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ORIGINAL ARTICLE

Effects of Workplace Generalized and Sexual Harassment on Abusive Drinking Among First Year Male and Female College Students: Does Prior Drinking Experience Matter?

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ABSTRACT

Background: Workplace harassment, a known risk factor for adult drinking, is understudied in college samples, but may help explain observed gender differences in drinking patterns. *Objective:* We examine effects of sexual and generalized workplace harassment on changes in drinking behavior over the first semesters of college, and the extent to which these effects differ based on prematriculation drinking for men and women students. *Method:* Data derive from two waves of a longitudinal study of eight Midwestern colleges and universities. Data were collected from 2080 employed students via a Web-based survey assessing sexual and generalized workplace harassment, stressful life events, drinking to intoxication, and binge drinking prior to freshman year (fall 2011) and approximately one year later (summer to fall 2012). At baseline, lifetime drinking status, frequency of alcohol consumption, and demographics were also assessed. *Results:* Linear-mixed modeling indicated that employed women students who were frequent drinkers prematriculation were at risk for high levels of drinking associated with workplace harassment, while men who were nondrinkers were most at risk of increasing problem drinking over time when exposed to workplace harassment. *Conclusions:* Alcohol use prevention efforts directed towards employed students are needed both prior to and during college, to instruct students how to identify workplace harassment and cope in healthier ways with stressful workplace experiences. These efforts might be particularly useful in stemming problematic drinking among women who drink frequently prior to college, and preventing men who are nondrinkers upon college entry from initiating problematic drinking during subsequent enrollment years.

KEYWORDS

College drinking; sexual harassment; generalized harassment; binge drinking; stress; gender

Introduction

Despite major prevention efforts by colleges and universities over the past decade, the rate of heavy alcohol use among students has not substantially decreased: National Survey on Drug Use and Health (NSDUH) data show that the percentage of students who report drinking five or more drinks on a single occasion in the past 30 days remained at approximately 44% from 2002 to 2010 (Substance Abuse and Mental Health Services Administration, 2011). This suggests the presence of risk factors for collegiate drinking that are not being addressed. Especially, given the fact that most students work at some point during college, workplace experiences' contribution to students' drinking should be considered. Of specific concern are sexual (SH) and generalized workplace harassment (GWH), particularly in the first year of college when drinking behaviors

increase most dramatically (Adams & Nagoshi, 1999; Del Boca, Darkes, Greenbaum, & Goldman, 2004). Drinking behavior prematriculation is a predictor of drinking in college (Borsari, Murphy, & Barnett, 2007), but existing drinking tendencies have not been examined in relation to how they may affect student alcohol use in response to workplace stressors, or whether such effects may differ by gender. This study addresses these gaps in the research by (1) examining harassing workplace experiences as a risk factor for increased problematic drinking in college, (2) examining whether those who drink more frequently prior to college entry are at greater risk for problematic drinking in response to harassing workplace experiences during the initial semesters of college, and (3) exploring whether the effects of harassing workplace experiences on drinking differ for women versus men students.

Workplace harassment: A potential risk factor for college student drinking

Approximately half of the 16 million college students enrolled in 2012 were employed (U.S. Census Bureau, 2013b). Research indicates that young workers are at increased risk for SH and GWH (Fineran & Gruber, 2009; Rospenda, Richman, Wislar, & Flaherty, 2000). “Workplace harassment” is an umbrella term for various experiences that occur in the workplace which create a hostile environment and may affect one’s job terms, conditions, or ability to do one’s job. Here we focus on two specific forms of harassment—sexual harassment (harassment due to one’s gender; SH), and generalized harassment (harassment *not* based on any legally prohibited social status characteristic such as gender, race/ethnicity, age, etc; GWH). Research on adult workers has shown that SH and GWH experiences overlap somewhat, with 40% of a national sample reporting both SH and GWH experiences (Rospenda, Richman, & Shannon, 2009), and 17% of a sample of university employees reporting chronically experiencing both forms of harassment (Rospenda et al., 2000). Factor analytic research supports SH and GWH as separate but related constructs, and “workplace harassment” as a higher-order construct subsuming both forms (Fendrich, Woodward, & Richman, 2002).

From a stress and coping framework (Lazarus & Folkman, 1984), workplace harassment represents a psychological demand which exceeds or depletes targets’ coping resources, leading to negative psychological and behavioral outcomes such as substance use (Fitzgerald, Hulin, & Drasgow, 1994; Richman, Flaherty, & Rospenda, 1996). Consistent with this paradigm, SH and GWH are well-established risk factors for problematic alcohol use in the adult population (McGinley, Richman, & Rospenda, 2011; Richman et al., 1999). However, most research has neglected the potential impact of workplace experiences on college student drinking behaviors, with the exception of research on number of hours worked, which has produced mixed findings (Butler, Dodge, & Faurote, 2010; Leppel, 2006). We argue that workplace harassment may be particularly distressing to younger workers who may not know their rights in the workplace and have limited or less well-developed resources to cope with such experiences. Indeed, Rospenda et al. (2013) found that college freshmen who experienced workplace bullying (assessed with a measure of generalized harassment) reported significantly increased frequency and quantity of drinking and problems due to drinking four months into freshman year, although gender differences were not explored. The current study builds on prior research by addressing changes in drinking related to level of harassment over a longer time period, during the critical first months of

college, a period of transition and identity exploration when coping resources may be particularly taxed (Arnett, 2005).

