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Immigrant Sexual Minority Latino Men in Rural North Carolina: An Exploration of Social Context, Social Behaviors, and Sexual Outcomes

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Abstract

Immigrant Sexual minority Latino men—who may or may not self-identify as gay—constitute a minority within a minority. Often labeled “hidden” and “hard-to-reach,” and marginalized along multiple dimensions, it is a sub-group about whom little is known. Informed by a Social Ecological Framework, we sought to describe key social variables for 190 such men in rural North Carolina and to test associations with three sexual outcomes: consistent condom use, number of sex partners, and sexual compulsivity. Participants reported limited English-language use, predominantly Latino close friends, middle levels of social support despite numerous social ties, and frequent experiences of discrimination. There were unique sets of correlates for each sexual outcome. Findings may inform health promotion interventions and guide future research.

Keywords

Gay; Hispanic; rural; social determinants; HIV

Introduction

Since 1990, the Latino population of the United States has grown rapidly and now surpasses African-Americans as the largest racial/ethnic minority group (Census Bureau, 2011). Despite its size, the health status and needs of immigrant Latinos are poorly understood due to gaps in national databases, the heterogeneity of immigrant populations, and the reluctance of some Latinos to participate in epidemiologic studies because of their immigration status and/or perceived discrimination (Dovidio, Gluszek, John, Dittmann, & Lagunes, 2010; North Carolina Institute of Medicine, 2003; Organista, 2007; Rhodes et al., 2007). Even less is known about sexual minority Latino men, a sub-group that includes gay-identified men, men who have sex with men (MSM) but who do not self-identify as gay, and gender variant or transgender men. Such sexual minority men are often labeled “hidden” or “hard-to-reach”

because no population-based sampling frame can be elaborated and their potentially stigmatizing characteristics may inhibit recruitment for research studies.

Latino migrants have increasingly chosen non-traditional settlement states, and nowhere have the recent demographic changes been more pronounced than in the Southeast US (Dockterman & Velasco, 2010; Ennis, Rios-Vargas, & Albert, 2011; Kochlar, Suro, & Tafoya, 2005). North Carolina is typical of many such non-traditional migration destinations, providing labor opportunities in agriculture, construction, and livestock processing (Griffith, 2005; Parrado & Kandel, 2008), but having little historical Latino presence and limited infrastructure to meet immigrants' needs (Gill, 2010; North Carolina Institute of Medicine, 2003).

Although most Latino immigrants have been integrated into the economy (i.e., found employment), social and cultural integration has often remained challenging and incomplete (Cornelius, 2002; Sizemore, 2004; Smith & Winders, 2008). In North Carolina, receptivity to Latino immigrants has been mixed over time and across different communities (Perreira, 2011). While there have been some initiatives to integrate Latinos, such as church-based supportive programs and secular community-based organizations (Bailey, 2005), these efforts have often been accompanied by increased social tensions, including ethnic discrimination, residential segregation, and racial profiling (Bauer et al., 2009; Gill, 2010; North Carolina Institute of Medicine, 2003). Immigrant sexual minority Latino men may be particularly vulnerable as they could be marginalized due to sexual orientation in addition to ethnicity, immigration status, and language use.

Public health theory and conceptual models have increasingly taken into account the multiple dimensions of social life (Burke, Joseph, Pasick, & Barker, 2009; Krieger, 2001; McLeroy, Bibeau, Steckler, & Glanz, 1988; Northridge, Sclar, & Biswas, 2003). Such social ecological approaches recognize that individuals are embedded within inter-personal relationships, neighborhood contexts, geographic characteristics, social policies, and economic factors, among others. Compared to other populations, social ecological research with sexual minority Latino men has been limited; nevertheless, empirical findings have shown that community involvement is largely protective (Ramirez-Valles, Kuhns, Campbell, & Diaz, 2010), that racial stigma and homophobia are associated with risky behaviors (Guarnero, 2007; Jarama, Kennamer, Poppen, Hendricks, & Bradford, 2005), and that the relationship between cultural orientation (i.e., Latino vs. American) and risky behavior is complicated and poorly understood (Fernandez, Jacobs, Warren, Sanchez, & Bowen, 2009). Given the vastly different community characteristics and social contexts in non-traditional migration destination states, however, the generalizability of research findings obtained in established Latino communities (particularly those that also have visible gay male communities) to newly emerging Latino communities cannot be assumed (Farley, 2006).

