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Occupations, social vulnerability and HIV/STI risk: The case of bisexual Latino men in the New York City metropolitan area

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Abstract

This article examines the relationship between the work environment, type of occupation and sexual risk-taking among behaviourally bisexual Latino men, in which data were analysed from a mixed-methods study of 148 behaviourally bisexual Latino men, aged 18–60. The authors draw on both sex market theory and the literature on structural violence and labour to situate sexual risk-taking within broader dimensions of social inequalities and organisation. Manual labour, hospitality and retail/professional fields are examined and compared. Major findings include (1) a high incidence of unprotected anal intercourse among manual labourers (2) a high incidence of unprotected vaginal intercourse with alcohol use and concurrent sex with females among hospitality workers (3) less sexual risk behaviour, sexual risk behaviour with alcohol and fewer concurrent sex partners among those in the retail/professional fields. Findings are discussed in relation to global economic forces, masculinity and social and symbolic capital.

Keywords

labour; HIV; bisexual; Latino; occupation

Introduction

For more than a century, social scientists have argued the importance of social structures in shaping the health and well-being of communities and populations, from the works of Marx and Engels to recent works on structural violence (Farmer, 2001, 2006; Farmer, Connors, & Simmons, 1996; Parker, 2001; Parker, Easton, & Klein, 2000). The evidence suggests that social structures – particularly labour and global economic forces – create contexts of vulnerability that produce health risks, including vulnerability to HIV (Hirsch et al., 2009; Singer, 1998). In other words, by-products of individual and group positioning within the global economy, like the erosion of traditional socio-economic structures, global labour displacements and labour migration, all exacerbate health risks (Lindenbaum, 1998; Parker et al., 2000). A recent study showed the relationship between occupation and sexual behaviour in that those with higher incomes were more likely to engage in extra-relational sexual encounters (Mark, Janssen, & Milhausen, 2011). In addition, groups are exposed to

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hazards and stressful conditions specific to their occupation that may diminish social capital and increase their likelihood of engaging in risk practices to cope with work realities, such as high alcohol consumption and unprotected sex (Folkman, Chesney, Pollack, & Phillips, 1992; Frone, 1999). Behaviourally bisexual Latino men are an understudied population who experience a heightened vulnerability due to their belonging to multiple sociocultural groups and facing multiple and simultaneous forms of oppression (Pastrana, 2006; Fukuyama & Ferguson, 2000). Indeed, ethnic minority men who have sex with both men and women have been identified in the United States as one of the most vulnerable groups for contracting HIV (Brooks, Rotheram-Borus, Bing, Ayala, & Henry, 2003).

In examining the social organisation of sexual partnering, Laumann, Ellingson, Mahay, Paik, and Youm (2004) proposed the examination of sex markets. They explain:

The notion of the sex market places the explanatory focus on the local social and cultural structures that limit or channel sexual behaviour, i.e., actors' social embeddedness in personal networks, meaning systems and sexual scripts, local organizations and urban spaces lead to different patterns of sexual partnering, sexual behaviours, and sexual-relationship outcomes. (p. 8)

In this conceptualisation, sexual marketplaces are physical locations for meeting and finding potential sexual partners. Behaviourally bisexual men in global cities, such as New York, operate within complex sex markets along axes of race, ethnicity, gender and sexuality (including Latino and non-Latino, gay, transgender, heterosexual, religious), which determines their access, participation and ability to navigate sexual marketplaces (Garcia, Muñoz-Laboy, Parker, & Wilson, 2014; Muñoz-Laboy, Garcia, Wilson, Parker, & Severson, 2014).

Most individuals are introduced to their sex partners through social interactions in formal and informal institutional spaces that operate as sex marketplaces. In the United States, most individuals meet long-term partners through social networks in high school, college or the workplace, while one night stands and casual partners are often met through informal sex marketplaces such as bars and nightclubs (Laumann et al., 2004). Although the workplace is a formal institutional space, it can also serve as a marketplace for casual or concurrent sexual partnerships for adults (Laumann et al., 2004). Therefore, the type of occupation and workspace are of critical importance in the sexuality of young and adult men.

Literature on the relationship between occupation and risk largely pertains to heterosexual populations, with studies of bisexual groups limited to the cognitive and cultural determinants of HIV/STI risk. Drawing on both sex market theory and on the works on structural violence and labour, we decided to examine the relationship between type of occupation and sexual risk-taking. We proposed that differences in type of occupation would lead to high STI risk-taking among bisexual Latino men either through work-related stress leading to risk practices as coping mechanisms and/or through creating situational conditions that facilitate risk. We sought to examine how type of occupation and STI risk-taking are associated among bisexual Latino men, and specifically (1) to explore if different types of occupation lead to STI risk-taking; (2) to identify whether differences in work-

relational environment is associated with STI risk-taking; and (3) to illustrate potential mechanisms through which type of occupation leads to STI risk-taking.

