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Mr. Right and Mr. Right Now: Romantic and Casual Partner-Seeking Online among Young Men who have Sex with Men

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Abstract

Dating is a normative behavior for youth, yet few studies have examined the relationship between romantic partner-seeking and sexual behavior among young men who have sex with men (YMSM). This omission is most notable across studies examining YMSM's partner-seeking behaviors online. In this study, we examined the relationship between sexual behaviors and online partner-seeking behaviors for casual and romantic partners in a sample of YMSM ($N = 431$; $M = 21.49$ years old, $SD = 1.94$) who reported using the Internet to meet other men. Using analysis of covariance (ANCOVA), we found YMSM in the High Romantic/High Casual group had more unprotected partners than YMSM in other categories. YMSM in the High Romantic/Low Casual group had fewer unprotected partners than the High Romantic/High Casual group. We discuss the implications of our findings and conclude that there is a need to further examine romantic partner-seeking among YMSM.

Keywords

Internet; HIV; Young Men Who Have Sex with Men; Hooking Up; Dating; Partners

INTRODUCTION

The Centers for Disease Control and Prevention (CDC) estimates suggest that young MSM (YMSM; 13 to 24 years old) in the United States had dramatically higher rates of HIV infection than MSM in older age groups between 2001 and 2006 [1]. The increase in HIV diagnoses within this age group coincides with YMSM's transition from adolescence into young adulthood, a period characterized by a series of explorations in peer, sexual, and romantic relationships [2,3]. At present, many of those explorations take place over the Internet [4,5]. Having grown up with Internet-based communication as part of their daily social interactions, YMSM are more likely than older MSM [6,7] to use this technology to learn about their sexuality and to meet new partners [8,9], whether as a viable alternative to bars and clubs if underage or as a supplement to their offline socialization [10]. Research examining online interactions among YMSM is vital to inform ongoing HIV prevention efforts [5,11-15]. We contribute to these efforts by examining YMSM's online partner-seeking behaviors, both for casual and romantic partners, and their relationship to their sexual behaviors.

In contrast with face-to-face exchanges, the instant communication facilitated by the online environment may promote an increased expression of inhibited desires and a heightened sense of trust and intimacy [16-18]. Across numerous studies exploring the role of online communication in HIV transmission, researchers have noted that MSM who use the Internet to meet partners report higher levels of sexual risk behaviors (e.g., multiple sexual partners, inconsistent condom use, and the likelihood of reporting unprotected anal intercourse with a partner of unknown or serodiscordant HIV status) than MSM who meet sexual partners in bars and clubs [12,19-21]. Most of the literature examining the relationship between HIV risk and MSM's online partner-seeking has focused on casual sex encounters [4,22-24]. The accumulation of this literature, while important for HIV prevention efforts, may inadvertently suggest that MSM's use of the Internet to meet partners is primarily sex-driven (i.e., transient pleasure and sexual sensation seeking). As a result, past findings may have overlooked the relationship between YMSM's sexual behaviors and their pursuit of romantic relationships (i.e., dating) online. This oversight is particularly troubling as MSM may have other motivations (e.g., looking for closeness, intimacy, companionship) to seek partners online [25], as evidenced by the increasing use and popularity of social networking and dating sites.

This distinction between casual and romantic partners is vital to contextualize YMSM's HIV risks and sexual behaviors [26-28]. Researchers have noted that MSM pursuing or participating in romantic relationships may be more likely to forego their vigilance and concerns about potential infection or unwanted transmission in order to express intimacy, love and trust [29-31]. This dynamic may be particularly relevant to online dating because Internet-based communications may expedite perceptions of intimacy and security prior to meeting a partner in a face-to-face encounter [17,18,32]. YMSM's exploration of an emerging sexual identity and introduction into same-sex dating may further fuel trust and infatuation [33] and hinder their ability to negotiate condom use successfully [34]. Conversely, it is equally plausible that pursuing romantic partners could reduce risk by promoting protective behaviors [35]. Since individuals attempt to make the best impression when pursuing romantic partners online [36,37], YMSM may engage in more socially desirable behaviors (e.g., condom use) and decrease the number of partners with whom they have unprotected sex. Furthermore, dating online may reduce the likelihood of YMSM meeting partners in venues (e.g., bars and clubs) where drugs and alcohol are present [38,39], promote opportunities that encourage serial dating, and/or decrease the number of casual sexual encounters. Taken together, these findings suggest that romantic partner-seeking behaviors online may have a unique set of implications for HIV prevention for YMSM who use the Internet to meet partners; however, the role of romantic partner-seeking on YMSM's HIV risk outcomes remains unexamined. Consequently, as a contribution to this literature, we examined the relationship between romantic partner-seeking online and YMSM's sexual behaviors, after accounting for casual partner-seeking behaviors.

