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BRIEF REPORT

Sociosexuality Predicts Drinking Frequency Among First-Year College Women

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The first semester of college is marked by increases in both heavy episodic drinking and sexual activity, including hookups. Because drinking and casual sex are highly related and college students believe that drinking settings facilitate hookups, students may drink as a way of facilitating uncommitted sexual partnerships. In 2 samples of college freshman women, we considered whether sociosexuality, a personality trait reflecting interest in casual, uncommitted sexual partnerships, prospectively predicted frequency of drinking. In Study 1 (N = 142), sociosexuality, assessed early in the first semester of college, positively predicted frequency of drinking occasions at the end of the semester after controlling for initial drinking frequency. In Study 2 (N = 654), sociosexuality again predicted frequency of drinking occasions after controlling for initial drinking frequency. Expected hookups with alcohol, but not expected hookups without alcohol, also predicted frequency of heavy episodic drinking occasions. Findings suggest that drinking frequency among college freshman women may reflect, at least in part, their interest in uncommitted sexual encounters. Because freshman women face a disproportionate risk of sexual assault relative to older students and drinking and sexual activity serve as significant risk factors, these findings have particular relevance for sexual assault prevention efforts.

Keywords: alcohol consumption, sexual activity, college, sociosexuality, women

College students engage in high rates of heavy episodic drinking relative to other demographic groups. Most college drinking occurs in social settings, with freshman more likely to drink at parties than upperclassmen (Harford, Wechsler, & Seibring, 2002). Because drinking and parties are embedded within the college social scene (Schulenberg & Maggs, 2002), drinking may be motivated at least in part by the desire to socialize and to meet and hook up with potential sexual partners. The present research considered whether interest in uncommitted sexual relationships prospectively predicted drinking frequency among first semester college women. This is an important population to study given that women's drinking and hookups increase vulnerability to sexual assault (Mellins et al., 2017), which is particularly prevalent during the first year of college (Cranney, 2015).

Drinking and casual sex are strongly associated, particularly among college students (Claxton, DeLuca, & van Dulmen, 2015) and most hookups occur under the influence of alcohol (Fielder &

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Carey, 2010; Ford, 2017). Many studies have considered casual sex as a consequence of drinking. Drinking episodes increase the odds of sex with a new partner (Howells & Orcutt, 2014) and frequency of heavy episodic drinking prospectively predicts hookups (Fielder, Walsh, Carey, & Carey, 2013). Similarly, after controlling for quantity of drinking, frequency of drinking at parties and bars predicts having more sexual partners (Mair, Ponicki, & Gruenewald, 2016) and sex with a stranger (Bersamin, Paschall, Saltz, & Zamboanga, 2012).

Given the robust associations between drinking and casual sex, it is not surprising that college students believe that drinking and drinking settings facilitate sexual encounters (Lefkowitz, Waterman, Morgan, & Maggs, 2016; Lindgren, Pantalone, Lewis, & George, 2009; Ven & Beck, 2009). Thus, college students may drink to facilitate hooking up. Individuals who are particularly interested in casual sexual encounters may be especially likely to seek out drinking settings as a way of achieving this goal.

Sociosexuality is a trait that represents the extent to which an individual is oriented toward uncommitted sexual relationships with many novel, concurrent partners as opposed to long-term committed relationships (Simpson & Gangestad, 1991). Individuals high in sociosexuality engage in activities that facilitate casual sex, consistent with Sexual Strategies Theory (Buss & Schmitt, 1993). For example, sociosexuality predicts greater use of picture-based mobile dating apps, which facilitate connecting with hookup partners (Botnen, Bendixen, Grøntvedt, & Kennair, 2018). Because drinking is viewed as facilitating hookups (e.g., Ven & Beck, 2009), individuals high in sociosexuality may drink more frequently. Corbin, Scott, and Treat (2016) found support for a

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model in which sociosexuality attitudes (e.g., "sex without love is OK") predicted sociosexuality behaviors (e.g., more sexual partners), which predicted drinking frequency. Support for the cross-sectional model was found primarily among men, who constituted the majority of the sample, with weaker support among women. Among college men, sociosexuality attitudes and behaviors reported in freshman year predicted more frequent bar and party attendance 1 year later after accounting for baseline drinking (Cleveland, Testa, & Hone, 2019). College men's sociosexuality also predicted more occasions of drinking at bars and parties—but not more drinking occasions at home—over the next 56 days (Hone, Testa, & Weijun, 2019).

