Factors associated with sexual risk of HIV transmission among HIV-positive Latino men who have sex with men on the U.S.-Mexico border

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Abstract

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We present results from a cross-sectional, clinic-based survey of border-region Latino men who have sex with men (MSM) who are living with HIV. Among the 66 participants who reported potentially serodiscordant anal or vaginal intercourse, we examined levels of psychological distress and substance use and the association of these variables with condomless sex. Bivariate analyses indicated that MSM who reported sexual risk behavior were significantly more likely to report higher scores on measures of anxiety, depression, and trauma. They were also significantly more likely to report more days of alcohol use to the point of intoxication. In multivariate logistic regression, no variables were independently associated with sexual risk behavior, but symptoms of anxiety trended toward significance. Our study is one of few reports aimed at understanding the HIV epidemic among Latino MSM living with HIV in the border region. We found no evidence of a relation between our measures of psychological distress and substance use and sexual risk behavior in multivariate analyses. However, psychological distress and problematic alcohol use were common in the sample and are important targets for intervention in their own right.

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INTRODUCTION

In the United States (U.S.), men who have sex with men (MSM) continue to shoulder a disproportionate burden of the HIV epidemic. MSM constitute only 2% to 4% of the U.S. population [1-3], but account for 68% of new HIV cases [2] and 54% of people living with HIV (PLWH) [1,4,5]. Transmission of HIV in this population occurs primarily during anal sex [6,7].

Among MSM, Latinos appear to be particularly affected. Across the U.S., Latino MSM acquire HIV at 3 times the rate of Whites, second only to African Americans [4,8].

Surveillance studies also suggest that a large proportion of HIV incidence among Latino MSM occurs regionally along the border with Mexico. More than half of Latinos in the U.S. reside in the four border states [9]. Among all Latinos, MSM account for 69% of new HIV cases [10] and, in the border region, 63% of HIV cases are attributed to male-to-male sexual contact [11]. Curbing transmission among Latino MSM is therefore critical to preventing HIV along the U.S.-Mexico border, where researchers have warned about the potential for a regional explosion in the epidemic [12,13].

Research has yet to establish the burden of psychological distress and substance use among Latino MSM living with HIV along the border and its possible effects on their sexual risk behavior. In general, PLWH exhibit marked psychological resilience [14]. However, psychological distress is more prevalent among PLWH who are MSM than other PLWH and is associated with a set of behavioral factors that likely contribute to forward transmission of the virus [15,16].

Psychological distress has been associated with worse health outcomes as well as increased sexual risk behaviors [17-27]. MSM living with HIV in particular have a higher frequency of depression and childhood sexual abuse, which are both related to subsequent sexual

risk and substance use [14,28,29]. Substance use itself has also been associated with sexual risk behavior among MSM in general and Latino MSM specifically [30-38]. One study showed depressive symptoms to account for approximately 14% of the variance in sexual risk among Latino MSM [23].

In the current study, we present results from a cross-sectional, clinic-based survey of border-region Latino MSM living with HIV. We examine their level of psychological distress and substance use and their impact on sexual transmission risk (i.e., condomless anal sex with potentially serodiscordant partners). Ultimately, our aim is to elucidate factors that might inform HIV prevention efforts among this vulnerable group who bear the brunt of the regional epidemic.

METHODS

Procedures

This study was part of an intervention trial evaluating a cognitive-behavioral treatment program for depression and HIV medication adherence [39]. The research site was a community health center that offers HIV services in the border city of El Paso, Texas, just opposite Ciudad Juárez, México.

Participant recruitment involved the placement of posters and handouts in the clinic waiting room, exam rooms, and at the clinic front desk encouraging patients to inquire about the study. Clinicians and other clinic staff could also refer patients directly. Eligible participants were (1) over 18 years of age, (2) HIV-seropositive, (3) able to speak either English or Spanish, and (4) on antiretroviral therapy (ART) for at least 30 days. Study staff obtained written informed consent after confirming eligibility and describing the survey protocol to all interested patients. All procedures were approved by the Institutional Review Boards at [institutions redacted to remove clues about identity of authors], and by the clinic administration.

Enrolled participants completed a 1-hour, pencil-and-paper survey, the first part of which was administered by research assistants. Participants were assessed in their preferred language. Each participant was paid $20 [40].