In exploring their sexuality, YMSM may use the Internet to pursue one type of partner (i.e., romantic or casual) more actively than the other, or may pursue both partner types to the same extent. In some instances, a casual partner may become a romantic interest (or vice versa). Consequently, rather than assuming that YMSM's online partner-seeking behaviors are mutually exclusive, it is vital to acknowledge that YMSM may pursue casual and romantic partnerships concurrently. YMSM may hope to meet "Mr. Right" and also seek casual sex encounters with "Mr. Right Now". At present, however, we know little of the association between YMSM's HIV risks and simultaneous pursuit of casual and romantic partnerships, or the extent to which different partner-seeking combinations may increase or decrease YMSM's HIV risks. These data may inform the development of tailored HIV prevention efforts for YMSM in these different partner-seeking combinations. As a contribution to the literature, we tested whether YMSM's number of partners, both for

protected and unprotected anal intercourse (UAI), differed across four partner-seeking combinations (i.e., Low Romance/Low Casual; High Romance/Low Casual; Low Romance/High Casual; High Romance/High Casual) in this study.

Study Objectives

We examined YMSM's online partner-seeking behaviors in order to inform ongoing HIV prevention efforts. Building on the previous literature, we proposed three objectives for this study. First, we assessed YMSM's use of the Internet to seek casual and romantic partners in the past two months. We then tested whether these partner-seeking behaviors varied by YMSM's age, race/ethnicity, educational attainment, and sexual identity. Second, we examined the relationship between YMSM's number of partners in the past two months and their use of the Internet in the past two months to seek casual and romantic partners, respectively. Finally, we examined whether the *combined* frequency with which YMSM sought out romantic and casual partners was associated with their number of partners based on four partner-seeking categories.

METHODS

Sample

Data for this paper come from a cross-sectional observational study examining YMSM's dating experiences online (the "Virtual Love Study"). To be eligible for participation, recruits had to be between the ages of 18 and 24, report having used a dating website in the past 3 months, report having been sexually active with a male partner met on a dating website in the past 6 months, and report being single. Participants were primarily recruited through advertisements on two popular social networking sites, participant referrals, and flyers posted at local venues commonly frequented by YMSM. Social network advertisements were viewable only to men who fit our age range and who lived in the United States. Promotional materials displayed a synopsis of eligibility criteria, a mention of a \$15 iTunes gift card incentive, and the survey's website. In our advertisements, we did not define "dating websites" to ensure inclusivity of sites that are marketed for romance (e.g. Match.com, Chemistry.com) or for broader social purposes (e.g., Gay.com, Manhunt.com).

A total of 548 entries were recorded between December 2009 and March 2010. We removed duplicates and falsified entries ($N = 49$; 8.9% of all entries) by examining participants' email addresses, IP addresses, and operating system and browser information. We concluded with an analytic sample of $N = 499$ sexual minority youth, of which 52 (10%) were eligible and consented but did not commence the survey (i.e., a study completion rate of 89.6%). The vast majority of participants self-identified as gay or homosexual ($N = 380$; 85.0%) or bisexual ($N = 51$; 11.4%). Given the few observations in other sexual and gender identity categories, we exclude from this report those participants who self-identified as straight or other ($N = 3$; 0.4%), were transgender ($N = 6$; 1.6%), or had missing data on their sexual identity ($N = 7$; 1.6%). We include a description of the final sample ($N = 431$) in the Results.

Procedures

The web-survey was developed using current web-survey recommendations [40], and pilot tested prior to data collection. Study data were protected with a 128-bit SSL encryption and kept within a University of Michigan firewalled server. Upon entering the study site, participants were asked to enter a valid and private email address, which served as their username. This allowed participants to save their answers and, if unable to complete the questionnaire at one sitting, continue the questionnaire at a later time. Participants were then asked to answer four questions (i.e., age, relationship status, use of the Internet, sexual activity with partner met online) to determine their eligibility. If eligible, participants were

presented with a detailed consent form that explained the purpose of the study (i.e., exploring how YMSM use the Internet for dating) and their rights as participants. YMSM were asked to acknowledge that they read and understood each section of the consent form, respectively (i.e., participation involvement, protection of privacy, uses of data, potential benefit, compensation, terms of the Certificate of Confidentiality, changing their mind about participation, and who to contact if they had questions).

Consented participants then answered a 30-45 minute questionnaire that covered assessments regarding their sociodemographic characteristics, HIV status, Internet use, relationship ideals, sexual and substance use behaviors, and general mood over the last few months. For those questionnaires that were incomplete, participants were sent two reminder emails that encouraged them to complete the questionnaire; one email was sent a week after they had started the questionnaire and another was sent a week before the questionnaire was scheduled to close. Participants were compensated with \$15 in iTunes gift cards via e-mail upon completion of the questionnaire. We acquired a Certificate of Confidentiality to protect study data. The University of Michigan Institutional Review Board approved all study procedures.