Methods

New York state leads the nation in the number of new HIV cases (CDC HIV, 2012), and nearly 80% of those with HIV live in New York City (New York State Department of Health, 2012). New Jersey is currently 5th in the nation for HIV among adults (CDC, 2010). Both of these states have sizable Latino populations (17% of the total population in New York and 18.5% in New Jersey [US Census Bureau, 2014]), a group whose infection rate as of 2010 was three times higher than whites nationwide (CDC, 2014b). HIV rates are highest among men who have sex with men, a group that is considered to be the most severely affected by HIV and who in 2010 made up 63% of new infections nationwide (CDC, 2014a). For these reasons, the New York City area was critical to our examination of risk patterns among behaviourally bisexual Latino men.

Participants and procedures

This study was approved by Columbia University Institutional Review Board (CUMC IRB AAAE0494) and Temple University Institutional Review Board (IRB #20641). Data were collected from August 2009 through September 2011. We sampled in four zones of predominantly Latino neighbourhoods in New York City, New York (The Bronx, Queens, Washington Heights and Inwood), and in Newark and New Jersey (Newark and Jersey City). These were selected based on US Census data. In each zone, we attempted to recruit from diverse venues: 25% from Latino venues that were not gay/bisexually-oriented nor AIDS-related venues (e.g. religious organisations, sports teams, workers' programmes); 25% came from venues that we consider 'sexual venues' for men cruising for sex with other men, including public sex spaces such as parks, piers and Internet sites; 25% of the men were recruited through bisexually-oriented venues, which included gay night clubs, sex clubs and bars, as well as bisexual groups, online networks and chat rooms; and, 25% were recruited from 'clinical' sites, such as STI clinics and community health clinics. This form of recruitment allowed us to interview behaviourally bisexual men who identified as bisexual, whether or not they self-identified as bisexual.

The process of recruitment consisted of four steps. First, a recruitment card was designed with simple instructions to contact us via phone or electronic mail, or via the website on the card. The card was designed to recruit both self-identified and non-self-identified bisexual Latino men; therefore, the initial recruitment invited men to participate on a study on male sexuality. Second, the card was given to all people present in each recruitment site, with permission from the establishments or agencies, with mini-posters and cards left for potential participants. Third, a version of the card was posted on two types of Internet sites: those geared towards Latino men cruising for sex with other men, as well as those oriented towards self-identifying bisexual Latino men. Fourth, interested participants had the option of calling via phone, emailing the study recruiter, or visiting the recruitment Internet page of the study.

The recruitment Internet page asked potential participants to consent to participate in the confidential automated screening via a 5-minute questionnaire, available in Spanish and English. The questions for the screening focused on the selection criteria for the study: age (18 to 60 years), sex (male), ethnicity (Latino descent), sexual encounters throughout life with women and men (bisexual history) and recent sexual encounters [bisexually active in the last six months, a time-frame used in the literature to establish behavioural sexual orientation stability (Stokes, McKirnan, & Bursette, 1993)]; place of residence based on zip code (Bronx, Queens, Washington Heights, Inwood, Jersey City or Newark), birthplace (foreign/US born), length of residence in the United States and general health practices and status (including HIV status). We developed a software programme that determined the eligibility of the participant according to our selection criteria and the quota sampling process. We used the same online system for those recruited through person-to-person outreach, as well as those who emailed us – individuals were asked to complete the screening questionnaire on the computer in our offices, online, or at the recruitment site, using a laptop computer. This automated system for recruitment facilitated the process of sampling, while at the same time reduced interviewees' initial discomfort in answering screening questions.

We screened 258 men of which 42.6% did not meet study criteria. Of the 110 that did not meet the study criteria, 16.4% did not have male partners in their lifetimes; 5.5% did not have female partners in their lifetimes; 25.5% had not had sex with female or female-to-male partners in the past six months; 26.4% had not had sex with male or male-to-female partners in the past six months; 13.6% were HIV positive and 12.7% were unable to participate in the study due to scheduling conflicts. This study was funded to assess persons without an HIV diagnosis, thus HIV-positive individuals were excluded from the study.

A total of 148 men qualified for and participated in the study. We used oral consent scripts in the language of the participant's preference due to the sensitive nature of the research topics of this study. Following consent procedures, study participants completed a 60 to 90-minute in-depth, open-ended interview at the offices of the research team in Manhattan. This was followed by an online questionnaire (in Spanish or English) on their sexuality, demographic profile (including employment sector) and general measures of their sex/risk practices. Participants received \$50 for the sexual history interview and \$75 for participation in the survey. Data for this analysis resulted from the quantitative measures of the computer-based questionnaire. To protect the confidentiality and privacy of study participants and research materials, we also obtained a federal certificate of confidentiality (CC-HD-09-84).

