Test of Theoretical Relationships Among a Probability-Based Sample of Urban Men Who Have Sex With Men

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The highest absolute number of new HIV infections and AIDS cases still occur among men who have sex with men (MSM). Numerous theoretical approaches have been used to understand HIV risk behaviors among MSM; however, no theoretical model examines sexual risk behaviors in the context of gay identity and interpersonal violence. Using a model testing predictive correlational design, the theoretical relationships between childhood sexual abuse, adverse early life experiences, gay identity, substance use, battering, aversive emotions, HIV alienation, cue-to-action triggers, and HIV risk behaviors were empirically tested using confirmatory factor analysis and structural equation modeling. The relationships between these constructs are complex, yet childhood sexual abuse and gay identity were found to be theoretically associated with HIV risk behaviors. Also of importance, battering victimization was identified as a key mediating variable between childhood sexual abuse, gay identity, and adverse early life experiences and HIV risk behaviors among urban MSM.

Key words: *battering, gay identity, childhood sexual abuse, gay/bisexual men, structural equation modeling*

Modifying HIV sexual risk behaviors is a complex challenge for persons at risk for HIV. Not only are there interpersonal challenges and life experiences to overcome but also social, psychological, and cultural obstacles to surmount to change and sustain behavior (DiClemente & Peterson, 1994). Since the beginning of the AIDS epidemic in the United States, the largest number of AIDS cases has been among men who have sex with men (MSM)—an epidemiologic risk category encompassing gay and bisexual men as well as self-identified heterosexual men who have sex with other men (Centers for Disease Control and Prevention, 2002).

In response to the epidemic, gay men have significantly modified sexual behaviors to reduce risk

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(Becker & Joseph, 1988; Hospers & Kok, 1995; McKusick, Hoff, Stall, & Coates, 1991; Stall, Coates, & Hoff, 1988). However, the modification of behavior change is inconsistent in MSM outside of the large AIDS epicenters (Kelly, St. Lawrence, Betts, Brasfield, & Hood, 1990; Kelly, St. Lawrence, Brasfield, et al., 1990), in young MSM (Kegeles, Hays, & Coates, 1996; Lemp et al., 1994; McAuliffe et al., 1999; Osmond et al., 1994; Rotheram-Borus, Reid, & Rosario, 1994; Valleroy et al., 2000), and in MSM of color (Carballo-Diequez & Dolezal, 1996; Peterson et al., 1992; Ramirez, Suarez, de la Rosa, Castro, & Zimmerman, 1994). Furthermore, maintenance of modified sexual behaviors associated with decreased risk is also a significant problem for all MSM (Adib, Joseph, Ostrow, & James, 1991; Ekstrand & Coates, 1990; Miller, 1995).

Theoretical Perspectives

Current epidemiologic evidence demonstrates the need for new approaches to prevent HIV among MSM. To be effective, prevention programs must incorporate a new understanding of the multiple levels of causation associated with the spread of HIV (Cates, 1995). Hospers and Kok (1995) recommended the use of theories that explain behavior or behavior change in the conduct of HIV-prevention research among MSM. Further supporting the use of theory in HIV prevention, Fisher and Fisher (1992) concluded that theory-based prevention interventions have the greatest impact on risk behavioral modification.

Therefore, the purpose of this study was to enhance the understanding of the critical psychosocial and behavioral variables that influence HIV sexual risk behaviors in MSM in the context of gay identity development and interpersonal violence (childhood sexual abuse and battering). It was hypothesized that gay identity and childhood sexual abuse were directly related to HIV risk behaviors. In addition, it was hypothesized that these relationships were mediated by the effects of substance use, battering, aversive emotions, cue-to-action triggers (CTAT), and HIV alienation.

The proposed theoretical model has significant potential as a middle-range theory for HIV risk

behavior modification in MSM. Middle-range theories are important to nursing science as guides to the conduct of research while providing the basis for effective intervention (Lenz, Suppe, Gift, Pugh, & Milligan, 1995). Using an approach described by Walker and Avant (1995), the proposed theoretical model was the result of a theory synthesis that was aimed at constructing theory from empirical evidence where the synthesized relationships were depicted in graphic form. Consequently, knowledge generated from this conceptual causal modeling can be used to design theory-based HIV-prevention interventions for MSM.