Measures

We include descriptive statistics for variables included in this report in Table I.

Sexual Behavior—Respondents were asked to report their sexual behavior with men and women during the previous two months using the Sexual Practices Assessment Schedule [41,42]. Questions were posed both in formal language and vernacular (in italics) to increase comprehension. For this report, we include questions regarding the total number of male partners, the number of partners with whom participants engaged in unprotected receptive anal intercourse (URAI), and the number of male partners with whom participants engaged in unprotected insertive anal intercourse (UIAI). We assigned a value of zero to participants who reported not having engaged in URAI or UIAI with their male partners in the past two months.

Internet Use—Prior to answering a series of questions related to their Internet use, we offered participants the following definitions for *date* (i.e., getting to know another man for a potential romantic relationship) and *hookup* (i.e., having a no-strings attached sexual encounter with another man). These definitions were created based on qualitative interviews conducted with YMSM prior to the survey. We then asked participants to describe how often they had used the Internet in the past two months to find someone to date or to hookup, respectively. Participants answered each frequency question with a 7-point scale (0 = Never, 7 = More than once a day). Given few observations in certain cells and to maximize interpretation (see Table I), we recoded these variables into a 4-point scale [0 = Never, 1 = Rarely (Once a month or less), 2 = Sometimes (2-3 times a month), and 3 = Often (Once a week or more/2-6 times a week/About once a day/More than once a day)].

Using an open-ended question, participants were also asked to provide the average number of hours per week they spent online looking for potential romantic partners and casual partners, respectively. We also assessed how much the Internet had replaced YMSM's socializing in bars and clubs using a 4-point scale (1 = Not at all, 4 = Very much). We included a fifth response category for participants who were underage ("I'm not old enough to go to bars/clubs"); this category was later recoded and assigned a value of 1 ("Not at all") for multivariate analyses. Furthermore, we asked participants to indicate in a 5-point scale (1 = Not at all, 5 = Extremely) how confident they were that they would find their ideal romantic partner in a dating, hookup, and social networking website, respectively.

Demographic characteristics—Respondents were asked to report their age (in years) and highest level of education completed (1= Less than high school, 2 = High school, 3 = Technical/Associate degree, 4 = Some College, 5 = College, 6 = Some Graduate School, 7 = Graduate School). YMSM were asked to self-report their sexual identity (“How do you self-identify”?) and asked to check all the responses that applied: 1 = Gay/homosexual, 2 = Bisexual, 3 = Straight/heterosexual, 4 = Transgender, 4 = Other, and 5 = I don’t want to answer. The last category was later recoded as missing. Respondents were then asked to report their race/ethnicity: White or European American, Latino or Hispanic, African American or Black, Asian or Pacific Islander, Native American, and Other. We combined the Native American and Other race categories given the limited number of observations, and created dummy variables for each race/ethnicity group. White participants served as the referent group in our analyses.

Data Analytic Strategy

We described the sample across the variables under study, examining correlations between these variables and testing for mean differences using the sociodemographic variables (*Study Objective 1*). Continuous variables with skewed distributions (e.g., hours per week seeking partners online, sexual behaviors) were log-10 transformed to minimize violations to normality prior to bivariate analyses (i.e., *t*-tests or ANOVAs). We used chi-square statistics to examine categorical variables. Our two measures of online partner-seeking behaviors, YMSM’s partner-seeking frequency and the hours per week spent seeking partners, had moderately strong correlations (romantic partner-seeking: $r = .42, p < .01$; casual partner-seeking: $r = .64, p < .01$). Therefore, we only used the partner-seeking frequency measures in multivariate analyses to alleviate concerns of multicollinearity.

We used generalized linear models with a Poisson distribution to accommodate the count nature of our three outcomes. Within this analytic framework, we performed a two-way analysis of covariance (ANCOVA) in order to examine the unique contribution of YMSM’s Internet use to meet casual and romantic partners, respectively, on their number of partners in the past two months (*Study Objective 2*). We adjusted for age, race, sexual identity, and extent to which the Internet had replaced participants’ socializing in bars or clubs in multivariate analyses. To avoid artificially increasing the Type-I error rate, we examined the omnibus test for each model and the Wald χ^2 statistic of each predictor. Furthermore, to minimize inadequate model estimation due to overdispersion (i.e., an excessive number of zeros) [43], we restricted the analyses to YMSM who had reported being sexually-active in the past two months when the dependant variable was the total number of male partners ($N = 376$). Similarly, we limited our analyses to YMSM who had reported engaging in at least one occasion of unprotected receptive ($N = 252$) and insertive ($N = 242$) anal sex when we examined the total number of URAI and UIAI occasions and partners as outcomes.

