

Barriers to accessing HIV-prevention in clinic settings: Higher alcohol use and more sex partners predict decreased exposure to HIV-prevention counseling

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Understanding barriers to accepting HIV-prevention counseling among vulnerable populations is of critical importance, as prevention efforts can only have a public health impact if high-risk populations are willing to enroll. A correlational field study was conducted in a health care setting with a high-risk community sample ($N=350$) to determine if number of sex partners and alcohol consumption predict acceptance of an invitation to take part in HIV-prevention counseling. Findings indicated that participants engaging in the least risky behavior (i.e. individuals reporting no alcohol consumption and few sex partners) were more likely to accept an offer to receive HIV-prevention counseling. Moreover, heavy drinking was associated with decreased exposure to HIV-prevention counseling, regardless of the number of sex partners reported ($b = .12$, $p > .05$). Given associations between heavy drinking and sexual risk taking, finding ways to increase exposure to HIV-prevention counseling programs among heavy drinkers could serve a vital public health function.

Keywords: HIV-prevention; selective exposure; counseling acceptance; alcohol use; sexual risk behavior

At the end of 2003, there were over 1.1 million individuals estimated to be living with HIV in the US, and approximately 50,000 new infections occur annually (CDC, 2012a). To reduce these troubling statistics, considerable attention has been devoted to developing effective HIV-prevention programs. Nonetheless, relatively little is known about what motivates individuals to participate in HIV-prevention counseling programs, or whether some audiences are more or less willing to take advantage of the HIV-prevention counseling programs commonly provided at health clinics. Understanding factors that reduce enrollment is of critical importance, as it has the potential to inform the development of strategies that attract the most vulnerable audiences to participate in HIV-prevention counseling.

When presented with the opportunity to receive HIV-prevention counseling while attending a clinic appointment, clients decide whether they will accept or refuse the counseling session (Earl, Albarracín, Durantini, Leeper, & Levitt, 2009; Minder, Muller, Gillman, Beck, & Stuck, 2002). A client's enrollment decision has important implications for the ability of counseling programs to increase HIV-relevant knowledge,

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motivation, and behavioral skills, as well as actual condom use. Prior work in the field of HIV-prevention has focused almost exclusively on the development of effective interventions, with an assumption that these prevention tools will reach audiences at greatest risk for HIV infection. This assumption is challenged by evidence suggesting that individuals who currently engage in HIV-risk behaviors (e.g. low condom use) are least likely to enroll (Earl et al., 2009; Noguchi, Durantini, Albarracín, & Glasman, 2007).

Selective exposure to information (Festinger, 1957, 1964) provides a useful perspective for understanding enrollment decisions. According to this perspective, individuals are motivated to seek out information that is consistent with their beliefs and to avoid discrepant messages, as doing so allows them to confirm that their beliefs and behaviors are correct (Clore & Byrne, 1974; Hart et al., 2009). In the context of selective-exposure to HIV-prevention counseling, the motivation to achieve subjective self-validation, which consists of the defense of personal beliefs and practices related to HIV appears to be an important predictor of enrollment (e.g. Noguchi et al., 2007). For example, individuals with low condom use hold beliefs that HIV-prevention counseling programs will force them to change their HIV-relevant beliefs and practices, and these expectations are associated with reduced likelihood of enrollment (Albarracín, Leeper, Earl, & Durantini, 2008; Earl et al., 2009). As such, those in greatest need of HIV-prevention counseling may be unlikely to receive this important prevention service.

Other health behaviors and acceptance of HIV-prevention counseling

It remains unclear if similar relations exist between acceptance of HIV-prevention counseling and other sexually risky behaviors (e.g. number of sex partners) and health risk behaviors in domains not directly related to HIV-prevention, such as alcohol consumption. Although not previously examined, prior research suggests that other risky behaviors, such as number of sex partners, would be related to enrollment. Having multiple sex partners is a well-known risk factor for HIV-infection (e.g. CDC, 2012b), and individuals with a greater number of partners may believe that HIV-prevention counseling will challenge their current practices by encouraging a reduction in partners. As information that contradicts one's behaviors is likely to be avoided (Noguchi et al., 2007), having multiple sex partners may be another sexually risky behavior that hinders enrollment.