Literature Supporting the Model

In a population-based study of MSM ($N = 2,881$), one fifth had been sexually abused, primarily by nonfamily perpetrators (Paul, Catania, Pollack, & Stall, 2001). Childhood sexual abuse has been related to adverse mental health consequences including depression, anxiety, and suicide (Carballo-Diequez & Dolezal, 1995; Jinich et al., 1998; Relf, 2001a; Strathdee et al., 1998) as well as problems with sexual identity development (Bartholow et al., 1994; Lisak, 1994; Relf, 2001a). In addition, childhood sexual abuse has been demonstrated to increase the probability of engaging in high-risk sexual behaviors associated with sexually transmitted diseases and HIV (Carballo-Diequez & Dolezal, 1995; Lenderking et al., 1997; Paul et al., 2001; Relf, 2001a). Similarly, a gay identity, gay community participation and affiliation as well as internalized homophobia have also been demonstrated to increase HIV risk behaviors (Kegeles et al., 1996; Stokes & Peterson, 1998).

Heavy alcohol use, past alcohol problems, and current drug use have been associated with engaging in unprotected anal intercourse among MSM (Molitor, Facer, & Ruiz, 1999; Stueve et al., 2002; Woody et al., 1999). Furthermore, substance use, whether alcohol or drug, has also been shown to be related to engaging in group sex (Sowell, Lindsey, & Spicer, 1998) and HIV seroconversion (Chesney, Barrett, & Stall, 1998; Lemp et al., 1994).

In a like manner, depression has been demonstrated to increase risk for engaging in high-risk sexual behaviors associated with sexually transmitted diseases and

HIV (Meyer & Dean, 1995; Strathdee et al., 1998). One factor potentially associated with depression among MSM is the issue of HIV alienation—feeling alienated from the gay community due to one's HIV status, whether positive or negative, and having difficulty telling other gay men about one's HIV status. Although conceptually important, the relationship between HIV alienation, aversive emotions, and HIV risk behaviors has not been empirically explored in the literature. Further increasing the potential for depression among MSM is the impact of the disease within their social networks. Frequently, MSM have experienced significant AIDS-related deaths as a mere consequence of epidemiologic concentration of the disease (Mallinson, 2001). In addition, MSM encounter caregiving responsibilities for a partner, boyfriend, friend, or family member who is living with HIV/AIDS. Often, caregiving and AIDS-related deaths result in depression and other emotional responses (Mallinson, 2001). Experiencing AIDS-related deaths and caring for persons with HIV, both of which are potential CTAT, have been found to be associated with both sexual risk reduction and increased risky behaviors associated with HIV (Becker & Joseph, 1988; Gilbert et al., 2000; Morris, Zavisca, & Dean, 1995). Therefore, the impact of these important CTAT on sexual risk behaviors is not clearly understood.

In a multicity, probability-based sample of urban MSM ($N = 2,881$), 1 in 5 men had been physically battered by a boyfriend or male intimate partner during the previous 5 years, while 1 in 20 men had been forced to have sex (sexually battered) (Greenwood et al., 2002). In the context of battering victimization, where the potential for victimization is an ongoing threat, negotiating sexual risk reduction becomes an even more complicated process (Greenwood et al., 2002; Relf, 2001b). Among MSM, the correlates of battering victimization include experiences with childhood sexual abuse (Nieves-Rosa, Carballo-Dieguez, & Dolezal, 2000), substance use (Nieves-Rosa et al., 2000; Zierler et al., 2000), and internalized homophobia (Zierler et al., 2000). The outcomes of battering include rape (Tjaden, Thoennes, & Allison, 1999), unwanted anal penetration (Waldner-Haugrud, Vaden Gratch, & Magruder, 1997), and HIV seroconversion (Merrill & Wolfe, 2000; Nieves-Rosa et al., 2000).

Method

Research Design

The study design used a cross-sectional, predictive correlational design. A structural equation modeling (SEM) approach was used to test the proposed theoretical model. In addition, this study was a secondary analysis of the Urban Men's Health Study (UMHS)—a large, probability sample of MSM from four large metropolitan U.S. cities (San Francisco, New York, Los Angeles, Chicago) recruited between November 1996 and February 1998.

Instrument Development and Pilot Testing

Through a 6-month iterative process, using qualitative and quantitative procedures developed by Cannell, Oskenberg, Kalton, Bischooping, and Fowler (1989), a final questionnaire was developed that was found to be relevant to the parent UMHS study (J. Catania, personal communication, May 18, 2000). Through forward-backward-forward translation, a Spanish version of the study instrument was developed and found to possess content-related validity as well as cultural relevance and sensitivity by a bilingual, multiethnic Latino panel of experts with content expertise.

Sampling Design

The overall goal of the sampling design for the UMHS study was to maximize the representativeness of the sample in each city while minimizing the cost of locating MSM. To obtain the probability-based sample of MSM for this study, geographic maps of each of the four cities were developed to identify densities of MSM households. The density maps were constructed using data on each city's distribution of cases of AIDS among MSM and MSM/injection drug users, addresses from an MSM commercial mailing list, 1990 census data on MSM partnered households (unmarried male partner households), locations of businesses/services frequented by MSM, and areas designated as MSM neighborhoods by informants in each city (Binson et al., 1996).