Informed by the Social Ecological Model (Bronfenbrenner, 1977), in which individuals are nested with interpersonal relationships, communities, cultures, and political systems, we have sought to understand immigrant sexual minority Latino men's health. In qualitative studies, we identified a number of social and contextual factors that affect these men in

North Carolina (Rhodes, Hergenrather, Aronson, Bloom, Felizzola, Wolfson, Vissman, Alonzo, Allen, et al., 2010; Rhodes, Hergenrather, et al., 2011). Loneliness, the limited venues available for socializing, reluctance to disclose sexual orientation out of fear of rejection, and the lack of a sense of community have been identified as frequent challenges. In addition, many men cited discrimination and political factors (particularly immigration policy) as stressors. We sought to extend previous research by taking advantage of quantitative data obtained via an in-depth behavioral and psychosocial assessment. Our goal in the present study was to describe the social context of immigrant sexual minority Latino men in North Carolina and to test the association of demographic, psychosocial, and behavioral variables with three sexual outcomes: consistent condom use for anal intercourse; number of sex partners; and sexual compulsivity. As a descriptive exploratory study, no a priori hypotheses were proposed.

Methods

Sample

Data for this analysis come from a study of HIV risk and protective factors among immigrant sexual minority Latino men in rural North Carolina. The study was guided by a community-based participatory research (CBPR) partnership that included representatives from public health departments, AIDS service organizations, universities, the local Latino community (including immigrant sexual minority men), and community-based organizations serving the Latino community. Because researchers often consider this a hard-to-reach population, we used respondent-driven sampling (RDS) to recruit participants. RDS is an extension of chain-referral methods that enables researchers to sample “hidden” populations when no sampling frame can be established (Heckathorn DD, 1997; Magnani, Sabin, Saidel, & Heckathorn, 2005; Ramirez-Valles, Heckathorn, Vazquez, Diaz, & Campbell, 2005). Initially, the CBPR partnership identified eight “seeds,” participants chosen to represent the diversity of the local sexual minority Latino community (e.g., by level of “outness” about their sexual orientation, country of origin, gender identity, and HIV status). Nine additional seeds were enrolled to expedite recruitment in accordance with standard RDS procedures, for a total of 17 seeds. Participants self-identified as Latino, were age 18 or older, reported having had sex with another man since age 18, and resided in one of seven rural counties in central North Carolina. Each seed provided informed consent, completed an in-depth psychosocial and behavioral assessment (described below), received instruction on the study's recruitment protocol and eligibility criteria, and recruited up to three additional participants from their social networks. Each subsequent participant completed an assessment, received instruction on the study's recruitment protocol and eligibility criteria, and recruited up to three new participants from his social network. Recruitment waves continued until the sample size target (n=190) was met. All participants were compensated for completing their own assessment (\$50) and for each referral that also completed an assessment (\$20), a dual incentive that is a hallmark of RDS methods. The Institutional Review Board at Wake Forest University Health Sciences approved the study.

Measures

The CBPR partnership developed a comprehensive quantitative assessment, using established Spanish-language measures whenever possible and adapting established English-language measures or developing new measures when necessary. Following a committee approach, an increasingly preferred method (Behling & Law, 2000; Census Advisory Committees, 2004), we convened a group of individuals with complementary skills to translate the English-language items into Spanish. The group included professional translators (including native Spanish speakers from Mexico and Central America), a translation reviewer, content specialists, and a questionnaire design expert. Multiple group members made independent translations of the assessment, and the full committee met to discuss and reconcile the various versions. The CBPR partnership, which included native Spanish speakers, reviewed and approved the final Spanish translation.

The full assessment included over 300 items, but we restricted this analysis to a sub-set of 26 demographic, social, and behavioral variables (described below). Demographic variables included age at time of interview (years), length of residence in the US (years), educational attainment (coded 1=less than high school; 2=high school diploma or GED; 3=some college; 4=four-year college degree or higher), sexual identity (coded 1=gay; 2=bisexual; 3=straight/heterosexual; 4=other/don't know), transgender identity (coded 0=no; 1=yes), country of origin (open-ended response), employment status (coded 0=not employed; 1=employed seasonally; 2=employed year-round), annual income (coded 1=less than \$20,000; \$20,000 to \$29,999; \$30,000 to \$39,999; \$40,000 or greater), relationship status (coded 1=single (i.e., not dating anyone special); 2=dating; 3=partnered or married), and HIV status (coded 0=HIV negative; 1=HIV positive).