Evidence that sociosexuality contributes to subsequent drinking is derived primarily from studies of men. However, it is critical to understand the role of sociosexuality in women's drinking. The link between drinking and hooking up is stronger for women than for men (Owen, Fincham, & Moore, 2011) and women suffer disproportionately the negative consequences of drinking and hooking up, including sexual victimization (Paul & Hayes, 2002). The present research tested the hypothesis that sociosexuality prospectively predicts women's drinking frequency during the first semester of college using two separate samples. The second study also considered whether intentions to hook up contributed to drinking frequency, beyond the effects of sociosexuality. The first semester of college was chosen as a particularly relevant time given increases in drinking and sexual behavior associated with entering college (e.g., Fromme, Corbin, & Kruse, 2008). Sexual assault risk is highest during the first year of college relative to later years (Cranney, 2015) and both drinking and hookups increase vulnerability among first-year women (Tyler, Schmitz, & Adams, 2017).

Study 1

Study 1 provided an initial test of the prospective effect of sociosexuality, assessed at the beginning of the first semester of college, on drinking frequency assessed at the end of the fall semester, after controlling for initial drinking frequency.

Method

Participants. Participants consisted of 142 female introductory psychology students, ages 17–19 (M=18.12, SD=0.53), who completed surveys at the beginning of the Fall, 2010 semester at a large private Southeastern University. Although class status was not assessed, limiting the sample to women in this age range yielded a sample of primarily first-year students.

Procedure. All students were required to complete the initial survey in the classroom during the first week of the semester (T1). The second survey (T2) was completed online approximately 12 weeks later as one option to receive class credit. Students 18 and older provided written documentation of informed consent; parental consent was obtained for students under 18. All procedures were approved by the University Institutional Review Board.

Measures.

Alcohol use. At T1 and T2, women were asked "How often do you have a drink containing alcohol?" Response options on a 5-point scale were converted to days per month as follows: Never (0 days per month), Monthly or less (1), 2–4 times a month (3), 2–3 times a week (10), or 4 or more times a week (16).

Sociosexuality. Three items assessed attitudes toward uncommitted sex: "Sex without love is OK," "I can imagine being comfortable and enjoying causal sex with different partners," and "I would have to be closely attached to someone (both emotionally and psychologically) before I could feel comfortable and fully enjoy having sex with him or her," (reverse scored). Attitude items were measured on 10-point scales ranging from strongly disagree to strongly agree. Behavior items included: "With how many different partners have you had sex within the past year?" (10point scale from 0 to 9+); "How many different partners do you foresee yourself having sex with during the next five years?"; "With how many partners have you had sex on one and only one occasion?" (9-point scales from 0 to 15+); and "How often do you fantasize about having sex with someone other than your current dating partner?" (8-point scale from never to at least once a day). Following Simpson and Gangestad (1991), total sociosexuality score was calculated by weighting and aggregating the seven items $(\alpha = .803).$

Results

As expected, sociosexuality was correlated with drinking frequency at T1, r=.334, p<.001, and at T2, r=.361, p<.001. To examine whether T1 sociosexuality contributed unique variance to T2 drinking frequency we used hierarchical multiple regression, entering T1 drinking frequency on Step 1 followed by T1 sociosexuality on Step 2. T1 drinking predicted T2 drinking $(b=0.645, SE=0.369, B=0.705, p<.001, R^2=0.497, p<.001)$. However, the addition of T1 sociosexuality (b=0.186, SE=0.082, B=0.141, p=.026) on the second step significantly improved prediction of T2 drinking days, R^2 change =0.018, p=.026.