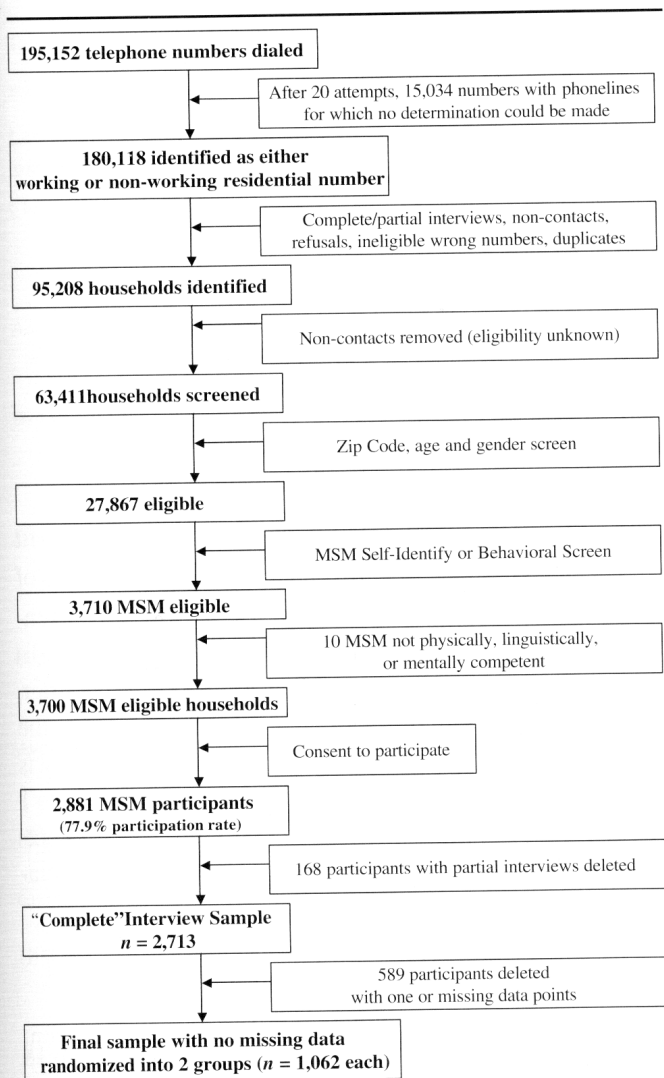


Figure 1. Sampling Design

After the density maps of each city were obtained, a random-digit-dial sample frame was constructed. In the four cities, more than 195,000 telephones were dialed in areas with high, moderate, and low densities of MSM using probability sampling methods yielding the final sample of 2,881 MSM. Figure 1 represents the sampling design used in the parent UMHS.

Sample Size and Power

Due to the complexities and requirements for complete data in SEM, it was necessary to delete all study participants with incomplete or missing data (Cohen & Cohen, 1983). Initially, participants identified as partial interviews ($n = 168$) were deleted from the total

sample ($N = 2,881$) leaving 2,713 individuals who were considered "complete interviews." Although 2,713 were identified as complete interviews, an additional 589 were missing one or more data points required for conducting the confirmatory factor analysis and SEM and subsequently were deleted from the analysis using listwise deletion procedures.

The characteristics of the participants who completed the interview with no missing data points essential to the analysis ($n = 2,124$) and those with one or more missing data points ($n = 757$) were carefully analyzed to determine differences. Although there was no difference between the two groups based on age, race/ethnicity, city of residence, education, employment status, or income, three important differences were identified.

First, more non-gay identified MSM were deleted than gay identified MSM ($p < .001$). Second, individuals who were "out" as gay MSM for less than 1 year were more likely to have missing data than individuals who had been out for 2 years or more ($p < .001$). Third, men with missing data were more likely to have never been tested for HIV ($p < .001$) than men with complete data. Although these differences are important, it is not surprising that non-gay identified MSM, men out for a shorter period of time, and men not knowing their HIV status were deleted.

A power calculation program for SEM developed by MacCallum, Browne, and Sugawara (1996) was used to determine the power to detect the fit of the model using the root mean square error of approximation (RMSEA)—one method of determining fit of a model in SEM. As a result of this power calculation, the power to determine the fit of the model based on RMSEA with a sample of 1,062 individuals approximated 1.0. Therefore, despite the elimination of participants with partial interviews ($n = 168$) and participants with missing data points critical to the analysis ($n = 589$), the final sample of individuals with no missing data points was sufficient to determine the fit of the data to the measurement and structural models.