Among social variables, we assessed language use with the 5-item sub-scale of the Short Acculturation Scale for Hispanics (e.g. “what language(s) do you usually speak with your friends?”; coded 1=“only Spanish” to 5=“only English”; $\alpha=.92$; (Marin, Sabogal, Marin, Otero-Sabogal, & Perez-Stable, 1987). We measured the degree of social mixing via one item about the ethnicity of close friends drawn from the same scale (coded 1=“all Latinos” to 5=“all Americans”). Although the response options appeared to confound ethnicity and nationality, it presented the most salient contrast for our study population (i.e., foreign-born migrants from a variety of Latin American countries versus native-born US residents of any racial/ethnic group). These measures served as proxies for assimilation, with greater English-language use and more non-Latino close friends indicating greater participation in US society. A single item asked participants how many other immigrant sexual minority Latinos they knew. This count variable was originally included as a means to understand the RDS sampling process, however, it also served as a measure of participants' social ties.

Recognizing that social support is a key function of social networks, we assessed both the provision and availability of different dimensions of social support. Four items inquired about the frequency with which participants provided emotional, instrumental, informational, or appraisal support to others (coded 1=“never” to 4=“very frequently”). In a factor analysis, we confirmed that these items measured a single latent factor and used their mean to create a summary measure of social support provided ($\alpha=.96$). We measured the availability of social support to the participant using an adaptation of the Index of Sojourner

Social Support (Ong & Ward, 2005). Originally an 18-item scale, we used 11 items based on our own validation study (Gilbert & Rhodes, 2012). The adapted scale assessed the availability of other people for supportive functions relevant to adults living outside their culture of origin (e.g., “Listen and talk with you whenever you feel lonely or depressed”; coded 0=no one would do this to 4=many would do this; $\alpha=.96$).

We assessed both where men socialized with male friends and where men met their most recent sex partner. We presented each participant with a list of 15 venues (e.g., gay bar/club) and inquired where he socialized with his male friends (choose all that apply) and where he met his most recent sex partner (choose one). Participants had the option of selecting “other” and providing an alternate venue that was not included on the original list. We measured virtual socializing by asking how frequently participants used three electronic media for communication (e.g., “how often do you use the internet to check email?”; coded 0=“never”; 1=“very rarely”; 2=“monthly”; 3=“weekly”; 88= “don't know”).

We assessed experiences of discrimination by asking participants if they had been treated unfairly since coming to the US because of their Latino ethnicity (one item; coded 1=“strongly disagree” to 4=“strongly agree”) and if they had been the victim of violence since coming to the US because of their Latino ethnicity (one item; coded 1=“no”; 2=“yes”; 3=“don't know”). In addition, we adapted 10 items from the Detroit Area Study Discrimination Questionnaire (Williams, Yu, Jackson, & Anderson, 1997). These items presented examples of discrimination, such as “you were treated with less courtesy than others,” and participants reported the frequency of each event (coded 1=“never” to 4=“very frequently”). We created binary indicators for each type of discrimination (coded 0=none; 1=any) and summed them to create a count variable (range=0-10). We assessed experiences of homophobia by adapting a previously used scale of social discrimination and HIV risk among Latino gay men (Díaz & Ayala, 2001). Five statements described inter-personal harassment or internalized negative attitudes due to sexual orientation, and participants reported the frequency of each event (e.g. “you had to pretend to be straight in order to be accepted,” coded 1=“never” to 4=“always,” $\alpha=.75$). As with racial discrimination, we created binary indicators for each type of homophobia and summed them to create a count variable (range=0-5).

Among sexual variables, we measured consistent condom use, number of sex partners, and sexual compulsivity. Participants reported the extent to which they had used condoms for insertive anal sex and receptive anal sex in the past three months (two separate items; coded 0=“never”; 1=“rarely”; 2=“sometimes”; 3=“always”; 88=“don't know”). We then created a binary indicator for consistent condom use for all types of anal sex (coded 0=“<100% for all anal sex”; 1=“100% for all anal sex”). Participants reported the number of male and female sex partners in the past three months, which we summed to obtain a count variable. Finally, we assessed sexual compulsivity using a 10-item scale (Kalichman & Rompa, 1995), in which participants reported the frequency of compulsive sexual situations (e.g., “I sometimes get so horny I could lose control”; coded 1=“never” to 4=“very frequently”; $\alpha=.95$).

Data Collection

All data, including sexual behavior variables, were collected in face-to-face interviews by three native Spanish-speaking male interviewers from March to December 2008. Interviews took 45-90 minutes to complete. We used face-to-face interviews rather than other methods, such as audio computer assisted self-interview (ACASI), based on formative data (Rhodes, et al., 2007; Rhodes, Hergenrather, Aronson, Bloom, Felizzola, Wolfson, Vissman, Alonzo, Boeving Allen, et al., 2010; Vissman et al., 2009) and feedback from CBPR partnership members suggesting that participants were more likely to engage with a well-trained interviewer who could establish rapport and trust. We believed this approach was more culturally congruent given that some Latinos value *personalismo*, a cultural feature that stresses the importance of warm and friendly interactions and interpersonal engagement (Marsiglia & Kulis, 2009). Furthermore, utilizing an interviewer-administered assessment overcame both low literacy skills and poor visual acuity (resulting from lack of access to optical services).