Unsafe behaviors outside of the domain of sexual risk taking may also be related to enrollment in HIV-prevention counseling. Health risk behaviors commonly co-occur (Pronk et al., 2004), such that someone who engages in alcohol misuse is likely to engage in sexually risky behaviors. Prior research indicates that alcohol consumption contributes to engagement in sexually risky behaviors (Cooper, 2006; Trepka et al., 2008), and is associated with having multiple sex partners and unprotected sex (Leigh & Stall, 1993; Shuper et al., 2010). Among adult STI clinic attendees, rates of alcohol misuse of up to 21% have been reported, as well as associations among alcohol misuse, risky sexual behaviors, and STI infection (Cook & Clark, 2005; Kalichman, Cain, Zweben, & Swain, 2003; Scott-Sheldon, Senn, Carey, Urban, & Carey, 2013; Zenilman et al., 1994). Unfortunately, there is evidence that attendance at HIV-prevention programs is negatively related to substance use (DiFranceisco et al., 1998; Rutledge, Roffman, Picciano, Kalichman, & Berghuis, 2002; Senn, Carey, Vanable, Courey-Doniger, & Urban, 2007). For example, attending an HIV-prevention workshop correlates with alcohol use, such that non-attendees reported greater alcohol consumption and more use of alcohol before sex (Senn et al.,

2007). In summary, although heavy drinkers are an important target audience to receive HIV-prevention counseling, they may be unlikely to enroll.

Research has not investigated whether alcohol use moderates the relation between number of sex partners and acceptance of HIV-prevention counseling. This lack of research is surprising given associations between alcohol consumption and risky sexual behaviors. Moreover, given recent efforts to incorporate alcohol components in HIV-prevention counseling programs, it is important to determine whether the targets of these interventions (i.e. sexually risky individuals that report heavy drinking) are willing to enroll. Based on prior research, heavy drinking may be associated with decreased enrollment in HIV-prevention counseling, even among individuals reporting few sex partners. In contrast, individuals reporting low alcohol consumption may be unlikely to avoid counseling programs unless they are motivated to do so due to fears that the program will challenge their HIV-relevant beliefs and practices. Therefore, at low levels of alcohol consumption, enrollment should be associated with having few (vs. many) sex partners.

Hypothesis 1: Number of sex partners will be negatively associated with enrollment in HIV-prevention counseling.

Hypothesis 2: Alcohol consumption will be negatively associated with enrollment in HIV-prevention counseling.

Hypothesis 3: Alcohol consumption will moderate the influence of number of sex partners on enrollment. At low levels of alcohol consumption, it is predicted that individuals reporting fewer (vs. many) sex partners will be more likely to enroll in HIV-prevention. At high levels of alcohol consumption, acceptance of HIV-prevention counseling is predicted to be low regardless of the number of sex partners reported.

Method

Participants

Participants were 350 community members (260 women and 90 men), that were recruited to participate in a health study conducted at the Alachua County Health Department. Participants were paid \$5 for the eligibility screening and, if eligible, \$40 for participation in the main study. Thus, ineligible participants received \$5 and eligible participants received \$45. The majority of participants were African-American (65%), the mean age of the sample was 32.12 (SD = 9.75), and 75% had at least a high school education. Eighty-eight percent reported having a main partner with whom they had a relationship of an average of 4.38 years (SD = 4.94). Condom use in this sample was low, with 16% reporting *Always* using a condom when they had sex with their main partner.

Procedures

Participants were recruited from the community as part of larger study on HIV-prevention counseling and the procedures have been described elsewhere (see Earl et al., 2009). Recruitment strategies included placing posters and flyers advertising the study in the community and the Alachua County Health Department, or via direct referrals that were made by health department staff or community members. As a means of preventing self-selection, the study was described as a “general health study” without any

mention to HIV-prevention. To be eligible, individuals had to be over the age of 18, sexually active, not pregnant or trying to get pregnant, or have concomitant knowledge of the study.