Gender and drinking among college students

Several national studies have shown increasing rates of problematic drinking behaviors such as binge drinking among underage women compared to men, whose rates have remained fairly stable (Newes-Adeyi et al., 2005). Yet research to clarify why binge drinking has increased disproportionately among college women is lacking. One issue not yet considered is that female students are more likely to be employed (Greene & Maggs, 2015; U.S. Census Bureau, 2013a). Employment is associated with higher levels of alcohol use and problem drinking among adolescents (Valois, Dunham, Jackson, & Waller, 1999; Weller, Kelder, Cooper, Basen-Engquist, & Tortolero, 2002) and college students (Miller, Danner, & Staten, 2008), and employed women are more likely to drink than their nonemployed counterparts (Shore, 1992). It is possible that college women’s drinking has increased because of negative experiences at work. However, research has neglected employment experiences as a potential explanation for observed gender differences in collegiate problematic drinking.

Evidence suggests that workplace harassment is more prevalent among younger workers (Rospenda et al., 2009). Although research has not generally found gender differences in the prevalence of GWH, women are more likely to experience SH at work and at school (Hill & Silva, 2005). In one of the few studies of workplace harassment among high school students, 54% of girls and 44% of boys reported being sexually harassed at work, although the girls were more likely to be distressed and feel threatened by these experiences (Fineran, 2002). Thus, between work and school experiences, young women may bear a greater overall burden of harassment of a distressing nature (particularly SH) than their older counterparts, resulting in a greater likelihood of a depletion of coping resources and consequent greater distress and self-medication of distress through use or abuse of alcohol compared to young men. No study to date has directly examined these issues among college workers.

Studies on gender, drinking, and workplace harassment have been limited to adult samples and have reported inconsistent findings. Research on SH and GWH among employed adults found that drinking outcomes were similar for men and women (e.g., Richman et al., 1999). By contrast, a national study of U.S. workers demonstrated that consequences of workplace harassment, beyond the effects of other stressors, differed by gender over time: at baseline, SH was associated with

binge drinking for men but not women, and GWH was associated with problem drinking for women but not men (Rospenda et al., 2009). Longitudinally, however, baseline SH and GWH only predicted increased problem drinking one year later for men but not women (Rospenda, Fujishiro, Shannon, & Richman, 2008). This research suggests that adult men are more affected long term by work stressors such as SH and GWH, although whether these findings generalize to young working college students is unknown. A key issue is whether observed gender differences in longer-term effects of harassment on drinking can be explained by gender differences in levels of harassment over time. This might explain inconsistent findings in prior research. A central contribution of the present study is that we explore the effects of SH and GWH on problematic drinking outcomes over the first few semesters of college separately by gender, using linear mixed modeling (LMM) to account for different levels of harassment over time.

Drinking tendencies: Prematriculation drinking experience

Another important question is whether negative interpersonal experiences at work can lead young people to start drinking, or if these experiences affect drinking behavior only for those who have existing tendencies to drink. Drinking prior to college is a strong predictor of college drinking (Borsari et al., 2007; McCabe, 2002; Wechsler, Dowdall, Davenport, & Castillo, 1995), and research shows that some students are “early adopters” who increase drinking in as little as one month after college entry (LaBrie, Lamb, & Pedersen, 2009; LaBrie et al., 2007). Those with existing drinking tendencies may be more likely to use alcohol as a coping strategy to self-medicate negative emotions arising from harassment experiences, because drinking is a behavior that is already in their behavioral repertoire. In the current study, we treat prematriculation drinking frequency as a conditionally relevant variable (Gee, Ro, Gavin, & Takeuchi, 2008; Ross & Mirowsky, 1992), in other words, a factor that may impact the relationship between workplace harassment and problematic drinking, but one that is only relevant for those who report some drinking prior to college. This approach allows us to include non-drinkers in our model, while still estimating the effects of prematriculation drinking tendencies among drinkers at baseline.

In sum, this study uses a stress and coping framework to examine prematriculation drinking tendencies and gender as boundary conditions that may affect the extent to which workplace SH and GWH affect drinking behavior among first-year college students. We hypothesize that higher levels of SH or GWH will be

associated most strongly with problematic drinking in the initial semesters of college for those with high frequency of drinking prematriculation (Hypothesis 1). Because SH occurs more frequently among young women, is more distressing to women, and harassed women who already drink may turn more readily to alcohol use as a form of coping, we expect that this effect will be most pronounced among women who experience high levels of workplace SH (Hypothesis 2). We test these hypotheses in a sample of first time college freshmen who were not yet age 21, because (a) underage drinking on U.S. college campuses is a significant public health concern, (b) underage drinkers differ from drinkers over age 21 in frequency and patterns of drinking (National Institute on Alcohol Abuse and Alcoholism, 2015; Wechsler, Kuo, Lee, & Dowdall, 2000), and (c) drinking increases most steeply and heavy drinking peaks prior to the age of 21 for both men and women (National Institute on Alcohol Abuse and Alcoholism, 2007; Schulenberg et al., 2001).

Method

Human subjects

All study activities were approved by the Institutional Review Boards of the participating schools.