Quantitative measures and statistical analyses

In this section, we describe the quantitative measures that we used to examine the relationship between type of occupation, work environment and sexual risk. STI risk-taking, our dependent variable, was measured along four dimensions: (1) frequency of unprotected receptive and insertive anal intercourse and unprotected vaginal intercourse over the past two months (open-ended items, standardised into 10-point range scales); (2) number of unprotected vaginal and/or anal intercourse events leading to internal ejaculation while drinking alcohol and/or using drugs over the past two months (four open-ended items,

dichotomised into presence/absence in the past two months); (3) number of extra-dyadic, single sex encounters with partners in the past two months (two open-ended items, standardised into 10-point range scales); and (4) total number of sexual partners in the past two months (see Table 1 for distribution of dependent variables). The independent variables for this analysis, occupation and work environment, were measured using 42 descriptive items divided into four parts: (1) current and past 12 months paid and unpaid labour (including: weekly/monthly wages, hours of work, workplace supervision structure, employment status overtime, list of sources, list of types of occupation and physical/intellectual intensity of labour [30 items, open-ended numerical items, yes/no items, numerical range scales]); (2) current and past two months work satisfaction (six items in 4-point Likert scale, 1 = very dissatisfied; 5 = very satisfied, $\alpha = 0.87$); (3) current and past two months (concrete and perceived) work conflicts (four items in 5-point frequency scale, 1 = Less than half the time, 4 = All the time, $\alpha = 0.90$); (4) perceived work stress (one item in 5-point Likert scale, high score = high level of perceived work stress $\alpha = 0.91$) and coping strategies with workplace problems scale (adapted COPE Work Scale; Items = 22; High score = high number of avoidance strategies, $\alpha = .88$). We reclassified the 17 types of occupations reported by study participants into three groups based on the larger divisions of occupation by the US Bureau of Labour Statistics. The types of occupation represented in our study sample ranged from: (1) physical manual labour industry (15.5%, $n = 23$) including: farming, gardening, construction and demolition (mostly early morning schedules); (2) hospitality-entertainment industry (42.5%, $n = 63$) including: bartending, restaurant services, actors and performers and hotel services (wide range of day and late night hourly schedules); (3) retail professional business industry (42.5%, $n = 63$) including: floor sales, business administration, technicians and professionals (mostly 'regular' daytime schedules between 9 a.m.–6 p.m.). We used these three types of occupation as our primary independent variable.

In terms of demographic and background variables, we measured age, marital status, years of formal education, household composition and hypermasculinity (Machismo Cuellar Scale, 22 items, higher value indicates higher adherence to traditional male privilege ideology, $\alpha = .87$); Homosexual comfort scale (6 items, higher value indicates homosexual discomfort, $\alpha = .92$); and acculturation (Acculturation SASH Brief Scale, 13 items, higher value indicates higher acculturation, $\alpha = .91$). Under the conceptual framework that potential sex partners are met through the workplace space (Laumann et al., 2004), we examine differences in partner characteristics based on type of occupation.

We measured partner characteristics through 12 questions that were repeated by partner type within the prior two months (e.g. casual male partner): (1) Which racial group does he belong to? (2) What age group does he belong to? (3) His occupation fits best in which of the following categories? (4) Did you know where this partner lived? (5) If yes, did this sexual partner live in your neighbourhood or community? (6) Where did you meet this partner for the first time? (7) Were you introduced to this person? (8) If yes, who introduced you to this sexual partner? (9) To the best of your knowledge, how many friends did you have in common with this person? (10) Where did you have sex with this person? (11) How sexually attracted were you towards your sex partner during this encounter? (1 = Not at all

attracted to 5 = Very attracted) and (12) How emotionally close were you to this person? (1 = Not at all close to 5 = Very close).

Data were extracted from the online survey database and imported into IBM SPSS, version 19.0.1. We conducted descriptive statistics to describe the occupation and work environment factors of the men in the study. We conducted four types of statistical analyses: (1) linear regression to explore bivariate associations between types of occupation and continuous sexual risk measures; (2) logistic regression to explore bivariate associations between types of occupation and dichotomous sexual risk measures; (3) linear regression to identify differences, if any, in hourly wages, education and acculturation by type of occupation; and (4) multivariate linear modelling to explore how associations between types of occupation and sexual risk measures might be influenced (or explained) by background factors such as hourly/total wages, education and acculturation.

Results

Sample characteristics

The average age of study participants was 32.9 (SD = 11.8) years of age. At the time of the interview, 22.9% were legally married. As for furthest educational level attained, 5% of the sample only had an elementary school education, 15% had a middle school education, 11% had some high school education, 20% graduated high school, 6.5% had a GED, 25% had some college education, 15% had a college degree and 2.5% had a Master's degree or above. An economic profile of participants will be explored in the discussion section below. Contrary to our expectations, there were no statistical differences in levels of acculturation or total wages by type of occupation; furthermore, there were no statistical differences in demographic or background variables (i.e. age, acculturation, education, hypermasculinity, marital status) by type of occupation except for years of education completed. Men working on the manual labour sector reported significantly lower years of completed formal education than men working in the other two sectors (standardised b -coefficient = $-.26$; 95% CI: -3.11 , $-.76$). Men working in manual labour ($\mu = 3.79$; SD = 2.44) had the lowest level of education completed, followed by those in the hospitality ($\mu = 5.40$; SD = 2.56) and retail, sales, and professional industries ($\mu = 6.05$; SD = 2.39; Model: $F = 6.47$; $p = .002$). Therefore, we decided to include education as a variable in our statistical modelling of the associations between type of occupation and sexual risk. We also included age as a control variable in our analyses below.