Analysis

First, we computed means and standard deviations or counts and proportions to describe demographic and social variables. Because our goal was a description of the sample, we used unweighted data. Second, we performed bivariate tests of association with each of three sexual outcomes, using logistic regression to model the dichotomous variable (consistent condom use), Poisson regression to model the count variable (number of sex partners in the past three months), and generalized linear models for the continuous variable (sexual compulsivity score). We followed procedures suggested by Hosmer and Lemeshow, retaining all variables that had bivariate associations at $p < .25$ for construction of multiple variable models (Hosmer & Lemeshow, 2000). Because the data were obtained via RDS methods—violating the assumption of independent observations—we accounted for the sampling strategy by computing post-hoc sampling weights for the dependent variables using the RDS Analysis Tool v5.6 (RDS Incorporated, Ithaca NY). These sampling weights allowed us to adjust for participants' different social network sizes (i.e., different numbers of potential recruits) and homophily within recruitment dyads (i.e., the tendency of recruiters to recruit others similar to themselves), thereby minimizing the bias introduced by the sampling method. Although there is currently no consensus on appropriate regression modeling of RDS data (Johnston, Malekinejad, Kendall, Iuppa, & Rutherford, 2008), sampling weights are an increasingly accepted approach (Garfein et al., 2009; Jenness et al., 2011; Townsend et al., 2010; Wayal et al., 2011).

To maximize statistical power, we imputed any missing data. Because Classical Test Theory holds that individual scale items measure a common latent variable, we substituted the mean of all non-missing items for missing values for scale items. For all other variables, we used SAS PROC MI to generate missing values using Markov Chain Monte Carlo methods, beginning with 500 burn-in iterations to establish stable estimates then taking every 100th estimated data set for a total of 10 imputed data sets (Allison, 2002). We performed independent analyses for each imputed data set and combined results using SAS PROC MIANALYZE. To assess goodness-of-fit with logistic regression models, we use the COMBCHI macro¹ to obtain an overall chi-square statistic. For linear regression models, we

averaged the R-square statistics. Both approaches test the global null hypothesis that all parameters are zero. We report adjusted odds ratios (OR) and 95% confidence intervals (95% CI) or adjusted beta coefficients (β) and standard errors (SE) for final models. All analyses were completed using SAS v9.2 (SAS Institute, Cary NC).

Results

Description of sample

One hundred ninety immigrant sexual minority Latino men completed the in-depth assessment. Because the target sample size was reached over only three waves of respondent-driven recruitment, we did not assess equilibrium (i.e., the point at which RDS samples approximate a random sample). Participants' unweighted characteristics are shown on Table 1.

Social and contextual variables

Most participants had told their mother about their sexuality, of whom a large majority felt that they were always accepted by their mothers. In contrast, less than half of participants had disclosed their sexuality to their father, of whom only 16% felt that they were always accepted by their fathers. Nearly all men reported being able to talk openly about their sexuality at least sometimes with at least one family member; however, 6% reported never being able to talk to any family member about their sexuality. Nearly half of participants reported that they were always out to co-workers and peers; a minority said co-workers and peers never knew about their sexuality.

Table 2 summarizes key social behaviors and the social context. Most participants favored Spanish, speaking it exclusively or speaking more Spanish than English, but a minority reported using both languages equally. Similarly, most participants reported that their close friends were all Latinos or more Latinos than Anglo-Americans. Approximately one-quarter of men had equal proportions of Latino and Anglo-American close friends. As one might expect, greater years in the US was associated with higher English-language use ($r=.46$, $p<.001$) and more Anglo-American close friends ($r=.34$, $p<.001$);

On average, participants knew 13 other immigrant sexual minority Latino men, however the size of social networks varied considerably, ranging from 1 to 50 acquaintances. Three participants reported a network size of zero; since they were not recruitment seeds, we recoded their values to one, recognizing that they must know at least one immigrant sexual minority Latino man (i.e., the person who recruited them for the study). For all measures of the provision of social support the modal response was “sometimes,” suggesting middle levels of support transmitted through these social ties. Regarding the availability of social support, a large majority of participants believed that “a few” persons were available to provide support; only small minorities perceived either many sources of support or no sources of support.