Study 2

Study 1 provides preliminary support for the hypothesis that sociosexuality predicts later drinking frequency among a sample of mostly first-year college women. To increase confidence in these novel findings, we sought to replicate the results in a larger, more representative sample of first semester college freshman women, using both frequency of drinking and frequency of heavy episodic drinking as outcomes. In addition to considering the effects of T1 sociosexuality on T2 drinking, we considered whether expecting to engage in more hookups while drinking (at T1) contributed additional variance to prediction of subsequent drinking, beyond the effect of sociosexuality. Such a relationship would provide even more evidence that women drink as a means of facilitating casual sexual liaisons. We hypothesized that expecting more intoxicated hookups would predict more drinking occasions. We did not hypothesize that expecting more sober hookups would predict later drinking, because drinking occasions would not contribute directly to sober hookups.

Method

Participants and recruitment. Participants consisted of 654 female freshmen from a large public Northeastern University. Recruitment emails were sent in early September 2018 to all entering first semester female students who were 18 or 19 and U.S.

Table 1 Means, (Standard Deviations), and Correlations, Study 2 (N = 654)

Descriptive statistics			Correlations								
Variable	Proportion/Mean (SD)	1	2	3	4	5	6	7	8	9	
1. Intervention condition ^a	.50	_									
2. Ethnicity ^b	.58	007	_								
3. Sexual orientation ^c	.84	.014	046	_							
4. T1 drinking days	2.87 (3.72)	.023	.275***	.095*	_						
5. T1 HED ^d days	1.76 (3.02)	.024	.251***	.066	.897***	_					
6. T1 sociosexuality	02(.70)	.027	.246***	176^{***}	.548***	.516***	_				
7. Expected hookups, alcohol	.87 (1.64)	.013	.169***	.027	.576***	.561***	.530***	_			
8. Expected hookups, no alcohol	1.06 (1.60)	008	.123**	026	.353***	.321***	.496***	.539***	_		
9. T2 drinking days	2.67 (3.34)	001	.237***	.086*	.737***	.691***	.508***	.503***	.352***		
10. T2 HED ^d days	1.67 (2.58)	008	.264***	.070	.881***	.723***	.492***	.334***	.334***	.881***	

Note. T1 = beginning of the semester; T2 = end of the semester; HED = heavy episodic drinking.

residents (N=1,203). Students were invited to complete a 20-min web-based survey of drinking, social, and sexual experiences at the beginning (T1) and at the end (T2) of the semester. Up to four additional emails were sent over the next 3 weeks to women who had not yet completed the survey. T1 surveys were completed by 760 women, a response rate of 63.2%. In mid-November, women who completed the T1 survey were sent emails with links to the T2 survey followed by up to four reminder emails. T2 surveys were completed by 654/760 (86.1%) who completed the T1 survey with a mean of 69.26 days (SD=6.899, range 51 – 91 days) between T1 and T2.

The sample was 60.2% White, 21.0% Asian, 9.5% African American, and 9.3% mixed or other; 8.6% identified as Hispanic. Most identified as heterosexual (83.2%), with 14.4% bisexual or questioning, and 2.4% lesbian.

Procedure. Emails included a unique link to a secure website that students could access by entering their University ID number and providing electronic informed consent. Survey data were derived from a randomized controlled trial designed to reduce T2 hookups. Half the sample received personalized normative feedback (PNF) regarding hookups at the end of the T1 survey, after all independent variables were assessed. Women were compensated \$25 in Campus Cash for completion of each survey. All procedures were approved by the University Institutional Review Board.

Measures.

Alcohol use. At T1 and T2, women were asked how many days in a month (out of 30) they drink at least one drink of alcohol. If they reported at least one occasion they were asked how many drinks they typically consumed when they drank, how many days (out of 30) they drank four or more drinks, and how many days (out of 30) they drank to intoxication. The last two items which were highly correlated (r = .87 at T1; r = .88 at T2), were averaged to create a composite heavy episodic drinking (HED) days measure (Testa, Kearns-Bodkin, & Livingston, 2009) that we used as an alternative outcome.