Measures

A certified translator translated all scales from English into the regional Spanish dialect. A second certified translator then independently back-translated the scales. A committee consisting of both the translators and bilingual content experts then reviewed the translations and resolved discrepancies by consensus [41]. All measures described below are well-validated scales commonly used in HIV research and Cronbach alpha scores refer to the present sample (N = 66).

Sociodemographic variables

Sociodemographic variables included: *age*; *gender* (male vs. male-to-female transgender); *number of people living in household*; self-identified *gay sexual identity* (coded as gay vs. not strictly gay); in a committed relationship with a *primary partner* (coded as No vs. Yes); *male primary partner* (No vs. Yes); *length of primary partner relationship* (coded at the median as ≥ 6 years vs. < 6 years); *homeless* (No vs. Yes); *employed* (coded as full or part-time vs. odd jobs or unemployed); *annual household income* (in U.S. dollars); *border crossings* (a count of roundtrip U.S.-Mexico border crossings during the last year); *interviewed in Spanish* (No vs. Yes); *lived in Mexico within past year* (No vs. Yes); *Mexican descent* (No vs. Yes); and *American acculturation* and *country of origin acculturation* (continuous measures).

Homelessness was defined as living in a shelter, group home, or half-way house. Acculturation was measured using the Abbreviated Multidimensional Acculturation Scale (AMAS-ZABB), which was developed to incorporate a bi-dimensional process of acculturation

and validated in two separate Latino samples in both English and Spanish [42]. For each factor in the scale (cultural identity, language competence and cultural competence) the bi-dimensional measurement represents two domains (U.S. acculturation and Latino acculturation). The scale consists of 42 response items ranging from *strongly disagree* (1) to *strongly agree* (4) for the cultural identity subscale and *not at all* (1) to *extremely well/like a native* (4) for the language and cultural competence subscales.

Sexual risk behavior

Participants indicated the number of male and female partners with whom they had anal or vaginal intercourse within the past 6 months. They then reported whether they had a "main, steady or primary" sexual partner, that partner's serostatus (HIV positive, HIV negative, or HIV status unknown), and the number of intercourse events (a) with condoms and (b) without condoms. Participants also indicated the number of casual partners with whom they had sex in the past 6 months who were (a) HIV positive, (b) HIV negative, or (c) HIV status unknown; for each serostatus, participants reported the number of intercourse events (a) with condoms and (b) without condoms.

Sexual risk behavior was defined as any condomless anal or vaginal intercourse with a potentially serodiscordant (i.e., HIV negative or status unknown) partner, whether with a casual or "main, steady or primary" partner. Sexual risk behavior was dichotomously categorized (No vs. Yes) for two reasons. First, counts of sex acts were not normally distributed or amenable to transformation for linear regression. In addition, recent evidence suggests that MSM who report using condoms *sometimes* may be no more protected from infection than those who report *never* using condoms [43].

Depression symptoms

Symptoms of depression were measured using the Beck Depression Inventory (BDI-1A). The BDI-1A consists of 21 multiple-choice items (α = .91 in this study) that measure self-reported depressive symptoms over the past week, including the day of the interview. Response options ranged from 0 to 3. For example, *I do not feed sad* (0), *I feel sad* (1), *I am sad all of the time and I can't stand it* (2), *I am so sad or unhappy that I can't stand it* (3). Item ratings were summed, with possible scores ranging from 0 to 63 and thresholds calculated for minimal (≤ 9), mild (10-16), moderate (17-29) and severe (≥ 30) depression [44,45].

Trauma symptoms

Symptoms of trauma were measured using the Posttraumatic Stress Disorder (PTSD) Symptom Checklist (PCL-C), a 17-item assessment (α = .95 in the study) of the frequency of three posttraumatic stress factors over the past month. The factors correspond to diagnostic criteria B, C and D in the *Diagnostic and Statistical Manual of Mental Disorders IV-TR*: re-experiencing the event, numbing/avoidance, and hyperarousal. Response options ranged from *not at all* (1) to *extremely* (5) [46]. Item ratings were summed, with possible scores ranging from 0 to 85, to indicate a total severity score. The three response categories were also scored to screen for PTSD [47], producing a dichotomous variable of a possible PTSD diagnosis. PTSD criteria A, E and F (detailed assessment of the event, duration of the disturbance, or clinical significance of the disturbance) are not included in the PCL-C and were not assessed in the sample.