Participants and procedures

Study participants were recruited from a sample of 9,100 incoming freshmen at eight colleges and universities in the Midwestern United States. Six schools provided us with a random sample of students, and two schools allowed us to sample all freshman students. As part of a longitudinal study, electronic invitations to complete a web survey were sent out at the beginning of students' first year of college in the fall of 2011 (baseline), and at follow-up at the end of the freshman year (median time to follow-up = 12.9 months, range: 8.0–16.8 months). Students were required to be at least 18 years old at baseline. Students received a \$25 Amazon certificate at baseline and a \$30 certificate at follow-up for survey completion.

At baseline, 2984 students (32.8%) responded to the invitation, which is consistent with response rates in web survey research (Shih & Fan, 2008). Data were excluded from analysis for various reasons, some overlapping, including age < 18 at baseline ($n = 2$), age greater than 20 at baseline ($n = 72$), erratic responses to items ($n = 1$), non-freshman status ($n = 1$), not employed during the study period ($n = 626$), and not reporting gender ($n = 8$). The sample that met our inclusion criteria comprised 2,287 students. An additional 207 students had missing data at both time points on other modeled variables,

so were excluded. A final sample of 2080 students at baseline was included in the models (59.6% women; age $M = 18.40$, $SD = 0.53$; 61.5% white, 7.0% African American, 12.5% Latino/a, 11.7% Asian American, 5.1% multiracial, 2.1% “other”). At follow-up, 1722 (82.8%) completed a questionnaire. Because we applied 2-level LMM (i.e., time points nested in individuals), those who provided data only once were retained in the model and contributed to the parameter estimates. This approach also allowed us to account for the varying follow-up duration among the participants.

Measures

Generalized workplace harassment (GWH)

The Generalized Workplace Harassment Questionnaire (GWHQ; 20 items) was used to measure GWH experiences. The GWHQ is comprised of four factors: covert hostility (e.g., excluded from important meetings or events, 3 items), verbal hostility (e.g., yelled at, talked down to, 7 items), manipulation (attempts to control the target's behavior, e.g., through threats or bribes, 5 items), and physical aggression (e.g., pushed, hit, kicked, 1 item) (Richman et al., 1999; Rospenda & Richman, 2004). Additional items tapped “passive” forms of harassment, such as failing to respond to requests for help, and experiences particularly relevant to a college population, including (a) “cyber bullying”—e.g., through e-mail, text-messaging, or online sites such as Facebook, (b) being the target of pranks or practical jokes that the target did not think were funny, (c) pressure from others to do something that the student didn't want to do. A confirmatory factor analysis in Amos 24 testing a one-factor model allowing correlated residuals between items on the same conceptual subscales provided an acceptable fit to the data ($\chi^2 = 1383.27$, $df = 123$, $CFI = .92$, $TLI = .88$, $RMSEA = .06$). Respondents rated each experience as occurring “never,” “once,” or “more than once” in the past 12 months prior to college at baseline; at follow-up we asked about the past 4 months in order to avoid any overlap in reporting period; $\alpha = .87$ and $.89$, respectively.

Sexual harassment (SH)

Workplace SH was measured with a modified 13-item version of the Sexual Experiences Questionnaire (SEQ) (Fitzgerald et al., 1988), worded so items applied to both men and women. The SEQ behaviorally depicts three types of SH: gender harassment, unwanted sexual attention, and sexual coercion. Gender harassment encompasses crude sexual comments or comments that demean the target's gender. Unwanted attention encompasses unwanted touching and repeated requests for dates. Sexual coercion involves demands for sexual favors, which

imply job-related consequences. Response options were “never,” “once,” or “more than once” in the past 12 months prior to college at baseline and past 4 months at follow-up; $\alpha = .84$ at both time points.

Baseline alcohol consumption/prematriculation drinking experience

Respondents were asked about (a) lifetime consumption—whether they had ever consumed a drink containing alcohol in their entire lives prior to college, and (b) prematriculation frequency of drinking, as measured by the question, “What is your best estimate of the number of days you drank alcohol during the 30 days prior to starting college?” (range 0–30). These questions were used to assess the extent to which alcohol consumption was a part of respondents' prematriculation behavioral repertoire. Frequency of drinking was modeled as a conditionally relevant variable.

Problematic drinking

We used two items from Wilsnack et al. (1991) to measure problematic drinking behavior at both measurement points. *Drinking to intoxication* was assessed with the item, “About how often in the last 12 months did you drink enough to feel drunk, that is, where drinking noticeably affected your thinking, talking, and behavior?” *Binge drinking* was assessed with the item, “About how often in the last 12 months did you have 5 or more drinks (males)/ 4 or more drinks (females) of any alcoholic beverage on the same occasion?” Baseline questions specified “past 12 months prior to college.” Response options were from 0 (*never*) to 7 (*5 or more times a week*).

Life stressors

The List of Threatening Experiences (LTE-Q) (Brugha, Bebbington, Tennant, & Hurry, 1985; Brugha & Cragg, 1990) is based on life events collected in a general population sample, rated for long-term contextual threat. Brugha and Cragg (Brugha & Cragg, 1990) found that 12 event categories (e.g., a serious illness) accounted for 77% of life events rated as having marked or moderate long-term threat. Participants indicated whether or not (*yes/no*) they experienced any of the 12 life events during the past 12 months at baseline and past 4 months at follow-up. This variable was used to control for effects of non-work-related stressors on drinking outcomes.

Demographics

The demographics assessed included race/ethnicity, age, and gender.