Sexual risk indicators

Approximately half of the sample reported inconsistent condom use during anal and vaginal intercourse with their sex partners in the prior two months (see Table 1). Furthermore, approximately two-thirds of the sample reported some form of concurrent sexual partnerships over the same time period. Between 37.5% and 40.5% reported drinking alcohol before or during unprotected sexual encounter experiences. Marijuana use was the most common drug used before or during sexual encounters, with 39.2% and 35.1% of all unprotected sexual encounters with male and female partners, respectively, under the influence of marijuana (see Table 1).

Sexual risk practices and type of occupation

Working in the manual labour and hospitality industries was associated with higher sexual risk behaviours than working in the sales, retail and professional industries (see Table 2). Those working in manual labour ($x \bar{=} 9.11$, $SD = 11.6$) had significantly higher frequency of unprotected anal sex in the past two months (specifically insertive intercourse leading to internal ejaculation) than those working in the hospitality ($x \bar{=} 3.67$, $SD = 9.4$) and retail, sales and professional ($x \bar{=} 3.53$, $SD = 11.2$) industries. Those working in manual labour ($x \bar{=} 11.9$, $SD = 15.2$) and hospitality ($x \bar{=} 7.39$, $SD = 15.3$) had a significantly higher frequency of unprotected vaginal sex in the past two months (specifically vaginal intercourse leading to internal ejaculation) than those working in the retail, sales and professional industries ($x \bar{=} 3.52$, $SD = 13.2$). There were no statistical differences in mixing alcohol/drugs and unprotected anal sex among the men in the study (see Table 2). However, men in the hospitality industry were almost three times more likely to engage in unprotected vaginal intercourse and drinking alcohol in the past two months than men working in the manual labour or retail/professional industries (see Table 2). Conversely, men in the sales, retail and professional industries were 66% less likely to report combining unprotected vaginal intercourse and alcohol use in the past two months than those in the manual labour and hospitality industries (see Table 2).

Concurrent sex and type of occupation

Those working in the hospitality industry ($x \bar{=} 3.64$, $SD = 7.2$) had a significantly higher frequency of concurrent female sexual partners (specifically single sexual encounters with women while maintaining a steady relationship with another man and/or woman) than those working in the manual labour ($x \bar{=} 2.06$, $SD = 2.3$) and retail, sales and professional industries ($x \bar{=} 1.18$, $SD = 1.5$). There were no statistical differences in concurrent sex with male partners by type of occupation (see Table 2).

Work environment, occupation and sexual risks

We found no statistical differences between types of occupations and work satisfaction and work compatibility among the men in the study. In terms of work-related stress, participants reported not statistically different levels (manual labour workers $x \bar{=} 19.33$, $SD = 2.82$; sales, retail workers $x \bar{=} 19.13$, $SD = 5.71$; hospitality workers $x \bar{=} 18.89$, $SD = 5.87$). We also found no statistical differences in negative coping strategies in dealing with work-related stressors (manual labour workers $x \bar{=} 70.57$, $SD = 16.69$; sales, retail workers $x \bar{=} 63.39$, $SD = 14.85$; hospitality workers $x \bar{=} 62.93$, $SD = 16.08$). Work-related stress was not associated with sexual risk indicators in this sample. Frequency of negative strategies for coping with work-related stressors was positively associated with higher likelihood of experiencing unprotected vaginal intercourse while drinking alcohol in the prior two months (AOR: 1.05; 95% CI: 1.02, 1.08). Although there were no differences in work conflict levels by type of occupation, we found that work conflict, regardless of occupation, was associated with concurrent sexual practices. We found that the higher the level of work conflict reported, the higher the concurrent sexual encounters in the past two months with both male (standardised b coefficient = 1.17; 95% CI: 0.53, 1.81) and female partners (standardised b coefficient =

0.52; 95% CI: 0.02, 1.04; see Table 2). Finally, there were no statistical differences in frequencies of alcohol and drug consumption in the prior two months by type of occupation.

Age and education effects

The effects of age and education were examined in four associations found in the bivariate analyses: (1) working in manual labour was associated with high frequency of insertive anal intercourse; after including age and education, the model was no longer statistically significant (see models 1 and 2, Table 3); (2) working in the hospitality industry was associated with high frequency of concurrent sexual encounters with female partners in the past two months and this association remained the same after controlling for age and education (see models 3 and 4, Table 3); (3) working in the hospitality industry was associated with high likelihood of reporting at least one unprotected vaginal intercourse encounter in combination with alcohol use in the past two months, and this association remained significant after introducing age and education (see models 1 and 2, Table 4); and (4) working in the retail, sales and professional industry was associated with a low likelihood of engaging in unprotected vaginal intercourse in combination with alcohol use in the past two months, and this association remained at the same after controlling for age and education (see models 3 and 4, Table 4).