After computing the main effects models, we reran our analyses using four categories that acknowledge the concurrent pursuit of casual and romantic partners (*Study Objective 3*). We created four categories based on YMSM’s low (Never or Rarely) or high (Sometimes or Often) online partner-seeking for romantic and casual partners: Low Romantic/Low Casual (LR-LC, $N = 92$), High Romantic/Low Casual (HR-LC, $N = 142$), Low Romantic/High Casual (LR-HC, $N = 52$), and High Romantic/High Casual (HR-HC, $N = 139$). A significant category in our regression models suggested that the average mean score for YMSM in a particular partner-seeking combination (e.g., HR-LC) was different than the HR-HC category (referent group). We also carried out pairwise comparisons across groups using Fisher’s least significant difference (LSD) post-hoc test. For brevity, only statistically-significant predictors are discussed in the text.

RESULTS

Sample Description

Our sample consisted of 431 YMSM ($M = 21.49$, $SD = 1.94$) who self-identified as gay (88%) or bisexual (12%). Close to three quarters of the sample self-identified as White or European American; the remainder of the sample identified as Hispanic/Latino (8.9%), Asian Pacific Islander (7.5%), African American or Black (6.1%), or Other (3.5%). On average, participants had completed some college ($M = 4.23$, $SD = 1.28$, $Md = 4$), with two-thirds of the sample reporting currently in school. Twelve participants reported being HIV+.

Participants reported an average of four partners in the past two months ($M = 3.83$, $SD = 5.78$, $Md = 2$). Sixty percent of the sample reported engaging in receptive ($N = 252$) or insertive ($N = 242$) anal sex in the past two months with more than one partner (see Table I). We found no mean differences across YMSM's sexual behaviors by race, age, educational attainment, sexual identity, or occupation.

Most participants reported using the Internet for romantic partner-seeking (i.e., two to three times a month; $M = 2.00$, $SD = .98$) and for casual partner-seeking (i.e., once a month or less; $M = 1.43$, $SD = 1.07$). When we examined the relationship between the two online partner-seeking behavior variables, we noted differences across the combined categories [χ^2 ($N = 425$, $df = 9$) = 31.65, $p < .05$]. Consistent with our eligibility criteria, we found few participants represented in the Never category for seeking romantic partners in the past two months, irrespective of their use to seek out casual partners. We also found that YMSM in the Often category for seeking casual partners were more likely to be represented in the Often category for seeking romantic partners (see Table II).

Half of the sample reported spending at least three hours per week online seeking a romantic partner ($M = 6.19$, $SD = 8.16$) and at least two hours seeking a casual partner ($M = 4.26$, $SD = 7.01$). When asked whether the Internet had replaced face-to-face socializing in bars or clubs, a third of the sample reported that the Internet had not replaced their socializing at all (36.6%) and another third indicated that the Internet had somewhat replaced their interactions at bars or clubs (32.5%). In addition, over half of the sample reported being a little confident that they would find their ideal romantic partner in a dating or social networking site but not confident at all about finding their ideal romantic partner in a hookup site (see Table I). We noted small correlations between participants' Internet socializing scores and their confidence to meet their ideal romantic partner in dating ($r = .18$, $p < .001$), hookup ($r = .10$, $p < .05$), and social network ($r = .15$, $p < .01$) sites. We found no mean differences across age, race/ethnicity, educational attainment, or sexual identity across the Internet measures.

Online partner-seeking behaviors and sexual behaviors

Total number of partners—The ANCOVA omnibus test for total number of partners was significant (χ^2 ($N = 369$, $df = 13$) = 427.78, $p < .001$). The pursuit of romantic partners via the Internet was not associated with YMSM's total number of partners in the past two months. We found a main effect for Internet use for casual partner-seeking (χ^2 ($N = 369$, $df = 3$) = 73.08, $p < .001$); specifically, we found men seeking casual partners in the Sometimes ($M = 5.08$, $SD = .53$) or Often ($M = 7.84$, $SD = 1.20$) categories had higher mean scores than those in the Never category ($M = 2.17$, $SD = .33$). We also noted that the estimated means for the Sometimes and Often categories were statistically different than the Rarely category (see 95% confidence intervals for marginal means in Table III). We found no mean differences between participants in the Rarely category and those in the Never category, or between participants in the Sometimes and Often categories. We found no association between mean

number of partners in the past two months and Internet use to seek romantic partners, the sociodemographic covariates, or the extent to which the Internet had replaced their socializing in bars or clubs.

