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Perceptions of HIV transmission risk in commercial and public sex venues

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Abstract

Background—Sexual behaviors of men who have sex with men (MSM) that occur in sexually charged venues (e.g., bathhouse, sex club, public park) are a target for research and intervention due to concerns about the role these venues may have in the transmission of HIV and other sexually transmitted infections (STIs). However, these efforts often exclude how individuals perceive HIV risk in terms of sex venue use. This paper analyzes how venue-specific perceptions of HIV transmission risk differ across venues and by onsite sexual behavior.

Method—Cross-sectional data collected using an Internet survey completed by 139 MSM who attended at least one sex venue (e.g., bathhouse, sex club, gym/health club, public park) in the past month.

Results—Risk perceptions were highest for bathhouses and sex clubs, though no significant differences were detected between any of the venues. With few exceptions, men who reported not engaging in sex or low-risk behaviors (i.e., masturbation or mutual masturbation) during venue attendance perceived higher risks than those who engaged in high-risk behaviors (i.e., anal sex). Interestingly, risk perceptions of public bathrooms, parks, and video/buddy booths were lower for attendees who reported unprotected oral sex with ejaculation than men who reported safer or riskier behaviors.

Conclusion—These findings provide important insights into how MSM perceive HIV risk in sex venues and highlight a need for expanded outreach and education in locations where sexual risk taking may be underestimated.

Keywords

HIV/STI risk; HIV risk perceptions; MSM; Sex venues

Introduction

Men who have sex with men (MSM) continue to be disproportionately affected by HIV and AIDS, particularly in the United States (U.S.) where 61% of estimated new infections in 2009 were attributed to this population [1]. The sexual behaviors of MSM that occur in commercial (e.g., bathhouse, sex club) and public (e.g., park, bathroom) sex venues are a target for research and intervention due to concerns about the role these venues may have in

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the transmission of HIV and other sexually transmitted infections (STIs). Often missing from these efforts, however, is attention to how individuals perceive HIV risk in terms of sex venue use.

Although some studies suggest that personal assessments of HIV transmission risk among MSM may be reflective of sexual behavior [2-4], others do not [5,6]. Among the few studies to investigate risk perceptions of sex venue users, two concluded that estimates of HIV transmission risk in bathhouses were comparable to, if not greater than, those of other venues where men engage in similar behavior [7,8]. Another study noted that the risk of disease in public parks can be overshadowed by threats of violence and arrest [9]. Furthermore, venue risk appraisals are often specific to other patrons and their willingness (or unwillingness) to engage in certain behaviors. For example, patrons who desire to have unprotected anal-receptive sex are generally assumed to be HIV-positive [10-12]. Much of this work, however, is limited to commercial sex venues and has not compared venue-specific HIV risk perceptions of patrons who engage in different levels of sexual risk behavior during attendance. Knowledge of how these men perceive HIV risk in other types of venues (e.g., parks, gyms/health clubs, video booth stores) can have a significant impact on where prevention efforts are targeted. This paper examines HIV risk assessments of sex venues as well as how those risk assessments differ by onsite sexual behavior of MSM. The primary goal of this analysis was to stratify venue-specific perceived risk by the level of sexual risk.

Method

Participants

The data presented in this paper are drawn from a larger study of MSM ($n = 204$) who completed an online survey about HIV risk perceptions, sex venue attendance, and sexual behavior. Individuals were eligible for the study if they: (1) actively engaged in sexual behavior with other men; and (2) were at least 18 years of age. This report analyzes data from a subgroup of participants who reported attending at least one sex venue in the previous month ($n = 139$). Sample characteristics are presented in Table 1.

Procedure

Data collection took place from May to September 2008. Despite efforts to recruit men from a variety of venues in New York City, including gay bars/clubs and cruising parks, the majority of participants were recruited from Internet sites. A full description of the sampling strategies has been provided elsewhere [13]. Recruitment materials (i.e., information cards, Internet advertisements) indicated that there was a chance to win a \$50 prize, and instructed potential participants to e-mail the study e-mail address and request a link to the online survey.