¹Available at <http://www.ssc.upenn.edu/~allison/#Macros>

When asked if they had ever experienced discrimination or been the victim of violence due to their ethnicity since coming to the US, 16% of participants responded “yes.” When we presented examples of discrimination, however, over twice as many participants (39%) reported experiencing at least one form of discrimination. The most frequently reported types included being treated with less respect than others, being treated with less courtesy than others, others acting as if they were better because of their ethnicity, and receiving poorer service than others in restaurants or stores. Among participants indicating any discrimination ($n=74$), the mean number of experiences was 5.7 (SD 2.5; range 1-10). In other words, those men encountered on average six types of discrimination due to their ethnicity since coming to the US. In contrast, a larger proportion of men reported at least one experience of homophobia. Over half the sample reported feeling that homosexuality hurt or embarrassed their family and hearing that gays would grow old alone. Among participants reporting any homophobia ($n=113$), the mean number of types was 3.0 (SD .97; range 1-5). In other words, those men encountered on average three types of homophobia since coming to the US.

We found that 76% of participants used text messaging weekly to communicate with friends and family. Other forms of electronic communication were less common. Less than half indicated checking email weekly, and a similar proportion reported searching the Internet weekly. Large majorities of participants socialized at friends' homes, at gay bars, at work sites, or at shopping malls (Table 3). Among sexually active men, approximately half had met their most recent past sex partner at a gay bar and approximately one-third had met him through friends. Electronic venues, such as the online chat rooms, were used by very few men for socializing with friends; only one participant reported meeting his last sex partner there.

Associations with sexual outcomes

Only variables that met our criterion for inclusion ($p<.25$) in bivariate tests of association were retained for multiple variable models; Table 4 shows odds ratios or beta coefficients from final models, adjusted for Respondent-Driven Sampling via post-hoc sampling weights. Compared to speaking only Spanish, speaking English and Spanish decreased odds of consistent condom use. Conversely, we found that greater levels of American close friends increased odds of consistent condom use compared to all Latino close friends, but the extremely wide confidence intervals suggested imprecise estimates. Greater educational attainment increased odds of consistent condom use, but there appeared to be a limit to its effect. Compared to less than high school, a 4-year college degree did not significantly affect the odds of consistent condom use. Socializing with friends at a gay bar/club increased odds of consistent condom use over 4-fold. Providing social support to others decreased the expected total number of sex partners by 2 on average. Experiencing discrimination due to Latino ethnicity increased the expected total number of sex partners by a fraction. Speaking English and Spanish equally and speaking more English than Spanish were associated with higher sexual compulsivity scores. In contrast, compared to having all Latino close friends, equal proportions of Latino and American close friends decreased sexual compulsivity scores. Meeting the last sexual partner at a gay bar/club was associated with higher sexual compulsivity scores.

Discussion

We recruited a sample of young, recently arrived, mostly Mexican, and largely gay-identified Latino men from seven rural counties in North Carolina to complete an in-depth behavioral and psychosocial assessment. We found that the majority of our sample spoke mostly Spanish or exclusively Spanish and that close friends were mostly Latinos or exclusively Latinos. This may indicate limited integration into Anglo-American society. Given that participants had spent on average 10 years in US, it is not an unexpected finding. Since North Carolina is a non-traditional migration destination state, we believe that it underscores the need for linguistically and culturally congruent services, such as interpreters, bilingual written materials, and culturally sensitive staff. Health promotion efforts and health care services will fail to reach immigrant sexual minority Latino men if they are not linguistically and culturally congruent.

In previous studies we learned that immigrant sexual minority Latino men may be reluctant to disclose their sexual orientation (Rhodes, Hergenrather, Aronson, Bloom, Felizzola, Wolfson, Vissman, Alonzo, Allen, et al., 2010). Therefore, we were surprised to find that most participants in our study self-identified as gay and that large proportions had disclosed their sexual orientation to others. Disclosure varied, however, with most participants having disclosed to their mothers but less than half having disclosed to their fathers. Nearly all participants had at least one family member they could speak to about their sexuality, and nearly half were “out” to co-workers and peers. We urge caution in interpreting these findings, however, since the definition of a gay identity and the value placed on being “out” may be a culture-bound concept, inextricably tied up with modern Anglo-American society. Furthermore, recent work suggests that we may not understand well current Latino male sexuality. For example, it appears that Latino sexual identities may be more nuanced than previously thought (Carrillo & Fontdevila, 2011; Yon-Leau & Munoz-Laboy, 2010). Similarly, traditional conceptualizations of male gender have largely focused on negative aspects of *machismo*, failing to account for its positive aspects, e.g. *caballerismo* (Arciniega, Anderson, Tovar-Blank, & Tracey, 2008; Estrada, Rigali-Oiler, Arciniega, & Tracey, 2011). We encourage further research to elaborate all meaningful dimensions of Latino gender identity, minority sexualities, and relations to Anglo-American gay male identities.