Data analytic plan

Using LMM, a 2-level model was estimated: time (level 1) was nested within individual (level 2). This allows for the repeated measures of the outcome variables, time-invariant and time-varying covariates, and interactions across two levels. The level 1 variables were problematic alcohol use, workplace harassment, and life stress (as a control); level 2 variables were race and baseline alcohol use. The frequency of prematriculation drinking at baseline was included as a conditionally relevant variable (i.e., an interaction between lifetime drinking prior to college (yes = 1, no = 0) and frequency), such that the regression coefficient for the interaction represents the effect of baseline drinking frequency only for those who had consumed alcohol before entering college. An interaction between time and baseline report of lifetime drinking was included to determine if change in problem drinking variables over time was moderated by individual's prematriculation drinking status. An interaction term between lifetime drinking, baseline drinking frequency, and harassment was included in each model to determine whether prematriculation drinking frequency moderated the effects of harassment on problematic drinking variables for prematriculation drinkers. Separate models were estimated for workplace SH and GWH and also estimated separately for men and women. Although respondents were nested within clusters (i.e., schools), the number of clusters was small (i.e., 8), and intraclass correlations of study variables were very small. Under these conditions, accounting for school as a cluster would affect model parameters only negligibly (Julian, 2001); our analyses combined samples from individual schools. Investigation of timing of response at baseline indicated that 72.3% of the sample responded within 4 weeks of the start of classes. We ran all analyses with and without those who responded after 4 weeks. Given that the direction and significance of results did not change, and since students were asked about prematriculation drinking at baseline, all models presented here contain both early and late responders to baseline. Time to response at follow-up was accounted for in our models with the variable "Time."

Results

Sample attrition

Attrition analyses indicated that those who were not included in the models were more likely to be Black or Asian American ($\chi^2(5, N = 2235) = 55.46, p = .000$), to have never had a drink in their lives at baseline ($\chi^2(1, N = 2247) = 266.40, p = .000$), a lower number of life stressors at baseline ($t(2259) = -2.76, p < .01$) and follow-up ($t(1706) = -2.30, p < .05$), a lower level of

GWH at follow-up ($t(169) = -3.03, p < .01$), a lower level of SH at follow-up ($t(248) = -5.08, p < .001$), and less binge drinking ($t(63) = -3.59, p = .001$) and less drinking to intoxication ($t(64) = -4.09, p < .001$) at follow-up.

Descriptive statistics

T-tests with gender show that women experienced more GWH at baseline, SH at both waves, and more life stressors at both waves, whereas men reported higher rates of intoxication at both waves (see Table 1).

Problematic drinking, demographic characteristics, and prematriculation drinking characteristics

The LMM models estimating the associations of binge drinking and intoxication with SH and GWH are displayed in Tables 2 and 3, respectively. Before examining these specific associations, we review the results for other factors that are common across all models (i.e., race/ethnicity, life stressors, the effect of time, and baseline drinking characteristics). For all models, white students had significantly higher levels of problem drinking than Asian, Black, and Latino students. White students' problematic drinking did not differ significantly (i.e., at $p < .05$) from students who did not identify themselves as solely Asian, Black, or Latino (these students are grouped into the "Other" category). Looking at the effects of life stressors by gender across models, life stressors significantly predicted problematic drinking outcomes only for women. Time itself was not significantly associated with drinking outcomes in any model, but some models revealed significant interaction between time and other study variables, indicating that change in drinking behavior over time depends on other characteristics.

Another significant finding across all models was that those who reported ever having a drink in their lives prematriculation (positive baseline drinking status; BDS) exhibited higher scores on drinking outcomes. Among the baseline drinkers, baseline drinking frequency (BDF) predicted drinking outcomes at baseline, such that those who were frequent drinkers prematriculation (high BDF) exhibited the highest scores on drinking outcomes. Over time, however, problematic drinking outcomes showed a less steep increase for high BDF compared to those who were infrequent drinkers at baseline (low BDF) in all models, although this effect was not statistically significant in models for binge drinking among men.

Workplace harassment and change in problematic drinking by gender

Neither SH nor GWH had a significant main effect on problem drinking in any of the models. However, some interactions involving SH and GWH were significant,

Table 1. Descriptive statistics for study variables by sex at baseline and follow-up.

Variable	Baseline					Follow-up				
	Men		Women		Gender comparison <i>t</i>	Men		Women		Gender comparison <i>t</i>
	Mean	(SD)	Mean	(SD)		Mean	(SD)	Mean	(SD)	
Sexual harassment	0.90	(2.21)	2.16	(3.73)	− 8.89***	0.71	(2.18)	1.51	(3.16)	− 5.54***
Generalized harassment	4.60	(5.47)	5.34	(6.32)	− 2.65**	4.06	(5.96)	4.59	(6.04)	− 1.64
Life stressors	2.97	(2.29)	3.38	(2.48)	− 3.85***	1.77	(2.77)	2.35	(2.43)	− 4.37***
Frequency of drinking	4.12	(5.87)	3.94	(5.69)	0.66					
Intoxication	1.42	(1.66)	1.25	(1.50)	2.32*	2.46	(1.78)	2.14	(1.66)	3.23***
Binge drinking	1.44	(1.66)	1.34	(1.53)	1.37	2.47	(1.80)	2.28	(1.72)	1.85

Note: Ns for men ranged from 685 to 840 for baseline comparisons, and 491 to 632 for follow-up comparisons. Ns for women ranged from 1060 to 1236 for baseline comparisons and 800 to 936 for follow-up comparisons. Drinking frequency at follow-up was not included in the model, thus only information for baseline frequency of drinking is presented. * $p < .05$; ** $p < .01$; *** $p < .001$

indicating that their effects depend on other participant characteristics. These interaction effects thus indicate the most vulnerable subgroups. For SH, there was a tendency among women that the more frequent prematriculation drinking, the higher binge drinking score when exposed to SH ($p < .07$). Except for this tendency, SH had no significant effects on women's problem drinking, contrary to our hypothesis. Among men, SH was not associated with problem drinking at baseline regardless of drinking status or frequency. However, for baseline nondrinkers, SH's effect on problem drinking significantly increased over time. That is, male baseline non-drinkers exposed to SH increased problem drinking over time to a greater degree than male baseline drinkers with SH exposure.