Data Analysis

All variables in the proposed theoretical model were examined separately using descriptive statistics. To test the proposed theoretical model, confirmatory factor analysis and SEM analyses were conducted

Table 1. Data-Model Fit Indices

Criterion	Acceptable Level	Interpretation
Goodness-of-fit χ^2	NS	NS: no difference between observed and estimated matrices
Comparative fit index	0 (no fit) 1 (perfect fit)	≥ 0.90 reflects a good model fit
Tucker-Lewis Index	0 (no fit) 1 (perfect fit)	≥ 0.90 reflects a good model fit
Root mean square error of approximation, 90% CI	0 (perfect fit) 0.1 (acceptable fit)	point index and 90% CI < 0.05, very good fit

SOURCE: Hu and Bentler (1995), Loehlin (1998), Schumacker and Lomax (1996).

using M-Plus (Versions 1.03 and 2.0; Muthen & Muthen, 1998; Muthen & Muthen, 2001).

SEM allowed for testing causal relationships in the proposed model by examining relationships between constructs as well as by examining the exogenous predictors of childhood sexual abuse, gay identity, and adverse early life experiences. In addition, this approach allowed for testing the effects of the proposed mediating constructs of substance use, battering, aversive emotions, HIV alienation, and CTAT.

To increase confidence in the replicability of the model, Hoyle and Panter (1995) recommended cross-validating the model. Therefore, prior to determining the fit of the measurement and structural models, the participants with complete data ($n = 2,124$) were randomly split into two equal groups of 1,062 individuals so that the stability of the measurement and structural model could be cross-validated. When comparing the two random samples, there were no significant differences in years out, income, employment status, HIV status, age, relationship status, self-identified sexual orientation, race/ethnicity, city of residence, and education. Thus, cross-validation of the measurement model (using confirmatory factor analysis) and structural model (using structural equation modeling) were conducted using the two random samples.

Method for Determining Model Fit

To determine the fit of the measurement and structural models, the goodness-of-fit chi-square (χ^2), RMSEA, Tucker-Lewis Index, and comparative fit index were evaluated. The goodness-of-fit χ^2 provides a usual basis for making decisions about the fit of a

model (Loehlin, 1998). However, the goodness-of-fit χ^2 is sensitive to larger sample sizes. In sample sizes of more than 200, as in this study, the χ^2 test has a tendency to indicate a significant probability level indicating that the data do not fit the model (Hu & Bentler, 1995; Schumacker & Lomax, 1996). Therefore, the RMSEA, comparative fit index, and Tucker-Lewis Index were used to determine fit of the model. Table 1 provides an overview of the fit indices, their acceptable ranges, and the critical cutoffs used for interpretation in this study.

Results

The participants in this study ranged in age from 18 to 86 years (mean = 39.5), were ethnically diverse (21% of the sample were MSM of color), and highly educated (71% had at least some college education or a college degree). Eighty-four percent of the sample self-identified as "gay" whereas 9% self-identified as bisexual. Three percent self-identified as heterosexual, yet reported having sex with other men, and 4% "did not like labels" associated with sexual identity.

In regard to the measurement model, the factor loadings identified from the confirmatory factor analysis are presented in Table 2. Although not all of the manifest indicators had a factor loading of ≥ 0.3 as recommended by Gorsuch (1983), the measurement model was accepted due to three important considerations. First, the measurement model converged with all a priori hypothesized manifest variables included after the natural log transformation (due to skewness) of the manifest variables composing the CTAT construct. Second, as conceptualized a priori, all manifest

Table 2. The Measurement Model

Latent Variable	Manifest Variable	Factor Loading	Factor Loading
		Random Sample 1 (<i>n</i> = 1,062)	Random Sample 2 (<i>n</i> = 1,062)
Childhood sexual abuse	Age of first abuse	0.898	0.895
	Number of abusive episodes	0.941	0.947
	Type of abuse	0.885	0.918
	Use of force	0.743	0.738
Adverse early life experiences	Witnessing parental physical violence	0.534	0.551
	Experiencing physical abuse by parent	0.870	0.692
	Experiencing verbal abuse by parent	0.168	0.152
Gay identity	Gay community participation	0.453	0.427
	Gay community affiliation	0.650	0.713
	Years "out"	0.381	0.280
	Self-identified sexual orientation	0.415	0.316
Substance use	Heavy drinking	0.242	0.319
	Problems with alcohol use	0.447	0.449
	Sex with male while under the influence	0.734	0.643
	Number of drugs used	0.681	0.682
Battering	Physical violence	0.702	0.703
	Sexual violence	0.332	0.359
	Psychologic/symbolic abuse	0.631	0.710
Aversive emotions	Depression	0.636	0.724
	Well-being	0.762	0.654
	Suicidality	0.314	0.322
HIV alienation	Outsider due to HIV status	0.741	0.709
	Difficulty disclosing HIV status	0.601	0.640
Cue-to-action triggers	Number died from HIV in social network	0.561	0.644
	Number cared for with HIV in social network	0.522	0.498
HIV risk behaviors	Unprotected receptive anal intercourse	0.631	0.649
	Unprotected insertive anal intercourse	0.855	0.855
	Unprotected anal intercourse, nonprimary partner	0.733	0.763
Fit indices of the measurement model	Goodness-of-fit χ^2	893.04,	914.673,
		<i>df</i> = 314, <i>p</i> < .0001	<i>df</i> = 314, <i>p</i> < .001
	Comparative fit index	0.924	0.924
	Tucker-Lewis Index	0.908	0.908
	Root mean square error of approximation, 90% CI	0.042 (0.039 to 0.045)	0.042 (0.039 to 0.046)