Participants appeared to have a large number of social ties but levels of social support provided to others and available from others fell at the mid-point of the response scales. We posit that the exchange of social support in our sample may be diminished because of competing demands, such as experiences of discrimination and homophobia, or simply the effort required to navigate daily life in a foreign context. Alternatively, it is possible that among our participants moderate levels of social support are sufficient. Further research is needed to elaborate the most salient types of social support and the context of such exchanges. A large and longstanding body of literature has demonstrated the beneficial effects of social support on a wide variety of health outcomes. A smaller number of studies, largely focused on HIV, have confirmed this pattern among Latino MSM (Carlos et al., 2010; Fekete et al., 2009; Lauby et al., 2012; Vega, Spieldenner, DeLeon, Nieto, & Stroman, 2011). We found that provision of social support to others was inversely related to sexual compulsivity score. Contrary to expectations, the availability of social support was unrelated

to any other sexual outcome. Our results may be constrained by several methodological limitations. We have previously suggested that measures of social support developed in non-Latino populations may not perform as expected in Latino populations, particularly when they rely on distinctions among the various types of social support (Gilbert & Rhodes, 2012). The measures used in our study may not have fully captured social support. In addition, our measure of social network size only inquired about the number of other immigrant Latino MSM acquaintances. It is likely an underestimate of participants' true social networks since it excludes ties to females and non-Latinos. Given the substantial evidence of the beneficial effects of social support, further research is warranted to improve our understanding of the dimensions and function of social support among immigrant sexual minority Latino men.

Text messaging was the most frequent form of electronic communication, used weekly by three-quarters of participants to communicate with friends and family. Less than half of participants used email weekly to maintain contact with friends, and less than 5% of participants used chat rooms to socialize with friends or meet sex partners. These findings may inform future intervention strategies. Online risk reduction interventions for MSM have become increasingly popular (Hightow-Weidman et al., 2011; Jaganath, Gill, Cohen, & Young, 2012; Rhodes, Vissman, et al., 2011). Although promising, they might not be suitable for all MSM. For example, a chat room based intervention or a health educator that relied on email would likely not reach the majority of our study sample. Text messaging may not only reach a greater proportion of immigrant Latino MSM but it may facilitate sophisticated data collection techniques, such as ecological momentary assessments or delivery of brief interventions.

Testing the association of social variables with three sexual outcomes, we found a unique set of correlates of each outcome. No variable was associated with all three outcomes; age, sexual identity, transgender status, employment status, HIV status, and social network size were unrelated to any sexual outcome. We found contrary effects for English language use and social mixing with non-Latinos on condom use. Equal use of Spanish and English was negatively associated with consistent condom use for anal intercourse, but having greater proportions of non-Latino close friends was positively associated with consistent condom use for anal intercourse. While the mechanism is unknown, it might be due to greater participation in Anglo-American gay venues, which is facilitated by greater non-Latino social ties. Socializing at a gay bar/club was found to also increase consistent condom use. This may reflect increased exposure to condom promotion efforts at such venues. Few social variables were associated with the number of sexual partners. Social support provided to others was negatively associated with number of sexual partners, while experiences of discrimination were positively associated with number of sexual partners. These findings underscore the importance of formative research to understand the factors associated with health outcomes. Interventions are likely to be more successful and make more efficient use of limited resources when they target key variables for change.

Limitations

Several limitations must be taken into account when considering these findings. First, the in-depth assessment is cross-sectional and precludes any causal inferences. Given that association is a requirement to establish causality, however, these findings provide useful preliminary information. Second, these findings may be subject to measurement constraints. For example, it is possible that relevant social variables were omitted from the assessment, such as a direct measure of participation in Anglo-American society. It is also possible that the measures developed in other populations, such as the scale to detect experiences of discrimination, did not perform as expected in the study sample or did not capture all meaningful dimensions of the phenomenon (i.e., suffered from low construct validity). Given that so little is known about immigrant Latino MSM, these findings are an important initial step in building a knowledge base even in light of such potential methodological limitations. Third, the sample was recruited using non-probabilistic methods. Thus, our findings are not necessarily representative of the larger population of immigrant Latino MSM in North Carolina. Given the difficulty of elaborating a sampling frame, we believe that this was an acceptable approach. We encourage future research to confirm our pattern of findings, both in North Carolina and in other non-traditional migration destination states. Fourth, the sample size is modest, which may limit the power of statistical tests. This is reflected by the large confidence intervals and standard errors observed for some parameter estimates. A larger sample would have yielded more precise results; nevertheless, we met the analytic rule of thumb that calls for at least ten cases per degree of freedom.