Participants arrived for their study appointment at the Alachua County Health Department and were taken to a private room where they provided informed consent and were re-screened for eligibility. If the participant was still eligible, the interviewer administered a health survey that contained general health questions (e.g. on average, how many cigarettes do you smoke per day?) and questions assessing condom use, motivation, and behavioral skills to use condoms with both main and casual partners, as well as HIV-relevant knowledge. Halfway through the survey, the interviewer announced that they would take a break and resume the survey in 30 min. This break provided the opportunity to measure exposure to HIV-prevention materials (i.e. brochures and video) and acceptance of the HIV-prevention counseling session. Only the video and counseling session were offered explicitly. Of interest to the current study is acceptance of the counseling program.

During the break, the interviewer left the room and the observer/counselor entered the room to conduct office work. For the first 10-min of the break, the participant had the opportunity to read HIV-prevention brochures which were placed on the desk, and the counselor observed whether the brochures were read. After 10-min elapsed, the interviewer returned and offered the participant a 10-min video about HIV. The participant could either accept or decline to watch the video. Next, the interviewer returned and offered the participant the option of receiving HIV-prevention counseling by asking, "While you are waiting, would you be interested in taking part in a HIV-risk reduction counseling session?" Participants could take a break before beginning the counseling session or schedule an appointment for a different date. However, this information was not provided prior to the decision to accept or decline the counseling invitation. If the offer was accepted, the counselor administered the counseling session. Following this ostensible break, the interviewer returned and administered measures assessing recognition of the information in the brochures and video, as well as questions assessing expectations about the counseling session. This study was approved by the Institutional Review Boards at the University of Florida and the State of Florida's Department of Health. The protocol lasted approximately 90–120 min. Upon completion, participants were fully debriefed and the purpose of the study was explained.

Measures

Number of sex partners

Participants reported whether they had a main partner (coded: 0 = no; 1 = yes) and the number of casual partners they had in the past three months. Responses to these two items were summed to create an indicator of the total number of sex partners. Participants reported an average of 1.42 sex partners in the past three months (SD = 1.03, range = 0–10).

Alcohol consumption

Participants reported how many alcoholic beverages they consume in the average week. On average, participants consumed 3.03 alcoholic drinks per week (SD = 5.74, range = 1–36).

Prior condom use

Frequency of sexual intercourse with main and casual partners over the previous month, three months, and six months was assessed. For each time period, the number of times condoms were used with both main and casual partners was reported. The proportion of condom use was computed by dividing the number of times participants reported using a condom by the total number of times participants reported sexual intercourse and aggregating across time periods ($\alpha = .90$).

Acceptance of counseling

Participants were offered an invitation to receive HIV-prevention counseling, and their decision to accept or decline this invitation was recorded as the outcome in this study. Acceptance of the invitation was reported by both the participant and the observer, $\kappa(350) = 1.00$, $p < .01$.

Results

We examined the alcohol use and number of sex partner variables for outliers, and responses more than three standard deviations above the mean were recoded to a value of three standard deviations above the mean plus one. Table 1 provides a summary of relevant sample characteristics. In total, about 28% of participants accepted the invitation to take part in HIV-prevention counseling. The correlation between alcohol use and number of sex partners was $r = .16$, $p < .01$. Because evidence suggests that protective behaviors influence enrollment decisions (Earl et al., 2009), prior condom use was entered as a control variable.¹

Moderation analyses

We tested our hypothesis that alcohol consumption moderated the relation between number of sex partners on acceptance of HIV-prevention counseling (coded 1 = accepted; 0 = declined) using Hayes and Matthes' (2009) MODPROBE macro. Predictor variables were mean centered prior to conducting analyses. The logistic regression model predicting acceptance ($X^2(4, 340) = 10.25$, $p < .05$) fit better than the constant only model. As shown in Table 2, the prior condom use ($b = .59$, $p < .05$), sex partner ($b = -.41$, $p < .05$), and *Sex partner* \times *Alcohol* interaction ($b = .06$, $p < .05$) terms were significant predictors of enrollment. The logistic regression model showed that the relation between alcohol consumption and acceptance of counseling was contingent on the number of sex partners. Specifically, the positive coefficient for the interaction indicated that the effect of number of drinks on acceptance of counseling became more positive as the number of sex partners increased. As the value for 1 SD below the mean was outside the range of data, we probed the significant interaction at values at the 10th, 25th, 50th, 75th, and 90th percentile using the quantile command in MODPROBE. Because of redundancy in the output, we plotted the significant interaction at 0 (10–50th percentile), 3 (75th percentile), and 10 (90th percentile) drinks per week.