Partner characteristics

Our final analysis focused on comparing sexual partner characteristics by type of occupation. We found no statistical differences in the likelihood of having co-workers as sex partners by type of occupation, or in the total number of partners or demographic differences (age, income, race) between partners and individual. We found that men in the hospitality industry, in comparison to men in the other groups, reported significantly lower emotional closeness ('How emotionally close were you to this person?'; 5-point scale, 1 = Not close at all; 5 = Very close) with female casual partners they met in the last two months (standardised *b* coefficient = -0.38 ; 95% CI: $-1.80, -0.24$); and with their last male regular partner in the same time period (standardised *b* coefficient = -0.33 ; 95% CI: $-1.57, -0.09$). Conversely, men in the sales and retail industry reported higher level of closeness with their last male regular partner than men in other sectors (standardised *b* coefficient = $.41$; 95% CI: $0.29, 1.75$). Emotional closeness by type of occupation was not statistically associated with sexual risk indicators in this sample (findings not reported in tables).

Discussion

Several studies have established the relationship between social discrimination and increased vulnerability to HIV/STI (Parker & Aggleton, 2003; Varas-Días, Serrano-García, & Toro-Alfonso, 2005). The research participants of our study shared context of socio-economic vulnerability and structural violence that shapes their coping behaviours within their sex markets. Health disparities among ethnic and sexual minorities can be tied to both discrimination-related stress and fewer available coping mechanisms than among white populations (Meyer, Schwartz, & Frost, 2008). The social stigma and consequent internalisation of homonegativity that may lead some men to avoid disclosing their behaviour is a known determinant of unprotected sex among bisexual men (Kalichman,

Roffman, Picciano, & Bolan, 1998; Stokes, Venable, & McKirnan, 1997). Meanwhile, worldwide economic developments, such as globalisation and the rise of informational capitalism and the 'part-time class', have resulted in involuntary underemployment and pushed many into poverty and labour migrations. This economic climate can be seen as increasing stress levels, social marginality and vulnerability to risk behaviour as a coping mechanism. Indeed, higher levels of poverty have been associated with higher numbers of sexual partners and higher levels of sex risk among young adults (Davis, 2009). For men, irregular or unstable employment has been associated with increases in both number of partners and number of sexual intercourse events (Davis, 2009). Among gay Latino men, Diaz successfully showed a relationship between social oppression, poverty and the psychological distress most likely to precede sexual risk behaviour, with financial hardship showing the strongest relationship to psychological distress (Diaz, Ayala, & Bein, 2004).

Job instability and involuntary underemployment were indeed commonalities among our participants, regardless of occupation. Of the men in our study, 61.6% were employed part-time, 41.3% had an annual income below \$10,000 and 24.1% had an annual income between \$10,000 and \$19,999. Therefore, 65.4% of our sample was living beneath both the federal and New York City poverty lines (US Department of Health and Human Services, 2013). Retail, manual labour and hospitality positions cannot be discussed outside of the dramatic increase in involuntary part-time work or the rise of the 'part-time class' and the informal economy (Sassen, 1998). While part-time work has always been common in the retail and hospitality sectors, employers increasingly rely on a part-time workforce across sectors. According to the Bureau of Labour Statistics, the retail and wholesale sector has cut more than a million full-time jobs since 2006, while adding over 500,000 part-time positions. Between 2006 and 2008, part-time workers increased by 3.4 million people – two-fifths of which were from the retail, food service and construction industries (US Department of Labour, 2008, 2013).

Moving on from the commonalities of socio-economic vulnerability and marginality, it is important to discuss the distinctly different sexual behaviours expressed by occupation among our participants. Considering the number of shared factors at the general level amongst the occupations of our study participants, it is also relevant to examine the potential reasons for those involved in the professional/retail sector to be at lower STI risk-taking levels. Our evidence does not suggest that individuals in the professional/retail sector are under less stress or work conflicts than men in the other occupations. Thus, the hypothesis that differential stressors in the work environments by type of occupation lead to sexual risk is not supported by our findings. Conversely, the sexual market structure and social status differences by sector can be seen as critical factors increasing the likelihood of sexual health vulnerabilities.

Pierre Bordieu (1996) defines 'symbolic capital' as the social value available to those who may not have the access to status based upon economic capital. Borrowing this framework, we suggest that the retail/professional sectors confer a higher symbolic capital on the employee than does manual labour or hospitality. Regardless of income, the retail/professional sector may offer social status through an association with Western *symbols* of economic power, such as expensive goods, professional dress, elements of business culture

and relative ‘distance’ from manual labour. This symbolic capital may translate into greater value in sex markets, where symbols may operate as assets to acquire greater access to partners. Furthermore, the sex markets available to the retail/professional sector, with its more ‘regular’ daytime hours, may consist of more traditional modes of partnering and less late-night socialising and alcohol consumption in venues, such as bars and nightclubs, where men are more likely to encounter casual sex partners (Laumann et al., 2004) and where the use of alcohol might result in risky sexual behaviour (Diaz & Ayala, 1999). Therefore, while employees of this sector are economically marginalised, their greater degree of social value is a marked departure from the other occupations. Social status and access to more traditional social networks and spaces within sex markets may account for a decreased likelihood of practicing risky sex as a coping mechanism.