variables were theoretically important and thus essential to the model. Third, the measurement model had acceptable fit indices using three different methods to determine model fit (see Table 1).

After identification of the measurement model using confirmatory factor analysis, the structural model was tested for fit using SEM with the two random samples allowing for cross-validation of the model. The final fitted structural model is presented in Figure 2. Overall, the final fitted structural model explained between 17.5% and 20.3% of the variance associated with HIV risk behaviors. Except for the

path between childhood sexual abuse and substance use and the path between adverse early life experiences and battering, the path estimates were consistent across the two random samples demonstrating stability of the identified model.

Limitations

Regardless of the strengths of the sample methodology, surveys of gay and bisexual populations can be criticized because, lacking a gold standard by which to judge the sample obtained, it is not possible to estimate

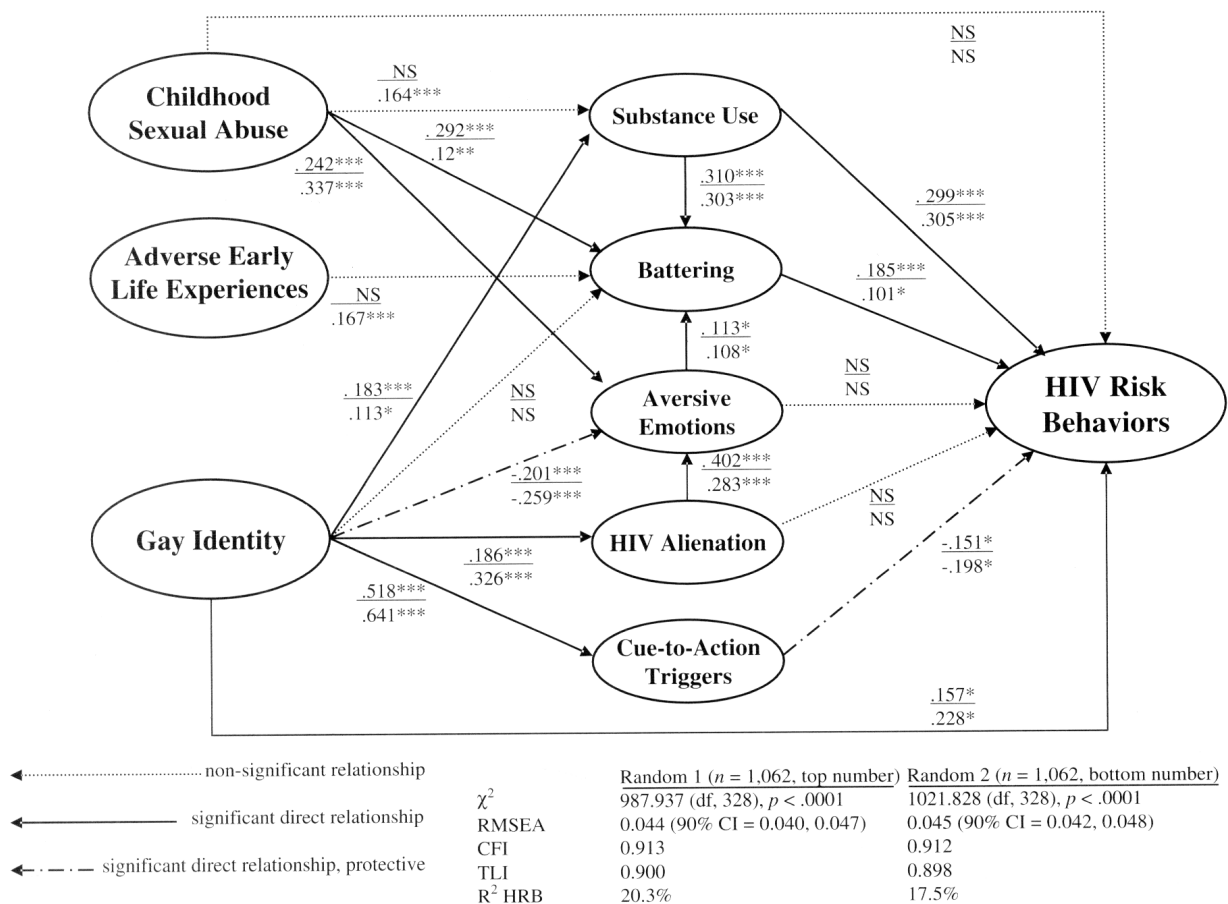


Figure 2. The Final, Fitted Structural Model

how true the nature of the sample. The results presented in this article are from a secondary analysis of the UMHS data set. Consequently, as in all secondary data analyses, conceptualization and analyses are limited by the available data. However, the data set used for these analyses used a probability sampling design that yielded an ethnically diverse, age-diverse sample. However, it is estimated that this sample underestimates the extent of the size of the ethnic minority population of MSM and likely, the very wealthy and very poor.

In addition, results of this study may be limited due to the elimination of 757 participants of the UMHS data set who were partial interviews or missing one or more data points. As previously discussed, the individuals who were eliminated were more likely to be non-gay identified, out for shorter periods of time, and never tested for HIV. However, as McCarn and Fassinger (1996) suggested in their model of gay identity development, an individual gay-identity

recognition and acceptance precedes community-identity development, which may account for some of the missing data points essential to the analysis. Because the non-gay identified MSM (bisexual, heterosexual, do not like/use labels) did not self-identify as gay, but reported engaging in sex with other men, it is reasonable to presume that these men did not identify with the gay-identity questions, participate in gay activities, or understand or accept questions about gay orientation/ lifestyles. Similarly, newly out gay men were still establishing their individual gay identities and may not have connected with or been able to answer questions about involvement with or connection to the gay community. Finally, the men who never tested for HIV were more likely to be non-gay identified and younger than the age of 30 (therefore out for a shorter period of time) and thus, may not have been able to relate to or answer all questions in the survey for the reasons previously cited. Despite these differences, a final sample of 2,124 MSM who had been