URAI partners—The ANCOVA omnibus test for URAI partners was significant ($\chi^2 (N = 249, df = 13) = 177.34, p < .001$). We found main effects for both Internet use to seek romantic partners ($\chi^2 (N = 249, df = 3) = 8.75, p < .05$) and casual partners ($\chi^2 (N = 249, df = 3) = 21.83, p < .001$). Compared to men in the Never category ($M = 3.85, SD = 1.65$), we found lower mean scores in URAI partners among men who sought out romantic partners in the Rarely ($M = .89, SD = .22$), Sometimes ($M = 1.17, SD = .25$), and Often ($M = 1.05, SD = .19$) categories (see Figure 1). We also found, compared to men in the Never category ($M = 1.22, SD = 0.32$), men who sought out casual partners had higher mean scores in URAI partners if they were represented in the Often category ($M = 3.16, SD = .76$). Mean differences across levels of partner-seeking for casual sex are noted in Table III. Black men reported fewer URAI partners than Whites ($\chi^2 (N = 249, df = 1) = 12.14, p < .01$; AOR = .18 [95% CI: .07, .47], $p < .01$). We found no association between URAI partners and other race/ethnicity categories, age, sexual identity, or the extent to which the Internet had replaced their socializing in bars or clubs.

UIAI partners—The ANCOVA omnibus test for UIAI partners was significant ($\chi^2 (N = 236, df = 13) = 104.31, p < .01$). We found a main effect for Internet use for casual partner-seeking ($\chi^2 (N = 236, df = 3) = 17.25, p < .01$). Specifically, we found men in the Often category ($M = 1.82, SD = .40$) reported greater UIAI partners than men in the Never category ($M = .68, SD = .20$). We found no other mean differences across levels of partner-seeking for casual sex. We found no association between UIAI partners in the past two months and Internet use to seek romantic partners, the sociodemographic covariates, or the extent to which the Internet had replaced their socializing in bars or clubs.

Online partner-seeking categories and sexual behaviors

Acknowledging that casual and romantic partner-seeking behaviors may not be mutually exclusive, we tested whether YMSM's number of partners varied across partner-seeking combinations (see Table IV).

Number of partners—The ANCOVA omnibus test for total number of partners was significant ($\chi^2 (N = 369, df = 10) = 339.44, p < .001$). We found overall mean differences in our partner-seeking categories ($\chi^2 (N = 369, df = 3) = 84.37, p < .001$). Men in the LR-LC ($M = 2.01, SD = .17$) and HR-LC ($M = 2.54, SD = .22$) categories had fewer partners than men in the HR-HC group ($M = 5.72, SD = .56$). We found no mean differences between participants in the LR-HC and the HR-HC groups. Pairwise comparisons across groups and their respective 95% mean confidence intervals are noted in Table IV. We found no association between mean number of partners in the past two months and the sociodemographic covariates or the extent to which the Internet had replaced their socializing in bars or clubs.

URAI partners—The ANCOVA omnibus test for URAI partners was significant ($\chi^2 (N = 248, df = 10) = 96.50, p < .001$). We found overall mean differences in our partner-seeking categories ($\chi^2 (N = 248, df = 3) = 15.34, p < .01$). Men in the LR-LC ($M = .66, SD = .19$) and HR-LC ($M = .88, SD = .15$) categories had fewer URAI partners than men in the HR-HC group ($M = 1.65, SD = .34$). We found no mean differences between participants in the LR-HC and the HR-HC groups. Black men reported fewer URAI partners than Whites ($\chi^2 (N = 248, df = 1) = 16.61, p < .01$; AOR = .26 [95% CI: .14, .50], $p < .01$). We found no

association between URAI partners and other race/ethnicity categories, age, sexual identity, or the extent to which the Internet had replaced their socializing in bars or clubs.

UIAI partners—The ANCOVA omnibus test for UIAI partners was significant ($\chi^2 (N = 236, df = 10) = 83.55, p < .001$). We found overall mean differences in our partner-seeking categories ($\chi^2 (N = 236, df = 3) = 14.37, p < .001$). Men in the LR-LC ($M = .71, SD = .22$) and HR-LC ($M = .66, SD = .11$) categories had fewer UIAI partners than men in the HR-HC group ($M = 1.50, SD = .26$). We found no mean differences between participants in the LR-HC and the HR-HC groups. Black men reported fewer UIAI partners than Whites ($\chi^2 (N = 236, df = 1) = 10.41, p < .01$; AOR = .26 [95% CI: .14, .50], $p < .01$). We found no association between UIAI partners and other race/ethnicity categories, age, sexual identity, or the extent to which the Internet had replaced their socializing in bars or clubs.