The effects of GWH on binge drinking for men and women students are slightly more complex, and are illustrated in Figure 1 for three levels of baseline drinking frequency: non-drinker, infrequent drinker (25th percentile: 1 day for both men and women), and frequent drinker (75th percentile: 8 days for men and 10 days for women). At each level of drinking, the solid lines indicate predicted values for high levels of GWH (75th percentile), and the dashed lines represent low levels of GWH (25th percentile). The slope of each line indicates the effect of time, and whether the paired slopes are significantly different from each other is indicated in Table 3 as the significance of coefficients involving GWH. The results for drinking to intoxication were nearly identical (Figure 2).

Table 2. Linear mixed models predicting binge drinking and drinking to intoxication from sexual harassment and baseline drinking for women and men college students ($N = 2080$).

Independent variable	Women ($n = 1239$)				Men ($n = 841$)			
	Binge drinking		Drinking to intoxication		Binge drinking		Drinking to intoxication	
	<i>b</i>	SE	<i>b</i>	SE	<i>b</i>	SE	<i>b</i>	SE
Intercept	0.099	0.142	0.206	0.137	0.382**	0.146	0.359*	0.143
Race/ethnicity								
Asian	− 0.595***	0.135	− 0.693***	0.130	− 0.702***	0.141	− 0.821***	0.138
Black	− 0.577***	0.142	− 0.723***	0.138	− 0.742**	0.230	− 0.821***	0.228
Latino/a	− 0.506***	0.114	− 0.797***	0.110	− 0.587***	0.152	− 0.701***	0.150
Other	− 0.109	0.140	− 0.262†	0.135	− 0.269	0.204	− 0.246	0.201
White	0.000	.	0.000	.	0.000	.	0.000	.
Life stressors	0.054***	0.014	0.046***	0.013	− 0.021	0.018	0.006	0.018
Time	− 0.046	0.105	− 0.055	0.101	− 0.032	0.103	− 0.029	0.100
Baseline drinking characteristics								
Baseline drinker	1.609***	0.147	1.450***	0.142	1.656***	0.155	1.522***	0.152
Baseline drinking frequency ^a	0.141***	0.010	0.136***	0.009	0.157***	0.012	0.169***	0.012
Time*Baseline drinker ^b	0.129	0.105	0.142	0.101	0.100	0.103	0.107	0.100
Time*Baseline drinking frequency ^{a,b}	− 0.004***	0.001	− 0.005***	0.001	− 0.001	0.001	− 0.003*	0.001
Sexual harassment (SH)	− 0.001	0.042	− 0.001	0.041	0.001	0.069	0.007	0.067
Interaction between baseline drinking characteristics and SH								
SH*Baseline drinker	0.020	0.045	0.056	0.044	0.072	0.079	0.079	0.077
SH*Baseline drinking frequency ^a	0.003†	0.002	0.002	0.002	− 0.003	0.003	− 0.005	0.003
Time*SH ^b	0.016	0.017	0.020	0.016	0.094*	0.038	0.092*	0.037
Time*SH*Baseline drinker ^b	− 0.017	0.017	− 0.023	0.016	− 0.095*	0.039	− 0.090*	0.038
Time*SH*Baseline drinking frequency ^{a,b}	0.000	0.000	0.000	0.000	− 0.001†	0.000	0.000	0.000

Note: SH = Workplace Sexual Harassment; Baseline drinking status, 1 = drinker, 0 = nondrinker; ^a Only applies to baseline drinkers; ^b Interaction with time indicates the change over time; † $p < 0.07$; * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 3. Linear mixed models predicting binge drinking and drinking to intoxication from generalized workplace harassment and baseline drinking for women and men college students ($N = 2080$).