originally identified to participate in UMHS had all data points essential to the analyses and was included in the final sample for testing the measurement and structural models.

Discussion of Results

It is important to note that no model used in HIV prevention places HIV risk behaviors of MSM in the context of gay identity and interpersonal violence. Consequently, the results of this study expand the conceptual basis of the existing theories used in HIV prevention and offer new insight into factors associated with HIV sexual risk behaviors among MSM.

Battering

Battering victimization was identified to significantly influence engaging in high-risk sexual behaviors among this urban probability sample of MSM. In the context of battering, negotiating safer sex is complicated when the perpetrator uses coercion, intimidation, and threat of violence either physical or sexual. Often, perpetrators tailor the abuse to the specific vulnerabilities of the partner (Renzetti, 1992) and will use whatever means of coercion or control is available to them to dominate and control (Lettelier, 1996). Gay and bisexual men, just like other batterers, are ingenious in choosing their weapons of control (Lettelier, 1996).

As a battered victim, attempted conversations about safer sex or insistence on using a condom may become "triggers" for battering-related violence (Jacob, 1993). Consequently, the ability to negotiate safety and to implement HIV risk-reduction strategies is altered in the context of battering where coercion and control impede equal communication and negotiation between two persons. Therefore, professionals who work with MSM in HIV-testing and counseling programs and sexually transmitted disease clinics need to routinely screen for battering victimization.

Recent research by Zierler et al. (2000) and Greenwood et al. (2002) demonstrates that an HIV-seropositive status increases the likelihood for violence victimization in MSM. Thus, HIV risk-reduction programs that offer prevention education, outreach, and

risk-reduction skill building also need to discuss the potential for violence victimization and personal safety strategies. Also important, when there is a diagnosis of repeat sexually transmitted diseases among MSM, it becomes paramount to assess for battering victimization because this could be a clue that negotiating safety is not possible due to threat of or actual violence victimization. Finally, when HIV-positive results are discussed, it is essential to address safety issues when discussing partner notification and future safer sex negotiation.