As demonstrated in Figure 1, participants that engaged in the least risky behaviors (i.e. individuals reporting no alcohol consumption, and few sex partners) were more likely to enroll than those reporting relatively more health risk behaviors. Follow-up analyses revealed that participants reporting no alcohol consumption were more likely to enroll when few (39%) vs. many (17%) sex partners were reported ($b = -.43$, $p < .05$).

Table 1. Descriptive statistics.

Variable	Value
<i>Demographic variables</i>	
Women	74%
Age in years	32.12 (9.75)
Education in years	12.63 (2.24)
<i>Ethnic descent</i>	
African-American	65%
European American	28%
Latino/Latina American	3%
American Indian/Alaskan Native	2%
Asian American	1%
Other	1%
<i>Income</i>	
\$0–\$9999	61%
\$10,000–\$19,999	23%
\$20,000–\$29,999	11%
\$30,000–\$39,999	2%
\$40,000–\$49,999	1%
\$50,000–\$59,999	1%
\$60,000 or above	1%
<i>Sexual behavior</i>	
Have a main partner	87%
Had an occasional partner in the past three months	29%
Number of sexual partners in past three months	1.43 (1.02)
Condom use (range 0–100%)	36% (.41)
With main partner in last month (range 0–100%)	29% (.41)
With main partner in last three months (range 0–100%)	31% (.41)
With main partner in last six months (range 0–100%)	31% (.41)
With casual partner in last month (range 0–100%)	75% (.39)
With casual partner in last three months (range 0–100%)	71% (.41)
With casual partner in last six months (range 0–100%)	74% (.37)
<i>Alcohol use</i>	
Drink alcohol	51%
Drinks per week	3.54 (8.06)
Accept HIV-prevention counseling	28%

Table 2. Logistic regression results predicting acceptance of counseling.

Variable	B (SE)	Wald	Odds ratio (95% CI)	χ^2
Model				10.25*
Condom use	.59 (.30)	3.86*	1.80 (1.00–3.24)	
Sex partners	-.41 (.21)	4.31*	.65 (.43–.98)	
Alcohol	-.10 (.05)	3.17	.98 (.82–1.01)	
Sex partners × Alcohol	.06 (.03)	4.51*	1.06 (1.01–1.13)	

* $p < .05$, Final model $\chi^2 (4, 340) = 10.25, p < .05$.

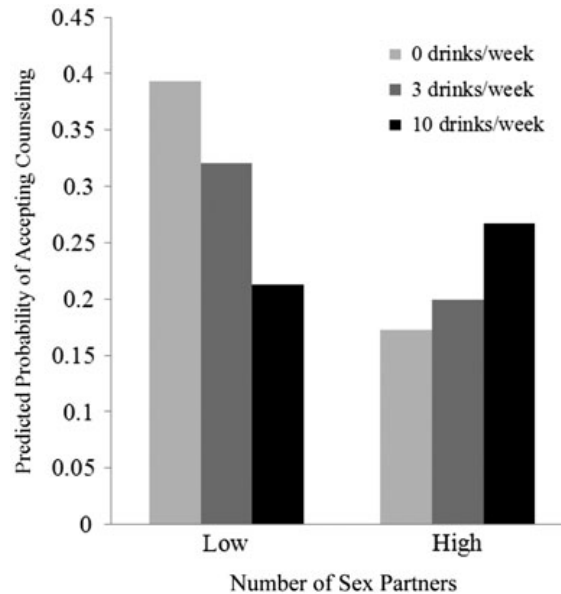


Figure 1. Predicted probability of accepting counseling as a function of number of sex partners and alcohol consumption.

Although the percentage of moderate drinkers accepting the invitation was also higher when few (32%) vs. many (20%) sex partners were reported, this effect was not statistically significant ($b = -.25, p > .05$). Finally, the percentage of heavy drinkers accepting the invitation was low when the number of sex partners was either low (21%) or high (26%; $b = .12, p > .05$). Although the interaction suggests that the effect of number of drinks became more positive as the number of sex partners increased, it is important to note that high levels of alcohol consumption appeared to be related to avoidance of the HIV-prevention counseling session, even when individuals reported few sex partners.