Independent variable	Women ($n = 1239$)				Men ($n = 841$)			
	Binge drinking		Drinking to intoxication		Binge drinking		Drinking to intoxication	
	b	SE	b	SE	B	SE	b	SE
Intercept	0.110	0.160	0.224	0.154	0.377*	0.160	0.324*	0.157
Race/ethnicity								
Asian	−0.606***	0.135	−0.707***	0.131	−0.706***	0.141	−0.817***	0.139
Black	−0.604***	0.142	−0.759***	0.138	−0.724**	0.230	−0.813***	0.229
Latino/a	−0.493***	0.114	−0.784***	0.111	−0.586***	0.152	−0.701***	0.151
Other	−0.102	0.140	−0.247†	0.135	−0.336	0.204	−0.298	0.201
White	0.000	.	0.000	.	0.000	.	0.000	.
Life stressors	0.054***	0.014	0.046***	0.013	−0.030	0.018	0.008	0.017
Time	0.078	0.098	0.094	0.094	−0.026	0.093	−0.021	0.091
Baseline drinking characteristics								
Baseline drinker	1.625***	0.167	1.484***	0.161	1.542***	0.180	1.491***	0.177
Baseline drinking frequency ^a	0.127***	0.011	0.121***	0.010	0.172***	0.016	0.176***	0.016
Time*Baseline drinker ^b	0.010	0.098	−0.004	0.094	0.103	0.094	0.108	0.092
Time*Baseline drinking frequency ^{a,b}	−0.004***	0.001	−0.005***	0.001	−0.002	0.002	−0.004*	0.002
Generalized workplace harassment (GWH)	−0.002	0.022	−0.004	0.022	0.010	0.026	0.012	0.026
Interaction between baseline drinking characteristics and GWH								
GWH*Baseline drinker	0.002	0.024	0.013	0.024	0.032	0.030	0.015	0.029
GWH*Baseline drinking frequency ^a	0.005***	0.001	0.004**	0.001	−0.003†	0.002	−0.002	0.002
Time*GWH ^b	−0.029	0.065	−0.034	0.063	0.014*	0.006	0.014*	0.005
Time*GWH*Baseline drinker ^b	0.028	0.065	0.032	0.063	−0.016**	0.006	−0.015**	0.006
Time*GWH*Baseline drinking frequency ^{a,b}	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Note: GWH = Generalized Workplace Harassment; Baseline drinking status, 1 = drinker, 0 = non-drinker; ^a Only applies to baseline drinkers; ^b Interaction with time indicates the change over time; † $p < 0.07$; * $p < .05$; ** $p < .01$; *** $p < .001$.

The effects of GWH on problem drinking differed from the effects of SH in only one respect—whereas SH did not have significant effects on women's drinking, GWH had a stronger effect on binge drinking and drinking to intoxication for women who were frequent drinkers at baseline compared to female infrequent baseline drinkers. This effect is illustrated in the top half of Figure 1 by the greater distance between the paired lines for female frequent drinkers than for female infrequent drinkers. For female infrequent drinkers, GWH did not have an effect on binge drinking. For men, the distance between the paired lines is slightly greater for infrequent drinkers ($p < .07$). This shows that among men, baseline frequent drinkers' binge drinking is not affected by GWH, but baseline infrequent drinkers binge more if they experience GWH.

Figure 1 also illustrates a clear gender difference in the slopes for baseline non-drinkers. Among women baseline non-drinkers, the predicted frequency of binge drinking does not increase significantly (i.e., two interactions involving time and baseline drinking status are both nonsignificant for women). By contrast, men baseline non-drinkers who experienced higher levels of GWH exhibit a steep increase in predicted frequency of binge drinking (i.e., the interaction of time, GWH, and baseline drinking status is significant). Thus, as predicted by the model but contrary to our hypothesis, male baseline

non-drinkers who were exposed to GWH were more likely than women baseline nondrinkers to progress to exhibiting binge drinking during their first year of college.

Discussion

The current study attempted to explain consistent high levels of drinking among college students despite institutional prevention efforts (Substance Abuse and Mental Health Services Administration, 2011) by examining workplace harassment as a risk factor for college student workers, a population which, due to youthful age and relative inexperience, is at greater risk of experiencing harassment (Fineran & Gruber, 2009; Rospenda et al., 2009; Rospenda et al., 2000). We examined the contributions of workplace harassment (SH, GWH), prior drinking experiences, and gender to problematic drinking (binge drinking, drinking to intoxication) over the initial semesters of college. Results indicated that, after controlling for life stressors and other sociodemographic variables, workplace harassment and prematriculation drinking experience jointly impacted collegiate student problematic drinking over time, but the relationships were different for women and men.

For women, our hypothesis regarding GWH was supported: the more frequently women drank prematriculation, the greater effects workplace harassment had on