Anxiety symptoms

Symptoms of anxiety were derived from the anxiety portion of the Hospital Anxiety and Depression Scale (HADS), a 7-item assessment (α = .88 in this study) which measures current frequency of anxiety-related symptoms (i.e., tense, wound up). Responses for each item ranged

from *not at all* (0) to *very often* (3). Item ratings were summed with possible total scores ranging from 0 to 21. A summary score of 8 or higher was considered to be a positive screen for an anxiety disorder [48].

Alcohol problems

Alcohol problems were assessed with the Alcohol Use Disorders Identification Test (AUDIT). The AUDIT comprises 10 items ($\alpha = .86$) that assess hazardous drinking (frequency and quantity); dependence symptoms (impaired control, morning drinking); and harmful alcohol use (guilt, alcohol related injuries). All items consist of either 3- or 5-point categorical responses, with a total score ranging from 0 to 40. Alcohol problems were dichotomously categorized (No vs. Yes) based on a threshold score of 8 or higher, with additional categories for hazardous use (8 to 14), harmful use (15 to 19), and possible alcohol dependence (≥ 20) [49].

Substance use

Substance use was measured with the Addiction Severity Index-Lite (ASI-Lite) which asks participants to report the number of times each of thirteen different substances (e.g., alcohol, heroin, cocaine) has been used (a) in the past 30 days or (b) in the participant's lifetime (in number of years), and the route of administration [50]. Injection of any substance within a participant's lifetime was dichotomously categorized (Yes or No).

Statistical Analyses

We used *t* tests and chi-square or Fisher's exact tests to compare participants who either did or did not report sexual risk behavior with respect to continuous and categorical sociodemographic, mental health, and substance use variables. Variables associated at $p < .10$ were entered into a multivariate logistic regression model to determine which were independently related to sexual risk behavior. We included *trauma* in the descriptive analyses but

not in the regression model for two reasons: the measures for anxiety and trauma were highly correlated ($r = .80$, $p < .001$); and the *anxiety* measure screens for a broader set of anxiety disorders, including PTSD [48]. We also did not include *time since diagnosis* in the regression, as it was correlated with *age* ($r = .59$, $p < .001$), or *lifetime alcohol use* as it conceptually overlapped with *alcohol use to intoxication within the past 30 days*. All analyses were conducted using SPSS v. 19 (IBM, Armonk, NY, USA).

No participants were missing data on the dependent variable. Six participants were missing 1 response on either the trauma, depression or anxiety measures. One participant was missing 2 responses on the anxiety measure. Missing responses for any items among the independent variables were imputed with the mean across all other scale items. Of those participants whose responses were mean imputed, none differed systematically from the rest of the sample on sociodemographic variables.

RESULTS

Participant Characteristics

Among the 300 participants who completed the survey, we selected only Latino MSM who also reported potential HIV transmission risk (e.g., intercourse with an HIV-negative or HIV status unknown partner). Specifically, of the 241 participants who identified as male or male-to-female transgender, 181 (75.1%) reported either Mexican or Latino identity. Among the 141 of these who reported lifetime sexual contact with men, 98 (69.5%) reported anal or vaginal intercourse in the past 6 months. Among these sexually active HIV-positive Latino MSM, we selected only those who reported potentially serodiscordant intercourse, whether with or without condoms. This resulted in a final analytic sample of 66 MSM, including both male ($n = 64$) and male-to-female transgender ($n = 2$) participants.

As shown in Table I, the sample ranged in age from 21 to 70 years and the average time since diagnosis with HIV was just under a decade (*M*/*SD* = 9.5/6.3). Most participants reported Mexican descent (97%). Over a quarter (27.3%) had lived in Mexico in the past year and more than half (65.2%) chose to be interviewed in Spanish. Most participants reported not working full- or part-time jobs, with nearly half not working at all (45.5%) and just over one-quarter working odd jobs (25.8%). Annual household income was low (*M/SD* = $17,391/$16,572, *mdn* = $10,932). Nearly half reported renting their abode (45.5%) and very few reported living in a shelter or group home (1.5%).