After receiving and accessing the survey link participants were asked to read a consent page and subsequently prompted to click their agreement. The consent page informed participants that the survey would take approximately 20 minutes to complete. Upon completing the survey, individuals were given the option to provide an e-mail address that would be entered into a random drawing for one of two \$50 electronic gift certificates. The Institutional Review Board affiliated with The City University of New York approved this study.

Instrument

As part of the online survey, participants were asked how often in the previous month (never, 1 or 2 times, once a week, 2 or 3 times a week, more than 3 times a week) they had frequented any of the following venues: gym or health club, public bathroom, bathhouse,

sex club, bar backroom, public park, and video or buddy booth. Frequency of attendance was positively skewed for each venue and subsequently dichotomized (0 = no attendance; 1 = attended). Use of the Internet as a venue to meet sex partners was also assessed; however, that venue is addressed elsewhere [13].

Using a 1-month recall period, participants were asked to report the number of times they engaged in masturbation or mutual masturbation, oral-receptive sex with ejaculation in the mouth (ORE), anal sex with a condom (insertive and receptive) and anal sex without a condom (insertive and receptive) for each venue attended. Any anal sex with a condom was totaled for each participant and coded as PAI (protected anal intercourse). Any anal sex without a condom was totaled for each participant and coded as UAI (unprotected anal intercourse). Sexual behaviors were positively skewed and subsequently dichotomized for further analysis.

The survey also assessed venue-specific perceptions of HIV transmission risk. For each venue attended, participants were asked: "In terms of HIV transmission, how risky do you believe sex to be, overall, in a [venue type] *on a scale of 1-10?*" Response choices were defined as: 1 = not risky at all, to 10 = extremely risky.

Analysis

Data were analyzed using SPSS (version 16.0) as well as the Microsoft Excel StatPlus program [14]. Perceptions of HIV transmission risk were compared across two domains: (1) venue types, and (2) sexual behavior. To stratify venue-specific perceived risk by level of sexual risk, five categories of behavior were analyzed: no sexual behavior, masturbation/mutual masturbation only, ORE (no anal sex), PAI (no UAI), and UAI. For venue-specific perceptions of HIV transmission risk (measured on an ordinal scale), Kruskal–Wallis ANOVA (chi-square), a nonparametric equivalent to a one-way ANOVA was used, as well as the Mann–Whitney *U* test, the nonparametric equivalent to an Independent samples *t*-test. Statistically significant associations were defined as $P < 0.05$, and marginally significant associations were defined as $P = 0.10$. Bonferroni corrections were applied to the alpha values of post-hoc comparisons.

Results

Venue-specific perceptions of risk across venues

Table 2 presents data for the perceived risk of HIV transmission by venue. Risk perception ratings were modest for each of the venue types (mean = 5.13–6.41, median = 5–7). A Kruskal–Wallis ANOVA, limited to single venue users, revealed no differences in risk perceptions across venues, $\chi^2_{(6, n=45)} = 7.67$, $P = 0.26$. By restricting the analysis to single venue users, only three venue types obtained a sample size greater than 5 (gym or health club ($n = 7$), public park ($n = 13$), and video or buddy booth ($n = 9$)). Post-hoc observations revealed similar mean ranks for perceived HIV transmission risk in a public park and video/buddy booth; however, a Mann–Whitney *U* test did not detect any significant difference in perceived HIV transmission risk for either venue when compared to the perceived risk in a gym/health club. Furthermore, within venue analyses revealed no significant differences in perceived risk between single venue users and those who attended more than one venue.

Venue-specific perceptions of risk across sexual behavior

A Kruskal–Wallis ANOVA compared venue-specific perceptions of HIV transmission risk across mutually exclusive, within-venue sexual behaviors (masturbation/mutual masturbation, ORE, PAI, and UAI). Behaviors with counts of ≤ 5 men were excluded from the analyses to preserve statistical power. As shown in Table 3, the results were significant

for two venue types (public bathroom and public park) and marginally significant for two others (gym/health club and video/buddy booth).