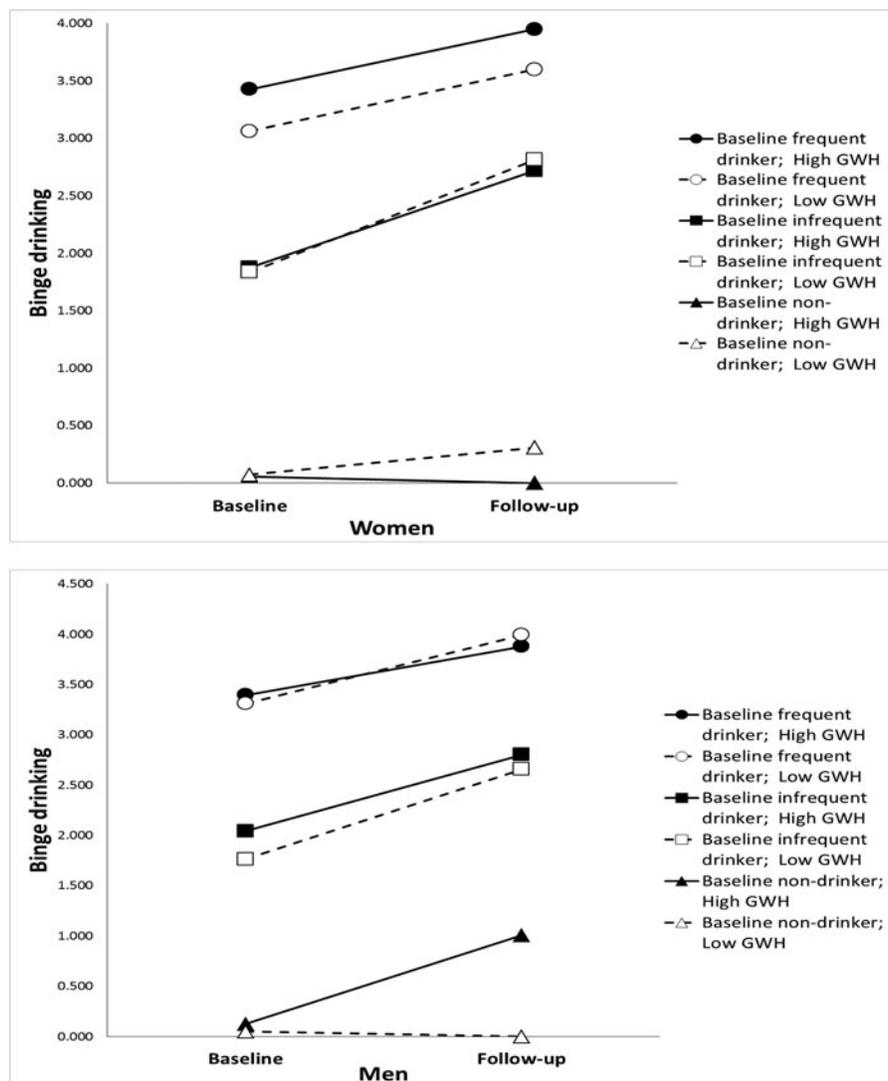


Figure 1. Effects of high (75th percentile) versus low (25th percentile) level of generalized workplace harassment on predicted frequency of binge drinking for women and men college students, as a function of time and frequency of drinking (non-drinker; infrequent = 25th percentile; frequent = 75th percentile) at baseline. GWH = generalized workplace harassment.

binge drinking and intoxication. The effects of SH were only marginally significant for women, although they were in the predicted direction. For men, the effects were opposite to our hypotheses, in that male students who were non-drinkers prior to college exhibited the greatest effects of SH and GWH on problematic drinking outcomes over the follow-up period. This may partly be due to ceiling effects for men: frequent drinkers were already drinking at high levels prior to college, and thus the degree of possible increase during the study period was restricted. For women, however, these results suggest that a combination of risks, namely GWH in conjunction with a prior history of frequent drinking, is particularly deleterious. This combined risk may help explain the overall rise in problematic drinking behaviors reported by women college students (Newes-Adeyi et al., 2005).

Our findings resonate with prior attempts to understand gender, workplace harassment, and negative outcomes among youth. Keashly (2012) posited that teenage workers are particularly vulnerable as they are navigating identity exploration, a task that may be more central during college for young adults (e.g., Arnett, 2005). Demeaning and dismissive behaviors from supervisors and other influential adults in the workplace may negatively impact identity development, which can have long-lasting implications; prior theory and research suggest that young adults who do not have a stable identity are more likely to engage in substance use (Arnett, 2005; Keashly, 2012). While others have found relations between workplace harassment and alcohol use to be mixed across gender groups (Rospenda, et al., 2009), Gruber and Fineran (2008) reported that SH predicted decreased self-esteem