Thirty percent of the sample indicated that they lived alone and over one-quarter reported living with family (28.8%). Forty-one percent of the sample reported "being in a committed relationship with a primary partner," mostly with men (77.8%) and for more than 6 years (57.1%). When later asked about sexual partnerships, just under half (n = 30, 45.5%) reported a "main, steady or primary" sexual partner, few of whom shared the same HIV-positive status (*n* = 2, 6.7%). Of those reporting a main *sexual* partner, the majority reported an HIV-negative main sexual partner (*n* = 22, 73.3%) or a main sexual partner of unknown serostatus (*n* = 6, 20.0%).

Other data not shown in Table I include sexual orientation and gender of lifetime sexual partners. Most of the sample identified toward one end of a 7-point Likert scale on these variables. The majority reported as *only* or *mostly gay/lesbian* (*n* = 45, 68.2%) and far fewer identified as *only* or *mostly heterosexual* (*n* = 8, 12.1%). About one quarter identified in the middle range as *equally* or *somewhat more heterosexual* or *gay/lesbian* (*n* = 13, 19.7%). This corresponded approximately with reports of the gender of lifetime sexual partners. Seventy-nine percent endorsed lifetime sexual contact with *only* or *mostly men* (*n* = 52, 78.8%), and fewer with *mostly women* (*n* = 6, 9.1%) or with *men and women equally* (*n* = 8, 12.1%). By definition,

the sample did not include respondents who reported lifetime sexual behavior exclusively with women.

Sexual Risk Behavior within the Past 6 Months

Of our selected sample of 66 sexually active HIV+ Latino MSM who reported potentially serodiscordant intercourse (i.e., with an HIV-negative or HIV status unknown partner) within the last 6 months, approximately one fifth reported sexual risk behavior (i.e. anything less that completely consistent condom use) (n = 13, 19.7%). More participants (n = 10, 15.2%) reported sexual risk behavior involving a casual sexual partner than a main sexual partner (n = 5, 7.6%). However, the average number of events of sexual risk behavior was lower with casual partners (M/SD = 1.3/4.6) than with main sexual partners (M/SD = 3.1/11.6).

We do not know the gender of participants' sexual partners; however, few of the 66 MSM reported intercourse with women (n = 9, 13.6%) and among these participants the average number of events was quite low (M/SD = 0.2/0.5). Most reported intercourse with men (n = 58, 88.0%) and these participants reported an average of 3 partners within the past 6 months (M/SD = 3.0/6.3).

Mental Health and Substance Use

Findings indicate some level of psychological distress. A significant minority of participants screened positive for PTSD (n = 16, 24.2%); moderate or severe depression (n = 18, 27.3%); an anxiety disorder (n = 24, 36.4%); or alcohol problems (n = 23, 34.8%). Forty percent reported more than "minimal" depression, with 11% reporting mild depression (n = 7) in addition to 23% reporting moderate (n = 15) and 5% reporting severe depression (n = 3).

With respect to substance use, alcohol was the most commonly and frequently used substance in the past 30 days (n = 51, 77.2%, M/SD = 6.5/8.8 days). According to the ASI-Lite,

42% reported use of only alcohol and no other substances in the past 30 days (*n* = 34, 51.2%) and a significant minority of the sample reported use of alcohol to intoxication in the same time period (*n* = 17, 25.8%). According to the AUDIT, alcohol problems were common. Twenty-one percent of participants reported hazardous alcohol use (*n* = 14); several reported indicators of harmful use (*n* = 4, 6.1%) and possible alcohol dependence (*n* = 5, 7.6%).

Use of other substances within the past 30 days was limited and about one-sixth reported not using substances at all (*n* = 11, 16.7%). None of the participants reported using heroin, methadone, barbiturates, amphetamine, or hallucinogens. Only 1 each reported use of other opiates or analgesics (*n* = 1, 1.5%) and inhalants (*n* = 1, 1.5%). The most commonly used substances other than alcohol were cannabis (*n* = 12, 18.2%, *M*/*SD* = 2.7/7.2 days of use), cocaine (*n* = 10, 15.2%, *M*/*SD* = 0.6/2.1 days of use), and sedatives, hypnotics, or tranquilizers (*n* = 6, 9.1%, *M*/*SD* = 2.4/7.8 days of use). About one-quarter of participants reported at least one day of using more than one substance (n = 16, 24.2%, *M*/*SD* = 1.5/4.0 days of use).