Gay Identity

The findings of this study provide empirical support that gay identity is related to HIV risk behaviors in MSM—both directly and indirectly through substance use, battering, aversive emotions, and HIV alienation. Joseph, Adib, Joseph, and Tal (1991) identified that among men in the Multicenter AIDS Cohort Study—a sample of mostly White, middle-class, well-educated, urban self-identified gay men in their 30s—stronger positive attitudes toward one gay identity were associated with higher risk behaviors. Similarly, this study also found that a positive gay identity, as measured by gay community affiliation and participation, as well as self-identification and being out, were directly related to HIV risk behaviors and indirectly related to HIV risk behaviors through the substance use and HIV alienation→aversive emotions→battering pathways.

Although gay identity was directly related to HIV risk behaviors, the younger MSM in this study (younger than the age of 30) engaged in unprotected anal intercourse (insertive and receptive) at rates much higher than their older counterparts ($\chi^2 = 14.21$, $df 1$, $p < .001$), supporting what has previously been identified in the literature (Centers for Disease Control and Prevention, 2002; Kegeles, Hays, Pollack, & Coates, 1996; McAuliffe et al., 1999; Molitor et al., 1999; Valleroy et al., 2000). It is during the earlier "explorative" stages of gay-identity development, where gay identity is narrowly viewed and attached almost exclusively to sexuality and sexual expression, that individuals exploring their sexuality while coming out are more likely to engage in higher-risk sex (Cass, 1979; Joseph et al., 1991).

Among the young MSM in this study, 77.7% self-identified as gay and 38.4% reported being out for less than 5 years. Among these young MSM, 30.9% engaged in unprotected receptive anal intercourse and 38.2% engaged in unprotected insertive anal intercourse. These findings are similar to the results of the Young Men's Study conducted in seven U.S. cities (Valleroy et al., 2000). These findings may suggest that these young men have not transcended their individual identities related to being "gay" to include a more broadly defined identity including community identification as well as a view of self as "gay" in various social contexts.

Among the older MSM in this study (older than the age of 30), increasing age had a protective effect on reducing substance use, battering victimization, and aversive emotions. Consequently, increasing age may be related to reductions in HIV risk behaviors. Once an individual combines same-gender desire and love into his overall identity (McCarn & Fassinger, 1996), group membership or gay-community identity unfolds. With age, the individual gay identity evolves and develops to include group membership activities. Consequently, there is potential for MSM to become involved in gay community activities beyond bars, dance clubs, and circuit events and to become more affiliated with the gay community. Hence, a high degree of social support from the gay social network may lead to developing HIV risk-reduction behaviors (Joseph et al., 1991).

However, for MSM of color, gay-identity development and acceptance often conflicts with the native culture (Paradis, 1997), the cultural values of the dominant heterosexual family (Trankina, 1983), and societal racism (Icard, 1986; Loiacano, 1993; Paradis, 1997). Overall, the urban MSM of color in this study were more likely to identify as nongay, participate in fewer gay activities, reside outside of the "gay neighborhood" and were out for shorter periods of time. These findings support several authors' claims that MSM of color are less likely to be part of a gay community and experience conflicting "dual-identities" (Doll & Becker, 1996; Peterson, 1992; Stokes & Peterson, 1998; Wold et al., 1998).

Consequently, these men have to internally manage competing personal-identity issues as well as external pressures from the family, the church, and friends (Icard, 1993; Loiacano, 1993; Paradis, 1997). As a

result, some MSM of color may live life maneuvering in different social circles trying to "fit in" as best as possible while struggling to cope with competing and often conflicting identities. For example, an African American man who has sex with men may identify as an African American gay man, as a gay African American man, as bisexual, or even as heterosexual. In the first example, the predominant identity is with being African American and then with being gay. In the second example, he first identifies as gay and then African American. Yet others might identify as African American and heterosexual although behaviorally engaging in sex with men. In this instance, conflicts between sexual identity, gender role expectations, and cultural beliefs arise. Consequently, for these men, living on the "down low" is a mechanism to manage these conflicting expectations. This scenario may also exist for Hispanic, Asian/Pacific Islanders, and Native American men. Hence, to fulfill the human need for intimacy, while coping with the internal and external pressures of society, the mediating roles of substance use, aversive emotions, HIV alienation, and battering victimization become evident.

The non-gay-identified MSM in this study did not perceive a high degree of affiliation with the gay community or engage in gay community activities. Therefore, they may not be accessing HIV-prevention messages targeting MSM. Consequently, prevention messages for these MSM must be delivered outside of the venues predominantly frequented by gay-identified MSM (such as gay bars, dance clubs, restaurants, and coffee shops). To prevent HIV infection among non-gay-identified MSM, the Internet and venues such as bath houses, public parks, and venues with MSM cruising areas as well as hustlers must be targeted (Doll & Becker, 1996; Heckman et al., 1995; Peterson et al., 1992; Reitmeijer, Wolitski, Fishbein, Corby, & Cohn, 1998).