DISCUSSION

The goal of our study was to examine the prevalence of both sexual and romantic online partner-seeking behaviors and its relation to sexual behavior in a sample of YMSM who reported recently using the Internet to date other men. YMSM in our sample reported frequently seeking casual and romantic partners over the Internet in the past two months. When we examined their sexual behaviors, we found that YMSM reported having several sexual partners in the past two months; however, less than half of the sample reported engaging in unprotected anal intercourse (UAI), both insertive and receptive. These trends are consistent with national data examining YMSM's engagement in UAI in the past year (i.e., 54% did not engage in UAI with partners) [1]. Furthermore, these findings highlight that, even when seeking casual and romantic partners online, not all YMSM are engaging in sexual behaviors that would increase their HIV risk. Therefore, rather than assume that the Internet is a risky environment, we must carefully examine how the Internet may increase or decrease YMSM's likelihood of engaging in UAI in order to inform ongoing HIV prevention efforts [13,44]. We discuss our findings and propose directions for future research below.

Consistent with past research [4], greater casual partner-seeking online was associated with MSM's HIV risk. We also found some evidence to suggest that online romantic partner-seeking was protective in some contexts, but not others. Taken together, these findings suggested that the relationship between number of partners and online partner-seeking behaviors was conditional on how often YMSM pursued romantic *and* casual partners. Romantic partner-seeking behavior was negatively associated with the number of UAI partners among YMSM in the low casual partner-seeking category (e.g., HR-LC). Individuals in this category may have greater investments in pursuing a romantic relationship and may be more selective in their partner selection; in fact, YMSM in the HR-LC group reported the same mean number of UAI partners than YMSM who had sought partners online the least often (i.e., LR-LC category) in our posthoc pairwise comparisons. Furthermore, YMSM in the HR-LC category may seek to make a good impression on potential romantic partners by showing that they engage in safer sex behaviors, specifically by delaying or limiting the occurrence of UAI until they have formalized a romantic relationship. Another potential interpretation is that YMSM who actively pursue same-sex romantic relationships may possess greater psychological well-being (e.g., greater self-esteem, lower internalized homophobia) [35,45] and, as a result, feel more comfortable negotiating condoms with sexual partners. While intriguing, we are unable to examine these proposed temporal relationships given the cross-sectional design of our study. Future research examining how romantic intentions may influence YMSM's sexual decision-making is warranted.

Among YMSM who were represented in the categories with high casual partner-seeking (i.e., LR-HC and HR-HC), romantic partner-seeking neither increased nor decreased YMSM's HIV risk. YMSM in the HR-HC group had a comparable number of UAI partners to those in the LR-HC group. YMSM who seek casual sex partners often may increase their number of sexual opportunities, which may decrease their ability to negotiate condoms successfully regardless of partner type. Furthermore, it is possible that YMSM who engage in casual partner-seeking frequently may also be more likely to include YMSM who are sexual sensation seekers [46], who have compulsive sexual behavior symptoms [47], or who engage in bareback sex [25,48]. The presence of these correlates may complicate YMSM's ability to negotiate condoms successfully and consistently. Unfortunately, we were unable to test these potential explanations or explore whether partner-seeking frequency mediates or moderates the aforementioned relationships. Future research in this area is warranted.

Our study possesses several strengths and limitations deserving mention. First, participants were recruited as a convenience sample as there are no population frames from which to select a randomly representative sample of YMSM. Nevertheless, our high completion rate and our ability to recruit a non-college-specific sample of sexual minority youth through non-sex-specific social network sites is an asset to the diversity of our sample and the generalizability of our findings. In addition, the fact that our findings replicate past research examining the relationship between casual partner seeking online and sexual behaviors further supports the validity of our findings. Second, although we had sufficient statistical power for our analyses, we may have lost precision in our estimates when we truncated partner-seeking behavior measures to ensure sufficient number of observations within partner-seeking categories. Future research should replicate these findings with larger cell sizes. Finally, our study focuses on the relationship between Internet-based forms of socializing and YMSM's number of partners in the past two months. YMSM's time pursuing romantic and casual partners off-line (e.g., bars and clubs, through friends) were not measured as part of this study and may confound the observed relationships. To compensate for this limitation, we asked YMSM to rate how much the Internet had replaced their socializing in bars and clubs, and included this variable as a covariate in our multivariate models.

These limitations notwithstanding, our results raise compelling questions regarding the relationship between online partner-seeking behavior and HIV risks. Researchers should examine casual and romantic partner-seeking behaviors *concurrently* as these behaviors are not mutually exclusive. Future research, both qualitative and quantitative, is needed to examine how partner-seeking combinations may increase or decrease YMSM's number of partners, as well as why some partner-seeking patterns, but not others, result in mean differences. If our findings are replicated and supported in other samples of MSM, the division into partner-seeking categories may provide opportunities to propose HIV prevention campaigns tailored to YMSM's partner-seeking preferences and closer to their lived experience.