Post-hoc comparisons revealed several within-venue differences. The perceived risk of HIV transmission in a gym/health club was statistically different between men who reported only masturbation/mutual masturbation (median = 4) during their venue attendance and those who reported PAI (median = 7), $U_{(n=26)} = 100.5$, $P < 0.05$, $r = 0.39$. For men who attended public bathrooms, the perceived risk of HIV transmission in that venue was statistically different between men who reported only masturbation/mutual masturbation (median = 10) and those who reported ORE (median = 5), $U_{(n=19)} = 70$, $P = 0.017$, $r = 0.54$. The perceived risk of HIV transmission in a public park was statistically different between men who reported no sexual behavior (median = 8) in that venue during the past month and those who reported ORE (median = 5), $U_{(n=19)} = 74.5$, $P = 0.012$, $r = 0.58$, as well as between ORE and UAI (median = 7), $U_{(n=25)} = 32.5$, $P = 0.015$, $r = 0.49$. Additionally, the perceived risk of HIV transmission in a video/buddy booth was statistically different between men who reported only masturbation/mutual masturbation (median = 7) in that venue type during the past month and those who reported ORE (median = 5), $U_{(n=16)} = 52.5$, $P = 0.015$, $r = 0.61$. Lastly, two behaviors in sex clubs achieved counts of greater than 5 men (PAI and UAI); however, a Mann–Whitney U test detected no difference in risk perception between these groups ($P = 0.45$).

Discussion

This study is one of the first to examine how MSM perceive the risk of HIV transmission from having sex in commercial and public sex venues. Perceived risk levels were highest for bathhouses and sex clubs; however, no significant differences were detected between any of the venues. Though speculative, this finding suggests that the perceived risk of HIV transmission in one venue is comparable to that of other venues where MSM engage in sexual activity and is consistent with previous research [7].

With a few exceptions, men who reported not engaging in sex or reported low-risk sexual behaviors during venue attendance perceived higher venue-specific HIV transmission risks compared to those reporting behaviors with a greater potential for infection (unprotected oral sex, anal sex). This was particularly true of men who attended public bathrooms, public parks, and video/buddy booths. However, two additional findings suggest that men's risk perceptions of sex venues are more reflective of their onsite behavior. First, the perceived risk of HIV transmission in a gym/health club was higher for men who engaged in protected anal sex compared to those who only engaged in masturbation or mutual masturbation. Perhaps it was their higher perception of venue risk that led these men to use a condom for anal sex. However, some men who pursue sexual encounters involving only masturbation may estimate venue risk in terms of their own low-risk behavior. Also, the perception of HIV transmission risk in a public park was lower for men who reported unprotected oral sex with ejaculation compared to those who reported unprotected anal sex. Similar observations, though non-significant, were noted for public bathrooms, bathhouses, and video/buddy booths. A possible explanation for this finding is that both groups of men (ORE and UAI) based their perception of risk on their own sexual behavior in the venue(s).

There were some limitations to this research that warrant discussion. First, to examine differences between venue-specific perceptions of HIV transmission risk, the Kruskal–Wallis ANOVA included only men who attended a single venue during the previous month. In doing this, the sample sizes within each venue were potentially too small to detect significant differences. This also made it difficult to examine differences in venue-specific HIV risk perceptions by onsite sexual behavior among men who attended sex clubs and bar

backrooms. Second, these data rely on self-report thus creating the potential for recall bias. However, the survey assessed venue attendance and sexual behaviors using a 1-month interval rather than a longer period (e.g., 3 months, 12 months) in order to minimize any effects from underreporting or inaccuracy [15]. Third, study procedures were carried out via the Internet rather than onsite as other venue studies have done. However, recent evidence suggests that MSM who frequent a variety of venues can be reached using online research methods [16].

Lastly, including HIV-positive men could have had a confounding effect on the dependent variable (i.e., venue-specific perceptions of HIV transmission risk). However, several factors influenced the decision to include them: (1) only 10 (7%) venue users identified as HIV-positive; (2) when data for these men were excluded, the median risk perceptions did not change for any of the venues with the exception of public parks (median = 5); (3) a re-analysis of public park data, excluding HIV-positive participants ($n = 7$), revealed consistent outcomes with those reported in Table 3; and, (4) the dependent variable did not assess an individual's perceived risk of acquiring HIV but rather an overall transmission risk from having sex in the specific venue(s) attended.