On the other hand, labour and service industries can be considered as low in both economic and social gains, and therefore lacking in symbolic capital. Manual labour has a long precedent of low status in civilizations worldwide (Khan, 2001). Philippe Bourgois (1995), writing on the formal employment of urban Latino men, characterised the service work available to them as ‘interpersonal subordination’. It has been shown that low social status and scarce economic means are related to a hyper or ‘compensatory’ construction of masculinity, for which an active and even promiscuous sexuality may be a key component (Anderson, 1999; Bourgois, 1995; Pyke, 1996). For these men lacking access to both tangible and symbolic capital, risky sexual behaviour with multiple partners may reaffirm masculinity and provide an alternative to traditional models of partnering that are unavailable to them. Within the hospitality sector, sex markets may be additionally determined by irregular or late night hours, as well as a work culture that normalises high alcohol intake (Mandell, Eaton, Anthony, & Garrison, 1992). In this way, social spaces within sex markets, due to economic marginality, irregular work hours and alcohol use, might be connected to concurrent partnership, one night stands and unprotected vaginal and anal sex.

This model is not seamless and leaves many questions unanswered. For example, Treas and Giensen (2000) assert that jobs requiring personal contact increase the likelihood of extra-dyadic, concurrent sexual partnerships. This finding could be useful to future studies of occupation and sexual behaviour in that, more than a force in socioeconomic positioning, capital and thus the accessing of sex markets as we have explored here, suggests the employment environment as a sex marketplace in itself. If Treas and Giensen’s argument is correct, then why might a high likelihood of concurrent partnerships be true for hospitality workers within our population but not among retail/sales/professional workers, who generally have comparably high contact with customers and clients in occupational settings? Our data on this point are limited, yet because those in the hospitality industry appeared to have less emotional attachment to sexual encounters than those in the retail/professional field (assuming that sexual partnerships are being initiated at the workplace), we suggest that this may be indicative of a different type and quality of interaction. To be sure, the two environments’ commercial intentions are quite different, with hospitality aiming to sell an experience to the customer – and the hospitality worker, be he a bartender or a hotel clerk, as integral to the experience being sold – and retail sales tending towards the transactional, products and goods-oriented services. While again, our data limits us from any conclusions

on this point, we suggest that various occupational environments as sexual marketplaces with differing risk behaviours as a compelling and potentially fruitful area of future study.

Limitations

Although our study findings must be taken as exploratory, this is one of the first studies to empirically examine labour variables among bisexual ethnic minority men, and the associations between labour, sexual markets, and STI risk-taking among bisexual Latino men. Further longitudinal research is needed to examine the causal linkages between occupations, their environments and vulnerability to sexual health risks. A few limitations to this study must be discussed.

The cross-sectional design of this study (as opposed to a random, representative sample which is not possible with hidden populations of unknown denominators) is a limitation to fully understanding the causal relationships between the occupational factors and HIV/STI risks. Furthermore, although the factors specified within each of the regression models were theoretically sound, our statistical analyses were exploratory in focus; our analytical objectives were to identify the relevancy of these factors in the likelihood of STI risk-taking. Because of this analytical strategy together with our cross-sectional design, our analyses may be limited by potential endogeneity in our independent variables in relation to our outcome variable. In other words, the estimated effect of a regressor on an outcome is inconsistent when that regressor is determined simultaneously with that outcome (Foster, 1997), i.e. bisexual men's chance of reporting a STI risk-taking practice could potentially be jointly determined by the variables that we identified in the models and unspecified factors. For example, while our findings suggest strong statistical associations between likelihood of working in the hospitality industry and having concurrent sexual partnerships, the occupational environment and structures of this type of occupation could be the cause of engaging in sexual risks, but it is also possible that individuals with underlying desires to meet high number of sexual partners and having concurrent sexual experiences might be more likely to seek jobs in the hospitality industry than seeking office-based jobs. Using instrumental variables estimation (i.e. in essence, conducting statistical modelling using variables that are uncorrelated with the outcome variable but correlated with the independent variable) is a means of obtaining consistent parameter estimates in this situation. Foster (1997) has argued that the best-known form of instrumental variables is two-stage least squares; unfortunately, this procedure cannot simply be extended to non-linear models like our logistic regression models, and although there are other methodologies, such as Generalised Method of Moments that uses instrumental variables, they are most adequate when the data collected are longitudinal. Finally, our analyses are limited by potential multi-collinearity (i.e. predictors that are related to linear combinations of other predictors). As part of the linear regression modelling, we conducted collinearity diagnostics. A VIF above five means that multi-collinearity inflated the standard errors and lowered the *t*-test of the associations; however, this was not the case in our regression models. In all the models examined, the VIF was below 5, e.g. in Table 4, model 4, the VIF coefficients for hospitality industry, education and age were: 1.05, 1.15 and 1.21, respectively. Furthermore, the regression coefficients of our primary independent variables (type of occupation) did not change importantly when adding age and education into the models.