Substance Use

A significant number of these urban men, from 28.1% for the non-gay-identified MSM to 41.7% for Anglo-MSM, engaged in sex under the influence of alcohol/drugs in the 30 days prior to participating in this study. Consequently, substance use was found to be a significant mediator between gay identity and HIV risk behaviors. In addition, substance use led to

battering victimization, which was linked to engaging in HIV risk behaviors. As a consequence of substance use, decision-making processes, communication and negotiation skills, inhibitions, and the inability to resist temptation or resist coercion are altered, affecting the chance of engaging in HIV sexual risk behaviors. Results of this study are similar to those found in the literature in which substance use has been shown to be related to unprotected anal sex, failure to resist temptation or coercion, engaging in group sex activities, and HIV seroconversion (Chesney et al., 1998; de Wit, Teunis, van Griensven, & Sandfort, 1994; Lemp et al., 1994; Molitor et al., 1999; Paul, Stall, & Davis, 1993; Relf & Rose, 1995; Sowell et al., 1998; Woody et al., 1999).

Among gay men, social alcohol use is closely related to gay culture and lifestyle. Similarly, illicit drugs (particularly Ecstasy, ketamine, and cocaine) are also connected to the current "gay culture," especially among men participating in circuit party events. Therefore, MSM who engage in substance use should be encouraged to modify behaviors to prevent HIV disease. For MSM with addiction problems, participation in support groups focusing on drug and alcohol treatment, such as Alcoholics Anonymous and Narcotics Anonymous, is essential.

Aversive Emotions

Among this ethnically diverse sample of urban MSM, however, aversive emotions were not found to be related to HIV risk behaviors. However, whether compounded by low self-esteem, ineffective conflict resolution, inadequate communication skills, or low self-efficacy, aversive emotions increased the risk of battering victimization, which in turn increased the likelihood for engaging in HIV risk behaviors. In addition, although there was no direct relationship between childhood sexual abuse and HIV risk behaviors, aversive emotions and battering victimization indirectly mediated this relationship.

Similarly, being alienated from the gay community, due to either a positive or negative HIV status or having a difficult time disclosing a positive or negative HIV status, led to HIV-associated alienation in this sample. For MSM who have experienced childhood sexual abuse, experiencing negative mental health consequences, including depression later in life, has

been reported in the literature (Kuhn, Arellano, & Chavez, 1998; Relf, 2001a; Strathdee et al., 1998). However, childhood sexual abuse compounded by aversive emotions increased the risk for battering victimization leading to HIV risk behaviors, findings similarly identified in women who were sexually abused during childhood (Whitmire, Harlow, Quina, & Morokoff, 1999). Overall, these urban MSM experienced aversive emotions due to childhood sexual abuse and HIV alienation leading to an increased risk for battering victimization and engaging in HIV risk behaviors.

Cue-to-Action Triggers

As theorized in the health belief model (Rosenstock, Strecher, & Becker, 1994), CTAT can prompt or trigger an individual to adopt or maintain HIV risk-reduction behaviors. In this study, CTAT were conceptualized differently than originally proposed by Rosenstock et al. (1994). CTAT, operationalized to include caring for someone with HIV/AIDS or knowing someone who died from AIDS, were identified to have a protective effect between gay identity and HIV risk behaviors for these urban MSM. Among participants in this study who had a strong gay identity, they were exposed to CTAT that resulted in decreased sexual risk behaviors.

Conclusion

The findings from this study provide empirical evidence that childhood sexual abuse and battering victimization are associated with HIV risk behaviors in urban MSM. This study also provides empirical evidence as well as an understanding of the theoretical causal relationships between childhood sexual abuse, gay identity, substance use, battering, aversive emotions, HIV alienation, CTAT, and HIV risk behaviors in MSM.

The middle-range theory of sexual risk behaviors identified in this study yielded important findings, helping to place HIV risk behaviors of MSM in a social context unique to them. Alone, it is not sufficient to guide future research, however. As a stand-alone model, the final fitted structural model did not explain a large amount of the variance for HIV risk

behaviors in the two random samples (17.5% and 20.3%, respectively).

However, the findings from this study substantively advance the science of HIV prevention in MSM. Most HIV-risk models tested among MSM have not included gay identity and battering, which are important risk factors to consider in research and prevention programs. The significant variables studied in this research should be incorporated into the other theoretical models used to conduct HIV prevention research and to design HIV prevention interventions targeting MSM. Therefore, further research is needed to explore the theoretical relationships identified in this study as well as the prevention interventions associated with the factors related to HIV risk behaviors among this probability-based sample of urban MSM. In addition, based on the results of this study, further research is needed to test theoretically based prevention interventions.

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