Sociosexuality. Sociosexuality was measured at T1 using the same items as in Study 1 (Simpson & Gangestad, 1991). Openended items (e.g., number of partners) were Winsorized to reduce outliers then standardized. Total sociosexuality score was created by summing Z-scores of the four behavioral items and of the summed attitudinal items ($\alpha = .762$; see Cleveland et al., 2019).

Hookups. At T1 participants were given a definition of hookup: "A hookup is a sexual encounter between strangers, friends, or acquaintances—people not in a relationship with each other." To assess expected hookups they were asked "During the fall semester how many hookups do you think you will have while or just after drinking alcohol?" and "During the fall semester, how many hookups do you think you will have when not drinking alcohol?" Because items were open-ended, they yielded a few extreme values and hence were Winsorized at the 97th percentile.

Data analysis plan. As in Study 1, we used hierarchical multiple regression to predict T2 drinking days. On the first step we entered as control variables intervention group (1 = intervention, 0 = control), ethnicity (1 = White, 0 = all others), sexual orientation (1 = heterosexual, 0 = all others), and T1 drinking days. T1 sociosexuality was entered on Step 2. On Step 3 we considered whether T1 expected hookups with alcohol and expected hookups without alcohol accounted for additional variance in T2 drinking days. In addition, to consider whether the effect of sociosexuality was comparable for heavier versus lighter drinkers, we created a T1 Drinking Days × T1 Sociosexuality interaction term and entered it on the final step. Finally, to confirm our findings, we used T2 HED frequency in place of T2 drinking frequency.

Results

Table 1 presents means and correlations among key variables. As expected, women who scored above the mean on sociosexuality reported more T1 drinking days (M=4.70, SD=4.28) than women below the mean (M=1.27 days, SD=2.09), t(653)=13.84, p<.001. They also expected to engage in more hookups with alcohol (M=1.55, SD=2.06 vs. M=0.26, SD=0.76, t(643)=10.340, p<.001) and without alcohol during the semester (M=1.77, SD=1.90 vs. M=0.43, SD=.90, t(643)=11.25, p<.001).

 $^{^{}a}$ 1 = intervention, 0 = control. b 1 = White, 0 = all others. c 1 = heterosexual, 0 = all others. d heavy episodic drinking.

^{*} p < .05. ** p < .01. *** p < .001.

 $^{^1}$ Ethnic distribution of the sample was similar to that of the freshman class as a whole that was 54.0% non-Hispanic White, 18.1% Asian, 8.6% African-American, and 9.1% Hispanic. The proportion of the sample that lived in University housing (76.8%) was nearly identical to that of the freshman class as a whole (75%).

Table 2 presents regression results for T2 drinking days and T2 HED days. In both models, Step 1, which included T1 drinking, accounted for a large proportion of variance. As hypothesized, the addition of sociosexuality on Step 2 contributed significant additional variance. Step 3 did not contribute significant variance to prediction of T2 drinking days; however, it did for T2 HED days. As hypothesized, there was a significant effect of expected hookups with alcohol but not expected hookups without alcohol on T2 HED. The inclusion of the interaction term, Sociosexuality × T1 Drinking Days did not contribute to prediction of T2 drinking in either model indicating that the effect of sociosexuality on later

drinking and HED frequency did not differ for initially frequent versus infrequent drinkers.

Discussion

In two separate samples of freshmen women, sociosexuality prospectively predicted drinking frequency after accounting for the strong effects of baseline drinking. Findings replicate and extend earlier cross-sectional (Corbin et al., 2016) and longitudinal findings (Cleveland et al., 2019; Hone et al., 2019) obtained with men. These unique findings support theoretically derived predictions

Table 2 Effects of T1 Sociosexuality and Expected Hookups on T2 Drinking Days (N = 654)