Conclusions

This study extends current knowledge about immigrant sexual minority Latino men, a subgroup Latino men about whom little is known, and suggests directions for future research. Although public health and other social sciences are increasingly adopting social ecological frameworks, sexual risk reduction and sexual health promotion interventions continue to focus on individual behavior change, an approach with limited effectiveness; few programs and have been developed to transform a community through some type of socio-political or cultural intervention (Guerin, 2005; Institute of Medicine, 2000). As the HIV and STD epidemics have evolved over the years, a need exists to creatively explore, understand, and intervene upon factors associated with exposure and transmission, especially among vulnerable communities. Nowhere is this more urgent than in the region of the US that is experiencing the most rapid growth of the Latino community and bearing a disproportionate burden of HIV and STDs.

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Table I
Sample characteristics

	Mean $\pm$ SD (min-max) or n (%), as appropriate
Age (n=182)	25.5 $\pm$ 5.4 (18-48)
Years in US (n=162)	9.7 $\pm$ 5.3 (0.3-25.8)
Educational attainment (n=178)	
Less than high school or GED	24 (13)
High school diploma or GED	122 (69)
Some college	28 (16)
Four year degree or more	4 (2)
Sexual identity (n=188)	
Gay	149 (79)
Bisexual	18 (10)
Straight/heterosexual	3 (2)
Other/don't know	18 (10)
Transgender	31 (16)
Country of origin (n=187)	
Mexico	152 (81)
Guatemala	4 (2)
Honduras	3 (2)
El Salvador	3 (2)
Other	25 (13)
Employment status (n=187)	
Employed year-round	170 (91)
Employed seasonally	13 (7)
Not employed	4 (2)
Annual income (n=181)	
Less than \$20,000	56 (31)
\$20,000 - \$29,000	94 (52)
\$30,000 - \$39,000	26 (14)
\$40,000 or greater	5 (3)
Relationship status (n=184)	
Single	89 (48)
Dating	84 (46)
Partnered/married	11 (6)
HIV positive	24 (13)

Table 2
Key social behavior and contextual variables

	n	(%)
Language use (n=190)		
Only Spanish	39	(21)
More Spanish than English	74	(39)
Both equally	73	(38)
More English than Spanish	4	(2)
Only English	0	--
Ethnicity of close friends (n=189)		
All Latinos	22	(12)
More Latinos than Anglo-Americans	115	(61)
About half and half	49	(26)
More Anglo-Americans than Latinos	3	(2)
All Anglo-Americans	0	--
Number of sexual minority Latino men known (n=177)	12.6 (6.4)	1-50
How often do you provide emotional support to other men (n=172)		
Never	2	(1)
Sometimes	145	(84)
Frequently	21	(12)
Very frequently	4	(2)
How often do you provide instrumental support to other men (n=172)		
Never	6	(3)
Sometimes	153	(89)
Frequently	12	(7)
Very frequently	1	(1)
How often do you provide informational support to other men (n=172)		
Never	5	(3)
Sometimes	147	(85)
Frequently	16	(9)
Very frequently	4	(2)
How often do you provide appraisal support to other men (n=172)		
Never	2	(1)
Sometimes	146	(85)
Frequently	21	(12)
Very frequently	3	(2)
Persons available to provide social support (n=190)		
No one	2	(1)
Someone	25	(13)
A few	152	(80)
Several	8	(4)
Many	3	(2)

	n	(%)
Experiences of discrimination due to Latino ethnicity (n=190)		
You were treated with less respect than others.	65	(34)
You were treated with less courtesy than others.	64	(34)
Others acted like they were better than you because of your race.	61	(32)
You received poorer service than others in restaurants or stores.	55	(29)
People acted as if you are not smart.	47	(25)
Others acted like you were dishonest.	46	(24)
Others called you names or insulted you.	34	(18)
Others acted fearful of you.	33	(17)
Others threatened or harassed you.	13	(7)
You were hit, severely beaten, or seriously injured because of your race.	6	(3)
Experiences of homophobia (n=190)		
You felt that homosexuality hurt/embarrassed family.	102	(54)
You heard that gays would grow old alone.	102	(54)
You were verbally harassed for being gay/effeminate.	83	(44)
You had to live away from family because of homosexuality.	26	(14)
You had to pretend to be straight in order to be accepted.	26	(14)
How often do you use text messaging to communicate with friends and family? (n=186)		
Never	14	(8)
Very rarely	23	(12)
Monthly	3	(2)
Weekly	142	(76)
Don't know	4	(2)
How often do you use the internet to check email? (n=185)		
Never	22	(12)
Very rarely	67	(36)
Monthly	7	(4)
Weekly	83	(45)
Don't know	6	(3)
How often do you search the internet? (n=178)		
Never	21	(12)
Very rarely	67	(38)
Monthly	6	(3)
Weekly	84	(47)
Don't know	0	--