Conclusion

Bisexual Latino men in major metropolitan areas like New York City live within a context of shared economic and social vulnerability. Further organisation of specific occupations according to a hierarchy of social capital and access to sex markets may help to explain elevated sexual risk in certain labour sectors – in this case, manual labour and hospitality industries. The identification of specific contexts of elevated risk can serve to inform the design of targeted interventions for groups of bisexual men. While the model laid out in this analysis is exploratory, it helps us begin to locate overlapping configurations of labour, occupation and patterns of sexual risk behaviour. As global economic forces continue to increase the ranks of the economically unstable, identifying intersections of socio-economic vulnerability, occupational stress and high-risk sexual behaviour has never been more critical.

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Table 1
Sexual risk indicators among bisexual Latino men in the New York metropolitan area ($n = 148$).

Sexual behaviours ^d	Always consistent condom use ^d	At least one unprotected sexual encounter ^b	Did not report behaviour ^a	Total ^a
Anal intercourse receptive with male partner	38 (25.7%)	72 (48.6%)	38 (25.7%)	148 (100%)
Anal intercourse insertive with male partner	49 (33.1%)	64 (43.2%)	35 (23.7%)	148 (100%)
Vaginal/anal intercourse with female partner	35 (23.6%)	79 (53.4%)	34 (23.0%)	148 (100%)
Drinking alcohol before or during anal sexual encounters with male partners	34 (23.0%)	55 (37.2%)	59 (39.8%)	148 (100%)
Drug use before or during anal sexual encounters with male partners ^c	21 (14.2%)	66 (44.6%)	61 (41.2%)	148 (100%)
Drinking alcohol before or during vaginal/anal sexual encounters with female partners	31 (20.9%)	60 (40.5%)	57 (38.6%)	148 (100%)
Drug use before or during vaginal/anal sexual encounters with female partners ^d	22 (14.9%)	65 (43.9%)	61 (41.2%)	148 (100%)
<i>Frequencies of sexual behaviours^a</i>	Mean	Standard deviation	Mode	Median
Unprotected anal intercourse receptive with male partners	3.65	3.77	2.00	2.50
Unprotected anal intercourse insertive with male partners	4.14	4.02	1.00	3.00
Unprotected vaginal/anal intercourse with female partners	9.73	17.83	3.00	3.00
Anal intercourse receptive with condom	4.45	11.21	0.00	2.00
Anal intercourse insertive with condom	7.27	11.94	2.00	5.00
Vaginal/anal intercourse with condom	7.86	17.16	0.00	2.00
Number of concurrent male partners	3.59	6.74	2.00	2.00
Number of concurrent female partners	2.39	5.11	1.00	1.00
<i>Type of partners^d</i>	<i>n</i>	%		
Have a primary sex partner (any sex)	130	87.8		
Have a primary, regular, female partner	94	65.5		
Have a primary, regular, male partner ^e	103	69.6		
Only secondary, informal sex partners ^f	18	12.2		
Concurrent (total) sexual partnerships ^g	103	69.6		
Concurrent female and male sexual partners	48	32.4		
Concurrent male sexual partners only	19	12.8		
Concurrent female sexual partners only	36	24.3		

^aThe period of reported behaviours focuses on the eight weeks prior to the administration of the structured interview.

^q Unprotected sex here refers to not using a condom at any moment during sexual intercourse with ejaculation inside or outside the partner or self.

^c 39.2% of all unprotected anal sexual encounters with male partners were under the influence of marijuana alone; 8.7% occurred while using marijuana in combination other drugs; and 10.7% occurred while using cocaine, heroin or other drugs.

^d 35.1% of all unprotected vaginal/anal sexual encounters with female partners were under the influence of marijuana alone; 4.1% occurred while using marijuana in combination other drugs; and 9.5% occurred while using cocaine, heroin or other drugs.

^e Male sex partners refer to sex partners with a penis at the moment of the sexual encounter; female partners refer to sex partners with a vagina at the moment of the sexual encounter.

^f Secondary, informal partners refer to participants that did not have a primary sexual partner and only had sex with one-night stands or 'fuck buddies' (sex with friends or acquaintances not necessarily implying a romantic, emotional involvement, long-term expectations or commitment to monogamy) in the prior two months.

^g Concurrent sexual partnerships refers here to having sex with individual/s other than primary sexual partners in the period of the prior two months.

Table 2

Occupation type and frequencies of sexual risk behaviours in the past two months among bisexual Latino men in the New York City metropolitan area ($n = 148$).