Multivariate analyses of sexual risk behavior

Bivariate analyses indicated that several variables were associated with sexual risk behavior in the past 6 months (see Table I). MSM who reported sexual risk behavior were significantly more likely to be younger (*M* = 33.5 years vs. 45.3, *p* = .001) and more recently diagnosed with HIV (*M* = 5.6 years vs. 10.5, *p* = .011). They also were significantly more likely to report higher scores on measures of anxiety (*M* = 11.0 vs. 5.9, *p* = .005), depression (*M* = 16.1 vs. 9.0, *p* = .011), trauma (*M* = 46.0 vs. 32.7, *p* = .037), and American acculturation (*M* = 68.5 vs. 59.0, *p* = .069). Those who reported sexual risk behavior also reported significantly more days of alcohol use to intoxication (*M* = 2.7 days vs. 1.0, *p* = .065), but fewer days of sedative, hypnotic, or tranquilizer use (*M* = 0 days vs. 3.0, *p* = .065) and fewer years of alcohol use within

their lifetimes (M = 14.5 years vs. 20.7, p = .088). No other variables differed by sexual risk behavior, including other measures of lifetime substance use on the ASI-Lite.

In multivariate analyses (see Table II), no variables were independently associated with sexual risk behavior. Symptoms of anxiety trended toward significance (AOR = 1.30, 95% CI: 0.99, 1.72).

DISCUSSION

Of the 141 participants in our parent study who identified as male or male-to-female transgender and who reported lifetime sexual contact with men and either Mexican or Latino identity, 98 (69.5%) reported anal or vaginal intercourse in the past 6 months. Of these, 66 (67.3%) reported this behavior with potentially serodiscordant partners and 13 (19.7%) among them reported inconsistent condom use with these potentially serodiscordant partners.

Only 9.2% (N = 13) of HIV-positive Latino MSM in our parent study reported anal or vaginal intercourse that posed a risk for HIV transmission. This compares with a meta-analysis that reported a 26% prevalence of serodiscordant anal intercourse among HIV-positive MSM in the U.S. [51].

The relatively low prevalence of sexual risk behavior in our parent study may reflect differences in sampling and in regional characteristics. Our study was clinic-based and patients might minimize reports of risk behavior when asked in settings where they also receive HIV care [51]. Likewise, HIV services are scant along the U.S.-Mexico border [13,16,52] and stigma toward HIV and sex between men may be higher than in other regions. If this is the case, our sample of HIV-positive MSM may simply have less opportunity for contact with same-sex partners who are not themselves also PLWH.

Among those who reported serodiscordant intercourse, fewer participants reported condomless sex with a "main, steady or primary" sexual partner ($N = 5$, 7.6%) than with a casual sexual partner ($N = 10$, 15.2%). However, more events of condomless sex occurred with a "main, steady or primary" partner ($M/SD = 3.1/11.6$) than a casual partner ($M/SD = 1.3/4.6$).

This finding is consistent with modeling estimations that 68% of HIV transmissions among MSM occur within the context of main partners, possibly because of lower condom use and greater sexual events between steady partners [53]. This may be enhanced in the border region if opportunities for same-sex relationships are limited.

There were high levels of probable PTSD (24.2%), mild-to-severe depression (37.9%), anxiety (36.4%), and hazardous and severe alcohol problems (34.8%). The most commonly reported substances used in the past 30 days were alcohol (51.2%), cannabis (18.2%), cocaine (15.2%), and "sedatives, tranquilizers, or hypnotics" (9.1%); about one quarter reported using more than one substance on at least one day in the past 30 days. The burden of psychological distress and problematic alcohol use in our sample is much higher than in the general population [54,55], which is consistent with findings of high burdens of anxiety, depression and substance use disorders among sexual minority men [56,57], PLWH [14] and people living along the border [58].

Consistent with reports from other studies [14,28-38], bivariate analyses indicated that the main correlates of sexual risk behavior were depression, anxiety, and days of alcohol intoxication within the past 30 days. In subsequent multivariate analyses controlling for age and American acculturation, however, no individual variable remained significantly associated with sexual risk behavior.