Implications

The results of this investigation, though preliminary, have implications for outreach educators and other HIV/STI prevention counselors working with men who frequent sex venues. First, by establishing that MSM perceive moderate levels of HIV transmission risk in gyms/health clubs and video/buddy booths, these findings highlight the need for expanded (and tailored) prevention efforts in locations where the frequency of sexual risk behaviors may be underestimated. Educating managers and owners about the potential risks occurring at these venues is critical to developing collaborations with community service agencies and local health departments that provide sexual health outreach (e.g., HIV/STI counseling and testing, distributing condoms and lubricants, motivating safer sex behaviors). Recent evidence suggests that the possibility of coordinating HIV prevention activities in settings that do not intentionally provide spaces for sex is not unrealistic [17].

Additionally, when venue-specific risk perceptions are stratified by onsite sexual behavior, unprotected oral sex with ejaculation appears to represent a potential dividing line for some MSM. Median risk perceptions for public bathrooms, public parks, and video/buddy booths for men who reported ORE were lower than perceptions for those who reported either safer (no sex, masturbation or mutual masturbation) or riskier (unprotected anal sex) behaviors. Although the risk of HIV transmission from unprotected oral sex is considered to be lower than that of anal penetration [18], this behavior does increase the chances of acquiring an STI, and multiple contacts could result in a greater number of HIV infections [19]. Counselors and educators should address the risk factors and motivations for unprotected oral sex with MSM venue users.

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Table 1Sample characteristics ($n = 139$)

	%	n
Age ($n = 130$)		
18–29	12	16
30–40	34	44
41–60	50	65
Over 60	4	5
HIV status		
HIV negative	79	110
HIV positive	7	10
Did not know/refused to say	14	19
Venue attendance (past month) [†]		
Gym or health club	38	53
Public bathroom	39	54
Bathhouse	25	35
Sex club	21	29
Bar backroom	22	30
Public park	51	71
Video or buddy booth	46	64

[†]Percentage across venues totals more than 100% due to multivenue use.

Table 2Venue-specific perceptions of HIV transmission risk ($n = 139$)

Venue	Mean	Median	SD	IQR
Gym or health club	5.13	5	2.23	3
Public bathroom	5.89	5	2.62	4
Bathhouse	6.23	6	2.30	3
Sex club	6.41	7	2.08	3
Bar backroom	5.77	5	2.67	4
Public park	6.16	6	2.45	3
Video or buddy booth	6.09	5	2.31	3

SD, standard deviation; IQR, interquartile range.

Table 3

Venue-specific perceptions of HIV transmission risk across sexual behavior

Venue	No sexual behavior (A)		Masturbation or mutual masturbation (B)		Oral-receptive with ejaculation (C)		Protected anal intercourse (D)		Unprotected anal intercourse (E)		Kruskal-Wallis ANOVA χ^2
	Mdn	IQR	Mdn	IQR	Mdn	IQR	Mdn	IQR	Mdn	IQR	
Gym or health club ^a	5.5	2	4	3.25	6	5.25	7	1.75	5	0.75	4
Public bathroom ^b	–	–	10	2	5	4	4.5	5	6	2	3
Bathhouse ^c	–	–	–	–	6	3.75	5.5	2.5	6.5	4.5	2
Sex club ^d	–	–	–	–	–	–	7.5	2	7	3	1
Public park ^e	8	2	–	–	5	1.25	5	3	7	3	3
Video or buddy booth ^f	–	–	7	2.5	5	1.5	6	4.5	6	3	3

Mdn, median; IQR, Interquartile range; NA, not applicable.

Kruskal–Wallis ANOVA χ^2 : gym/health club ($n = 50$), public bathroom ($n = 33$), bathhouse ($n = 27$), public park ($n = 44$), video/buddy booth ($n = 38$).^a $P < 0.05$ ^b $P = 0.10$; (A)–(E) are mutually exclusive categories within each venue.^c Behaviors with counts of 5 men were not included in bivariate analyses. Descriptive statistics have been excluded from the table.^d (B) < (D), $P < 0.05$ ^e Adjusted P -value for post-hoc comparisons = 0.017; (B) > (C), $P = 0.017$; (B) > (D), $P = 0.07$; (B) > (E), $P = 0.04$.^f Adjusted P -value for post-hoc comparisons = 0.017; (A) > (C), $P = 0.012$; (A) > (D), $P = 0.15$; (C) < (E), $P = 0.015$.^g (B) > (C), $P = 0.015$.