Discussion

Prior work has focused primarily on the development of effective HIV-prevention counseling programs, with an assumption that these programs will reach vulnerable audiences. Our results suggested that participants that engaged in the least risky behaviors were more likely to accept an offer to take part in HIV-prevention counseling. Even though efficacious HIV-prevention counseling programs are key methods for reducing the number of new HIV transmissions, these prevention tools cannot be successful if at-risk populations are reluctant to enroll. Understanding barriers to enrollment may be helpful for practitioners at clinics that are interested in making HIV-prevention more appealing to target audiences.

Our findings extend prior work by suggesting that other health behaviors can influence decisions to accept HIV-prevention counseling. There are a number of potential explanations for why alcohol consumption may be related to reluctance to enroll. First, heavy drinkers may believe that the HIV-prevention counseling will not adequately address issues concerning alcohol or the co-occurrence between alcohol misuse and sexual risk taking (Roffman, Picciano, Wickizer, Bolan, & Ryan, 2008), thereby decreasing enrollment due to perceptions that the counseling will not be useful. Likewise, perhaps due to previous unsuccessful attempts to abstain from risky health behaviors, heavy

drinkers may be apprehensive of health promotion programs (Rutledge et al., 2002), possibly because they believe enrollment will not assist them in achieving their risk reduction goals. Second, although HIV-prevention counseling primarily helps individuals achieve HIV-risk reduction goals (Barragan et al., 2005; Noguchi et al., 2007), advice related to alcohol consumption is commonly provided. Perceptions that the program may challenge current drinking practices may hinder enrollment among those not ready to change their drinking behavior (Rutledge et al., 2002). Additional research should examine whether such beliefs mediate the effects reported in this study, as an understanding of such mechanisms is critical to increasing enrollment among target audiences.

Limitations

Our study has several limitations to discuss. First, our measures of alcohol consumption may not have been ideal as participants may have struggled aggregating the average number of drinks consumed in a typical week (Reis & Gable, 2000). Future research may benefit from the inclusion of standard measures, such as the CAGE (Ewing, 1984) or AUDIT (Saunders, Aasland, Babor, de la Fuente, & Grant, 1993). Second, the sample was primarily female and African-American which may limit the generalizability of our findings, particularly since trust in the intervention and health care system was not assessed. Third, these findings are relevant to enrollment in the context of clients of a health clinic participating in a research study. Whether these relations exist among clients attending actual clinic appointments should be investigated.

Implications

Our findings are consistent with research suggesting that vulnerable audiences are unwilling to accept HIV-prevention counseling (Earl et al., 2009; Noguchi et al., 2007). Understanding barriers to exposure to HIV-prevention counseling could prove useful for increasing enrollment among at-risk populations. For example, recruitment messages suggesting that HIV-prevention counseling cannot force condom use have proven successful for increasing enrollment among individuals with low condom use intentions (Albarracín, Durantini, Earl, Gunnoe, & Leeper, 2008). It may be possible to design similar recruitment messages to increase enrollment among heavy drinkers. Excessive drinking can negatively impact life in numerous areas (e.g. social relationships, employment, and health), and one method for increasing enrollment may be to highlight in a recruitment message that HIV-prevention counseling provides opportunities to address concerns in other areas besides HIV-prevention. This potential enrollment intervention may be successful given meta-analytic findings that people are more willing to expose themselves to discrepant information when they perceive that the information will allow them to achieve a current goal (Hart et al., 2009).

Conclusion

Interventions that jointly target STI prevention and alcohol use are effective for STI risk reduction (Kalichman, Cain, Eaton, Jooste, & Simbayi, 2011; Schmiede, Broaddus, Levin, & Bryan, 2009). However, such programs will be unlikely to reach their potential public health impact if target audiences do not enroll. As our findings indicated that heavy drinkers were unwilling to enroll in HIV-prevention counseling, finding ways to reduce enrollment barriers among this group could serve a vital public health function.

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Note

1. We included additional control variables in our analyses that likely influence enrollment decisions, such as ethnicity, gender, age, and number of STIs in the past year. Because none of these variables reached statistical significance and the overall pattern of results did not change with their inclusion, we present only results from our final model that did not include these additional control variables.

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