There are several limitations to our study. First, self-reported mental health, substance use and sexual risk behaviors are vulnerable to social desirability and recall bias. Our findings are likely to be conservative estimates. We attempted to minimize bias by asking participants to recall sexual intercourse within the past 6 months by specific partner characteristics (the number of events with casual and primary partners and by partner serostatus) [59]. We further attempted to minimize recall bias by building rapport and allowing participants to answer questions about mental health without the involvement of an interviewer. Second, we sampled participants from a community health clinic, which limits the external validity of our findings. In particular, we cannot generalize relations between our study's independent variables with sexual risk behavior among all border-region MSM or those MSM living with undiagnosed HIV, a population which likely differs both in behavior and transmission risk from MSM who access healthcare [60]. Third, the number of comparisons made in the bivariate analyses increases the likelihood of type I errors. Fourth, our study was cross-sectional and precludes causal explanations. Fifth, evidence suggests that the threshold for meeting severity in depressive symptoms among Latinos living along the border may differ from those in the original BDI-1A sample [61], so our report of mild, moderate and severe depression is preliminary.

Despite these limitations, the results have important implications for HIV prevention research with this population. For example, we know that psychological distress can be effectively targeted among PLWH to reduce both symptoms of distress as well as risk of HIV transmission [39,62-64]. Prevention interventions that target improved behavioral outcomes among PLWH (i.e., prevention with positives) have also significantly reduced condomless intercourse among MSM, but this efficacy is moderated by severe depression, alcohol, and drug abuse [62-64]. Evidence also suggests that improved mental health leads to better adherence to

treatment and less transmission risk [65]. Data from our study suggest the potential for targeting specifically younger men with depression, anxiety and alcohol use. Indeed, the high levels of distress suggest the need for psychological intervention for its own sake, to improve the quality of life and to alleviate distress among this vulnerable population. Unfortunately there are few culturally specific therapies for this group and high stigma of mental illness discourages treatment seeking.

One approach involves adapting evidence-based treatment and task shifting to personnel beyond highly trained mental health professionals in order to improve access to effective mental health interventions. In the parent study of this project [39], we tested a modified cognitive-behavioral therapy for adherence and depression and demonstrated its ability to improve outcomes in terms of both mental health as well as health behaviors (i.e., adherence to ART medications). Interventions that target both mental health as well as viral load are especially potent as HIV prevention interventions because they substantially reduce the possibility for transmission [66]. Addressing alcohol abuse, which is highly prevalent among MSM and frequently co-morbid with depression, might further assist in HIV prevention efforts.

Our study demonstrates several strengths. First, bivariate analyses indicated significant correlates of sexual risk taking despite that our small sample of 66 MSM reduced the likelihood of finding a significant association. Additionally, we used mean imputation to account for missing responses in several continuous variables, which lowers the standard error of the variable in question and biases the odds ratios low in our sample. This makes it all the more impressive that regression analyses indicated a trending association with anxiety symptoms and suggests the need to assess psychological distress correlates within a larger sample with less likelihood of Type 1 errors.

In conclusion, our study is one of few reports aimed at understanding the HIV epidemic among Latino MSM living with HIV, the population most burdened by the epidemic in the border-region. Given the scant healthcare resources along the U.S.-Mexico border [13,16,52], our findings may provide support for targeting behavioral interventions toward MSM who report psychological distress and alcohol use. It is unclear whether effective interventions for PLWH reduce sexual risk behavior across all contexts [67,68], and our findings with regard to other measures of psychological distress may be limited by a small sample size. Even though we found no evidence of a relation between our measures of psychological distress and substance use with sexual risk behavior in multivariate analyses, psychological distress and problematic alcohol use were common in the sample and are important targets for intervention in their own right.

Future research might seek to replicate these findings to better assess the associations between psychological distress, substance use, and sexual risk behavior suggested by the literature, in a larger sample and one recruited outside of healthcare settings. This would allow us to explore the potential of strategies to reduce psychological distress among MSM in the border-region who are most burdened by HIV.