Table 3
Social venues among immigrant sexual minority Latino men

Location	Where men socialize with friends ^I		Where men met last sex partner	
	n	(%)	n	(%)
Through friends	165	(87)	56	(30)
Gay bar / club	160	(84)	96	(51)
Work sites	119	(63)	9	(5)
Shopping malls	106	(56)	0	--
Non-gay bar / club	81	(43)	9	(5)
Grocery stores	74	(39)	0	--
Adult bookstore	48	(25)	16	(8)
Gym / health club	38	(20)	1	(1)
School	32	(17)	0	--
Vacation / business trip	25	(13)	0	--
Public places/park/bathroom	12	(6)	0	--
Social organizations / volunteer service activities	9	(5)	0	--
Internet / chat room	8	(4)	1	(1)
Other place	8	(4)	1	(1)
Bathhouse	0	--	0	--

^I Not mutually exclusive

Table 4
Multiple variable models of sexual outcomes among immigrant sexual minority Latino men (n=190)

Variable	Consistent condom use for anal intercourse ¹			Number of sexual partners			Sexual compulsivity		
	OR	(95% CI)	p-value	β	SE	p-value	β	SE	p-value
Language use									
All Spanish	ref.	--	--	NS	--	--	ref.	--	--
More Spanish than English	.403	.108, 1.506	.177	NS	--	--	.058	.057	.309
Both equally	.179	.037, .857	.031	NS	--	--	.121	.045	.007
More English than Spanish	.085	.004, 1.803	.114	NS	--	--	.127	.074	.086
Ethnicity of close friends									
All Latinos	ref.	--	--	ref.	--	--	ref.	--	--
More Latinos than Americans	18.902	3.668, 97.413	<.001	-.616	.727	.396	-.094	.127	.457
About half and half	41.699	5.734, 303.220	<.001	-1.218	.860	.157	-.336	.158	.033
More Americans than Latinos	88.218	5.989, 1299.480	.001	-1.268	1.622	.434	-.293	.228	.199
Social support provided	NS	--	--	-2.263	.774	.004	-.254	.101	.012
Socializes with friends at a gay bar/club	4.592	1.730, 13.443	.001	NS	--	--	.010	.098	.922
Met last sex partner at gay bar/club	.512	.133, 1.972	.331	NS	--	--	.386	.123	.002
Years in US	.992	.905, 1.086	.855	NS	--	--	NS	--	--
Educational attainment									
Less than high school diploma	ref.	--	--	ref.	--	--	NS	--	--
High school diploma or GED	3.845	1.111, 13.309	.034	-1.706	.755	.024	NS	--	--
Some college	30.021	5.250, 171.674	<.001	-1.010	.924	.274	NS	--	--
College degree	.648	.006, 68.640	.855	-1.292	1.933	.504	NS	--	--
Income									
<\$20,000	ref.	--	--	NS	--	--	ref.	--	--
\$20,000 - \$29,999	.848	.339, 2.121	.724	NS	--	--	.122	.079	.122
\$30,000 - \$39,999	1.017	.270, 3.829	.980	NS	--	--	.091	.110	.409
\$40,000 or higher	.068	.003, 1.433	.084	NS	--	--	-.089	.201	.657
Relationship status									
Single	ref.	--	--	ref.	--	--	ref.	--	--
Dating	1.386	.593, 3.240	.451	-.963	.556	.084	.053	.074	.471

Variable	Consistent condom use for anal intercourse ^I			Number of sexual partners			Sexual compulsivity		
	OR	(95% CI)	p-value	β	SE	p-value	β	SE	p-value
Partnered/married	.740	.122, 4.482	.743	.686	1.170	.558	.141	.162	.385

Note: All tests were adjusted by post-hoc sampling weights

^I Includes both receptive and insertive anal intercourse

NS = Not retained for multiple variable model because bivariate test of association was greater than inclusion criterion ($p < .25$)