		Coefficients ^a					N	Model summary			
		Unstandardized coefficients Standardized coefficients									
_	Model	В	SE	β	t	Sig.	R	R^2	R^2 change		
Drinking days											
1	(Constant)	.573	.267		2.143	.033					
	Intervention condition ^a	119	.179	018	668	.505	.737	.543	.543***		
	Ethnicity ^b	.258	.189	.038	1.362	.174					
	Sexual orientation ^c	.167	.247	.018	.676	.499					
	T1 drinking days	.652	.025	.724	25.901	.001					
2	(Constant)	.595	.263		2.266	.024					
	Intervention condition	140	.176	021	799	.425	.748	.560	.017***		
	Ethnicity	.164	.187	.024	.879	.380					
	Sexual orientation	.502	.252	.055	1.995	.046					
	T1 drinking days	.573	.030	.635	19.363	.001					
	T1 sociosexuality	.771	.157	.162	4.912	.001					
3	(Constant)	.573	.264		2.10	.030					
	Intervention condition	136	.176	020	774	.439					
	Ethnicity	.151	.190	.022	.795	.427					
	Sexual orientation	.464	.252	.051	1.844	.066					
	T1 drinking days	.555	.035	.616	15.863	.001	.750	.564	.005		
	T1 sociosexuality	.656	.165	.137	3.964	.001					
	T1 expected hookups with alcohol	.175	.086	.086	2.020	.044					
	T1 expected hookups without alcohol	013	.036	013	354	.724					
	T1 Drinking Days × T1 Sociosexuality	056	.088	020	632	.528					
		Heavy	y episodic drink	ing (HED) days							
1	(Constant)	.255	.209		1.219	.223					
	Intervention condition ^a	144	.140	028	-1.026	.305	.729	.531	.531***		
	Ethnicity ^b	.471	.147	.090	3.200	.001					
	Sexual orientation ^c	.185	.193	.026	.958	.338					
	T1 HED days	.598	.024	.700	24.955	.001					
2	(Constant)	.247	.205		1.208	.227					
	Intervention condition	157	.137	030	-1.145	.253	.742	.550	.019***		
	Ethnicity	.373	.145	.071	2.566	.011					
	Sexual orientation	.430	.195	.061	2.208	.028					
	T1 HED days	.527	.027	.616	19.340	.001					
	T1 sociosexuality	.614	.119	.167	5.168	.001					
3	(Constant)	.173	.209		.830	.407					
	Intervention condition	148	.136	029	-1.090	.276					
	Ethnicity	.369	.145	.070	2.536	.011					
	Sexual orientation	.362	.194	.051	1.868	.062					
	T1 HED days	.497	.034	.582	14.740	.001	.749	.561	.011**		
	T1 sociosexuality	.425	.132	.115	3.226	.001					
	T1 expected hookups with alcohol	.200	.058	.126	3.448	.001					
	T1 expected hookups without alcohol	.030	.053	.019	.568	.571					
	T1 Drinking Days × T1 Sociosexuality	049	.071	024	694	.488					
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Note. T1 = beginning of the semester; T2 = end of the semester; HED = heavy episodic drinking.

^a 1 = intervention, 0 = control. ^b 1 = White, 0 = all others. ^c 1 = heterosexual, 0 = other.

^{**} p = .001. *** p < .001.

that orientation toward short-term mating strategies contributes to college drinking occasions, which are believed to offer opportunities for hookups (e.g., Lindgren et al., 2009). Although the effects of sociosexuality were small relative to the expectedly large effects of prior drinking, they have relevance for understanding motivations for college student drinking and for the design and implementation of college prevention intervention efforts. Women high in sociosexuality and who expect to hook up after drinking represent a worthy target population for interventions designed to address drinking, hookups, and sexual victimization. However, for these students, intoxicated hookups may be the desired goal of drinking and not a consequence to be avoided, posing potential challenges for prevention efforts.

Strengths of the present investigation include prospective design and replication of the sociosexuality effect in two separate samples. The second study also used a large sample—the majority of the entering class at a large public university—with modest attrition. However, there were only two time points, separated by just two months. Replication over a longer time period would increase confidence in findings and permit testing of more elaborate indirect effects models regarding how drinking and sexual outcomes unfold over time.

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