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Table 1. Sociodemographic and psychosocial characteristics among 66 HIV-positive Latino MSM living along the U.S.-Mexico border and reporting serodiscordant anal or vaginal intercourse within the past 6 months

		Condomless serodiscordant intercourse	
		No	Yes
	Total (N = 66)	53 (80.3%)	13 (19.7%)
	Mean (*SD*)	*Mean* (*SD*)	*Mean* (*SD*)
Sociodemographics			
Age (in years)*	42.94 (11.63)	45.26 (11.36)	33.46 (7.25)
Time since diagnosis (in years)†	9.50 (6.30)	10.47 (6.01)	5.55 (6.11)
Annual household income (in USD)	17391 (16527)	16773 (16078)	19863 (18703)
# of border crossings in past year	32.42 (57.41)	29.03 (52.72)	46.23 (74.51)
# of people living in household	1.68 (1.67)	1.66 (1.72)	1.77 (1.54)
Psychosocial Factors			
American acculturation‡	60.88 (16.79)	59.02 (16.99)	68.46 (14.09)
Latino acculturation	70.16 (12.51)	70.79 (12.27)	67.59 (13.65)
Mental Health			
Anxiety symptoms*	6.92 (4.58)	5.92 (3.82)	10.99 (5.27)
Depression symptoms†	10.40 (9.16)	9.00 (8.44)	16.11 (10.10)
Trauma symptoms†	35.32 (14.95)	32.70 (12.36)	46.00 (19.87)
Alcohol problems	6.76 (6.90)	6.28 (6.39)	8.69 (8.74)
Substance Use			
Alcohol (days/past 30)	6.53 (8.77)	6.15 (8.32)	8.08 (10.63)
Alcohol to intoxication (days/past 30)‡	1.33 (2.96)	1.00 (2.75)	2.69 (3.52)
Alcohol (years/lifetime)‡	19.44 (11.74)	20.66 (12.29)	14.46 (7.69)
Other opiates (days/past 30)	0.30 (2.46)	0.38 (2.75)	0 (0)
Cannabis (days/past 30)	2.68 (7.25)	2.92 (7.73)	1.69 (4.97)
Inhalants (days/past 30)	0.08 (0.62)	0 (0)	0.38 (1.39)
Cocaine (days/past 30)	0.64 (2.09)	0.45 (1.62)	1.38 (3.38)
Sedatives/hypnotics/tranquilizers (days/past 30)†	2.38 (7.84)	2.96 (8.66)	0 (0)
More than 1 substance (days/past 30)	1.52 (4.00)	1.38 (4.08)	2.08 (3.80)
	N (%)	*n* (%)	*n* (%)
Sociodemographics			
Male (vs. MTF transgender)	64 (97.0)	51 (96.2)	13 (100.0)
Gay identity	44 (66.7)	33 (62.3)	11 (84.3)
Primary committed partner	27 (40.9)	21 (39.6)	6 (46.2)
Male partner	21 (77.8)	16 (76.2)	5 (83.3)
Together for ≥ 6 years	12 (57.1)	11 (52.4)	1 (16.7)
Homeless	1 (1.5)	1 (1.9)	0 (0)
Lived in Mexico within past year	18 (27.3)	13 (24.5)	5 (38.5)
Interviewed in Spanish	43 (65.2)	37 (69.8)	6 (46.2)
Mexican descent	64 (97.0)	52 (98.1)	12 (92.3)
Employed full or part time	19 (28.8)	16 (30.2)	3 (23.1)
Substance Use			
Injection drug use (lifetime)	3 (4.5)	2 (3.8)	1 (7.1)

*p < .01, †p < .05, ‡p < .10
Participants reported no use of heroin, methadone, amphetamine, hallucinogens or barbiturates within the past 30 days.

Table 2. Bivariate & multivariate logistic regression analyses of factors associated with condomless intercourse among 66 HIV-positive Latino MSM living along the U.S.-Mexico Border who reported serodiscordant anal or vaginal intercourse in the past 6 months

	Sexual Risk Behavior		
	OR [95% CI]	AOR* [95% CI]	AOR** [95% CI]
Anxiety symptoms	1.30 [1.11-1.52]	1.20 [1.01-1.41]	1.30 [0.99-1.72]
Depression symptoms	1.08 [1.01-1.16]	1.06 [0.98-1.14]	0.96 [0.85-1.09]
Alcohol intoxication (days/past 30)	1.17 [0.98-1.40]	1.04 [0.85-1.26]	0.93 [0.74-1.16]

*Odds ratio is adjusted for *age* (in years) and *American acculturation*
**Odds ratio is adjusted for *age* (in years), *American acculturation*, and all other variables in the table