In conclusion, our findings highlight the importance of taking into account how often YMSM seek partners online and what type of partners are sought out when examining the relationship between their online partner-seeking and sexual behaviors. Pursuing romantic partners online may be a protective factor for YMSM in some contexts, but not others. Future research should examine whether YMSM's participation in dating behavior, or the motivations driving YMSM to pursue romantic partners, may inform ongoing HIV prevention programs; however, these efforts should continue to account for the concurrent pursuit of casual partners. Given the popularity of hookup and dating sites, ongoing efforts should include behavioral skills and scenarios that equip YMSM with strategies to negotiate condoms with both potential romantic and casual partners successfully.

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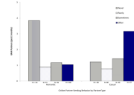


Figure 1.
Mean differences by online partner-seeking frequency on the number of partners with whom YMSM engaged in unprotected receptive anal intercourse (URAI) in the past two months

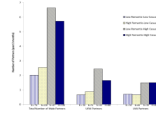


Figure 2. Partner-seeking frequency combinations on YMSM's number of partners in the past two months

Table 1

Descriptive Statistics of Variables for YMSM (N = 431)

	Mean	(SD)	Median	N	%
Age	21.49	(1.94)	22		
Educational Attainment	4.23	(1.28)	4		
Race/Ethnicity ^a					
Hispanic				38	8.9
Black				26	6.1
White				314	73.9
API				32	7.5
Other				15	3.5
Sexual Identity					
Gay				380	88.2
Bisexual				51	11.8
Romantic Partner-Seeking Behavior					
Never				30	(7.0%)
Once a month or less				116	(27.1%)
2-3 times a month				104	(24.3%)
About once a week				48	(11.2%)
2-6 times a week				65	(15.1%)
About once a day				34	(7.9%)
More than once a day				31	(7.2%)
Casual Partner-Seeking Behavior					
Never				100	(23.4%)
Once a month or less				136	(31.9%)
2-3 times a month				99	(23.3%)
About once a week				36	(8.4%)
2-6 times a week				33	(7.7%)
About once a day				9	(2.1%)
More than once a day				14	(3.3%)
Time Spent Online for Dating (hrs/wk) ^c	6.25	(8.23)	3		

	Mean	(SD)	Median	N	%
Time Spent Online for Casual Sex(hrs/wk) ^c	4.29	(7.08)	2		
Internet replaced socializing in bars or clubs ^c					
Not at all				145	(33.6%)
Somewhat				140	(32.5%)
Moderately				60	(15.2%)
Very Much				51	(12.9%)
Not old enough to go to bars/clubs				28	(6.5%)
Will Meet Ideal Partner in Dating Site	2.15	(.95)	2		
Will Meet Ideal Partner in Hookup Site	1.77	(1.12)	1		
Will Meet Ideal Partner in Social Network Site	2.12	(1.00)	2		
Sexual Behavior (past 2 months) ^{c,d}					
Total Number of Male Partners	3.83	(.78)	2		
URAI Partners	0.89	(2.66)	.00		
UIAI Partners	0.78	(2.36)	0		

^a Six participants had missing data on their race/ethnicity.

^b Three participants had missing data on their romantic partner-seeking category; three participants had missing data on their casual partner-seeking category. Seven participants had missing data on the Internet socialization question.

^c Variables presented in original metric for descriptive purposes. Given their skewed distributions, we used each variable's log10 transformation in multivariate analyses.

^d Twenty-six participants had missing data on their sexual behaviors and were excluded from the analyses. Participants who did not report engaging in receptive or insertive anal intercourse are assigned a value of zero. Descriptive statistics specific to sexually-active participants are included in text.

Table II
 Cross-tabulations across partner-seeking behaviors in the past two months for YMSM who use the Internet to meet partners

		Casual Partner-Seeking (past 2 mo.)				
Romantic Partner-Seeking Behavior (past 2 mo.)		Never	Rarely	Sometimes	Often	N
Never		9 (2.1%)	7 (1.6%)	5 (1.2%)	7 (6.6%)	28 (6.6%)
Rarely		28 (6.6%)	48 (11.3%)	26 (6.1%)	14 (27.3%)	116 (27.3%)
Sometimes		20 (4.7%)	35 (8.2%)	35 (8.2%)	14 (24.5%)	104 (24.5%)
Often		41 (9.6%)	46 (10.8%)	33 (7.8%)	57 (41.6%)	177 (41.6%)
N		98 (23.1%)	136 (32.0%)	99 (23.3%)	92 (21.6%)	425

Note. 6 participants had missing data and were excluded from the analysis.