Sexual behaviours ^d	Manual labour industry ^b	Hospitality service and informal economy ^c	Sales, business, professional, tech, retail industry ^d
Unprotected anal sex receptive (proportion, standardised b coefficients, β , 95% CI) ^{e,f}	-0.09 (-6.03, 1.81)	-0.04 (-3.44, 2.21)	0.09 (-1.12, 4.51)
Unprotected anal sex insertive (β , 95% CI)	5.51 (.03, 10.93)*	-0.05 (-5.01, 2.65)	-0.06 (-5.29, 2.39)
Unprotected vaginal/anal sex (β , 95% CI)	0.15 (.76, 8.12)	0.06 (-3.18, 6.89)	-4.96 (-8.94, -.02)*
Concurrent male sex partners (number, standardised b coefficients, β , 95% CI)	-0.07 (-4.63, 2.14)	2.22 (-.20, 4.64)	-1.61 (-4.07, .861)
Concurrent female sex partners (β , 95% CI)	-0.03 (-2.98, 2.20)	2.23 (.42, 4.04)*	-2.06 (-3.90, -.22)*
Drinking alcohol during anal sex (presence/absence, adjusted odds ratio, AOR, 95% CI) ^{e,f}	1.04 (.27, 4.03)	2.13 (.59, 7.73)	0.55 (.22, 1.39)
Drug use during anal sex encounters (AOR, 95% CI)	0.62 (.14, 2.66)	1.07 (.38, 3.06)	1.09 (.41, 2.91)
Drinking alcohol during vaginal/anal sex (AOR, 95% CI)	2.31 (.63, 8.56)	3.31 (1.19, 9.36)*	0.33 (.12, .89)*
Drug use during vaginal/anal sex (AOR, 95% CI)	1.49 (.48, 4.47)	1.25 (.53, 2.98)	0.62 (.25, 1.54)
Total concurrent sex partners (β , 95% CI)	Mismatch with work management ^g	Work dissatisfaction ^g	Work conflict ^g
Concurrent male sex partners (β , 95% CI)	0.08 (-.46, 1.11)	0.02 (-.75, .89)	1.48 (.32, 2.63)*
Concurrent female sex partners (β , 95% CI)	0.04 (-.35, .51)	0.05 (-.34, .57)	1.17 (.53, 1.81)*
	0.05 (-.25, .42)	0.02 (-.31, .38)	0.52 (.02, 1.04)*

^aThe period of reported behaviours focuses on the eight weeks prior to the administration of the structured interview.

^bReference group for bivariate regression model: Not in manual labour.

^cReference group for bivariate regression model: Not in hospitality/informal economy.

^dReference group for bivariate regression model: Not in sales, business, retail.

^eFindings statistically significant at the 0.05 level are highlighted with an asterisk (*).

^f β coefficients and AOR were adjusted by age and income of participant; there were no statistical differences in age and income among the three types of occupation.

^gAgreement scales on the social environment of the workplace where participants works full-time or mostly work at the moment of the interview, where higher value indicate higher agreement.

Table 3Multivariate models of sexual risk indicators in the past two months by type of labour and education ($n = 148$).

	Model 1 UAI ($N = 148$) β (95% CI)	Model 2 UAI ($N = 148$) β (95% CI)	Model 3 CSF ($N = 148$) β (95% CI)	Model 4 CSF ($N = 148$) β (95% CI)
Manual labour (Reference: Not working in manual labour)	5.99* (0.38–11.59)	4.18 (–0.63–10.98)	–	–
Hospitality industry (Reference: Not in hospitality/informal economy)	–	–	2.17* (0.44–4.09)	2.17* (0.44–4.08)
Education completed (years)	–	–0.09 (–1.21–.37)	–	–0.08 (–0.54–.19)
Age (years)	–	–0.92 (–5.79–2.58)	–	–0.01 (–1.89–1.72)
Model significance	$F = 4.45$; $R^2 = .04^*$	$F = 2.77$; $R^2 = .02$	$F = 6.05$; $R^2 = .05^*$	$F = 3.45$; $R^2 = .06^*$

Note: Asterisk denotes $p < 0.05$; If β coefficient 95% confidence interval intersects zero, the coefficient is not significant at the 0.05 level of significance; UAI refers to the frequency of unprotected anal intercourse insertive with male partners in the prior two months; CSF refers to number of concurrent female sexual partners in the prior two months, i.e. number of partners in addition to primary partners in the past two months.

Table 4

Likelihood of unprotected vaginal intercourse in combination with alcohol use over the past two months by type of occupation among bisexual Latino men ($n = 148$; adjusted odds ratios, AOR).

	Model 1 ($N = 148$) AOR (95% CI)	Model 2 ($N = 148$) AOR (95% CI)	Model 3 ($N = 148$) AOR (95% CI)	Model 4 ($N = 148$) AOR (95% CI)
Hospitality industry (Reference: Not in hospitality/informal economy)	2.39* (1.01–5.78)	2.46* (1.01–5.99)	–	–
Sales, Retail industry (Reference: Not in sales, retail industry)	–	–	0.32* (0.12–0.86)	0.34* (0.12–0.92)
Education completed (years)	–	0.90 (0.75–1.09)	–	0.95 (0.79–1.16)
Age (years)	–	1.01 (0.82–1.26)	–	1.15 (0.98–1.36)
Model significance	Chi-square = 4.09; Nagelkerke $R^2 = .06^*$	Chi-square = 5.05; Nagelkerke $R^2 = .08^*$	Chi-square = 5.58; Nagelkerke $R^2 = .08^*$	Chi-square = 5.86; Nagelkerke $R^2 = .09^*$

Note: Asterisk denotes $p < 0.05$; If AOR 95% confidence interval intersects the value one, the coefficient is not significant at the 0.05 significance level.