Table III
Generalized Linear Main Effect Models of YMSM's Online Partner-Seeking Behaviors and Number of Partners

	AOR	AOR 95% CI	Wald χ^2	Marginal Mean (SD)	Mean 95% CI
Number of Male Partners					
Romantic partner-seeking					
Never				5.93(1.95)	(2.11, 9.74)
Rarely	.54	(.27, 1.06)	3.25	3.17(.29)	(2.60, 3.73)
Sometimes	.58	(.30, 1.12)	2.68	3.41(.27)	(2.89, 3.93)
Often	.63	(.32, 1.27)	1.67	3.75(.35)	(3.06, 4.45)
Casual partner-seeking					
Never				2.17(.33)	(1.51, 2.82)
Rarely	1.28	(.94, 1.76)	2.38	2.78(.25)	(2.28, 3.28) <i>b,c</i>
Sometimes	2.34	(1.70, 3.24)	26.51**	5.08(.53)	(4.05, 6.12) <i>a, c</i>
Often	3.61	(2.47, 5.29)	43.68**	7.84(1.20)	(5.48, 10.20) <i>a, b</i>
URAI Partners					
Romantic partner-seeking					
Never				3.85(1.65)	(.62, 7.07)
Rarely	.23	(.08, .63)	8.09**	.89(.22)	(.46, 1.31)
Sometimes	.30	(.11, .84)	5.30*	1.17(.25)	(.68, 1.66)
Often	.27	(.10, .72)	6.87**	1.05(.19)	(.67, 1.42)
Casual partner-seeking					
Never				1.22(.32)	(.60, 1.85)
Rarely	.62	(.33, 1.18)	2.11	.76(.15)	(.47, 1.04) <i>b,c</i>
Sometimes	1.16	(.62, 2.21)	.22	1.43(.29)	(.85, 2.00) <i>a,c</i>
Often	2.58	(1.32, 5.03)	7.67**	3.16(.75)	(1.69, 4.62) <i>a,b</i>
UIAI Partners					
Romantic partner-seeking					
Never				.57(.25)	(.08, 1.06)
Rarely	1.70	(.61, 5.87)	1.23	1.08(.32)	(.46, 1.70)
Sometimes	1.92	(.75, 4.96)	1.83	1.10(.26)	(.60, 1.60)

	AOR	AOR 95% CI	Wald χ^2	Marginal Mean (SD)	Mean 95% CI
<i>Often</i>	1.89	(.72, 3.98)	1.47	.97(.16)	(.66, 1.27)
Casual partner-seeking					
<i>Never</i>				.68(.20)	(.30, 1.06)
<i>Rarely</i>	.83	(.44, 1.53)	.37	.56(.11)	(.34, .78) ^c
<i>Sometimes</i>	1.37	(.69, 2.75)	.80	.94(.24)	(.47, 1.40) ^c
<i>Often</i>	2.68	(1.35, 5.32)	7.88**	1.82(.40)	(1.03, 2.61) ^{a,b}

Notes. All models are adjusted for age, sexual identity, race/ethnicity, and Internet replaced socializing in bars or clubs. AOR = Adjusted Odds Ratio; CI = Confidence Interval.

** $p < .01$

* $p < .05$

^a Group mean is different than Rarely category.

^b Group mean is different than Sometimes category.

^c Group mean is different than Often category.

Table IV
Generalized Linear Main Effect Models of YMSM's Online Partner-Seeking Combinations and Number of Partners

	AOR	AOR 95% CI	Wald χ^2	Marginal Mean (SD)	Mean 95% CI
Number of Male Partners					
High Romantic-High Casual				5.72(.56)	(4.63, 6.81)
Low Romantic-Low Casual	.35	(.27, .45)	64.18**	2.01(.17)	(1.69, 2.34) ^c
High Romantic-Low Casual	.44	(.34, .58)	36.54**	2.54(.22)	(2.10, 2.97) ^c
Low Romantic-High Casual	1.16	(.78, 1.74)	.52	6.64(1.23)	(4.23, 9.05) ^{a, b}
URAI Partners					
High Romantic-High Casual				1.65(.34)	(.98, 2.31)
Low Romantic-Low Casual	.40	(.20, .81)	6.57**	.66(.19)	(.29, 1.02)
High Romantic-Low Casual	.54	(.32, .90)	5.69*	.88(.15)	(.58, 1.18)
Low Romantic-High Casual	1.48	(.58, 3.78)	.68	2.44(.95)	(.58, 4.30)
UIAI Partners					
High Romantic-High Casual				1.50(.26)	(.99, 2.02)
Low Romantic-Low Casual	.47	(.23, .98)	4.11*	.71(.22)	(.29, 1.13)
High Romantic-Low Casual	.44	(.28, .71)	11.77**	.66(.11)	(.45, .88)
Low Romantic-High Casual	.99	(.41, 2.44)	.001	1.49(.61)	(.30, 2.69)

Notes. All models are adjusted for age, sexual identity, race/ethnicity, and extent that the Internet has replaced socializing in bars or clubs. AOR = Adjusted Odds Ratio; CI = Confidence Interval.

** $p < .01$

* $p < .05$

^a Group mean is different than Low Romantic-Low Casual category.

^b Group mean is different than High Romantic-Low Casual category.

^c Group mean is different than Low Romantic-High Casual category.