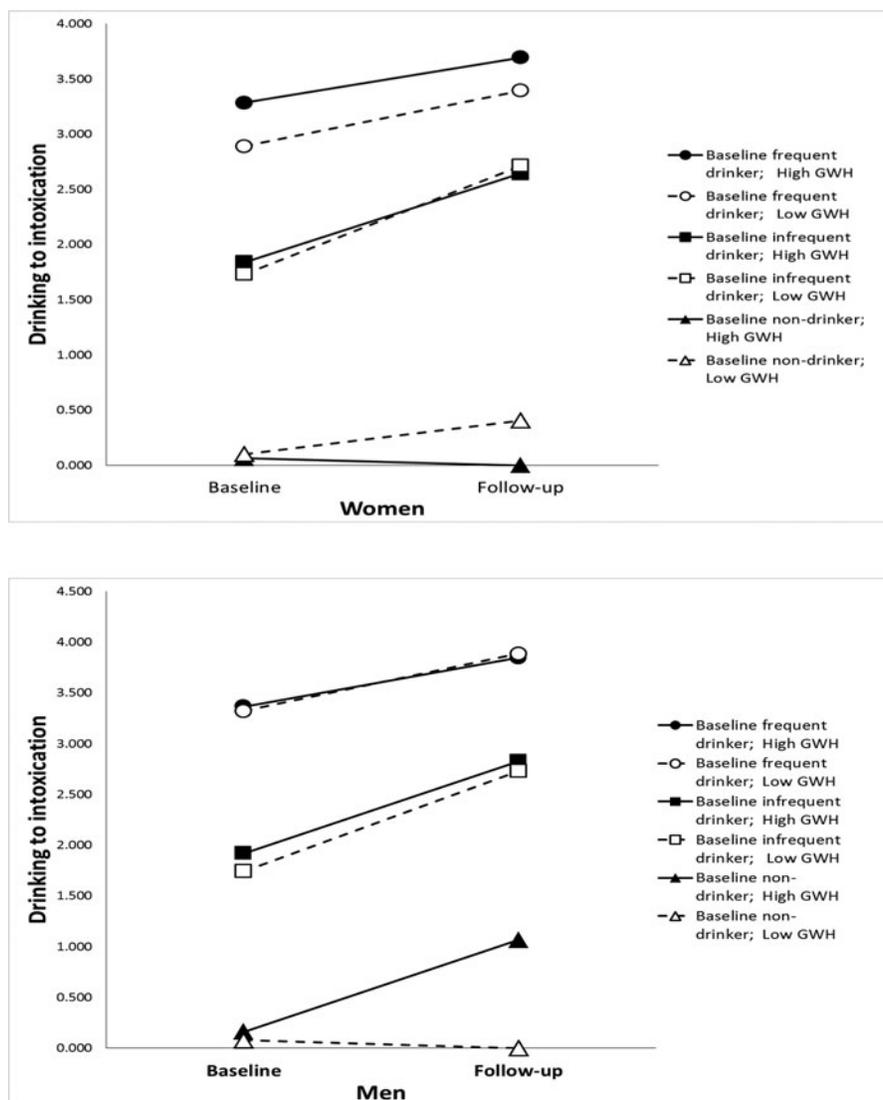


Figure 2. Effects of high (75th percentile) versus low (25th percentile) level of generalized workplace harassment on predicted frequency of drinking to intoxication for women and men college students, as a function of time and frequency of drinking (non-drinker; infrequent = 25th percentile; frequent = 75th percentile) at baseline. GWH = generalized workplace harassment.

and increased substance use for female adolescent workers, but not their male counterparts. By contrast, in our study, although men experienced lower levels of SH than women, it had a stronger impact on drinking among college men compared to women, in that SH exposure was associated with initiation of problematic drinking among men who previously did not drink. It is possible that by the time they are in college, women are more used to experiencing SH, and have developed better coping strategies. It is also possible that women who are frequent drinkers prior to college started drinking because of SH experiences, and we do not observe SH-related change in drinking during the study period because their drinking in response to SH is already at a stable level. GWH was more strongly associated with women's drinking than was SH, and the most at-risk group of women was those

who were already frequent drinkers prior to college. GWH may represent a more novel experience for college women, which may challenge their sense of self, and lead them to strengthen one aspect of their already-formed identity—i.e., identification with drinking culture. Future studies should address how self-evaluation or identity, both in terms of gender role and identification with drinking culture, may mediate the relations among different forms of workplace-related harassment and substance use outcomes. Future research should also assess how much students were distressed by their harassment experiences in addition to the frequency of experiences.

Gender differences were observed in other findings as well. Life stressors were only associated with problematic drinking outcomes for women, consistent with

other research indicating that women more often respond to stressful life experiences by self-medicating with substances (e.g., Boden, Fergusson, & Horwood, 2014; Rospenda et al., 2008). Stogner (2015) reported that women, but not men, with a 10-repeat DAT1 allele consumed more alcohol in response to stressful life experiences. This genotype appeared to only increase the sensitivity to stressful events for women. However, other studies have noted that the stress-alcohol link is stronger for men if stress is defined as perceived stress rather than distinct life events (Sacco, Bucholz, & Harrington, 2014). Future studies examining the impact of stressful life events, including harassment experiences, should take into account (1) gender-specific differential susceptibility, and (2) both objective and subjective measures of stress. Some of the gender differences observed in our study may have been due to differences in perceived distress resulting from SH compared to GWH for women and men.

This study is the first to examine the effects of both workplace SH and GWH on problematic drinking behavior over the initial semesters of college, taking into account both drinking behavior prior to college and gender. However, some limitations should be noted. First, while the data are longitudinal, we cannot identify when heavy drinking began for those who reported heavy drinking at baseline. Some had initiated drinking, but our data precludes exploration of how or why students were engaged in prematriculation drinking behaviors. Prior drinking may serve as a proxy for family substance abuse history/genetic predispositions, environment, personal attitudes, or stressful experiences throughout youth. These factors may better shed light on the relations between past drinking and current drinking.

It is possible that coworkers who tend to harass young workers also embrace liberal attitudes about alcohol use. The expression of pro-alcohol use attitudes would suggest that they may be modeling these attitudes, and possibly substance use behaviors, to young workers, as well as potentially increasing opportunities for college-age workers to engage in heavy drinking experiences (e.g., after work, at parties thrown by older coworkers). This is especially salient given that about 60% of students are employed in sales, administrative support, and food and personal service industries (Carnevale, Smith, Melton, & Price, 2015). Use of alcohol is common among sales and administrative support staff, and heavy drinking and on-the-job drinking are common among food service workers, wait staff and bartenders (Frone, 2006; Zhang & Snizek, 2003), those with non-standard shifts, and younger workers (Frone, 2006). Thus, employed college students are likely to have work friends who drink, may drink with these friends even while working, and thus may drink more than their unemployed

counterparts. Future studies should assess whether coworker attitudes and drinking behavior heighten the effects of workplace harassment on employed students' problem drinking.

Another limitation is the use of self-report measures, some of which had recall periods of 12 months; information decay or misremembering may have been an issue. Regarding sample characteristics, our attrition analysis suggests that our results may not be representative of Black or Asian students. In addition, students with fewer life stressors, less harassment, and non-drinkers or light drinkers tended to be less well represented in our analyses. These students may have discontinued study participation because the topic was not perceived as relevant. Future research should make special efforts to ensure that minority students, non-drinkers or light drinkers, and those who don't have a history of harassment are retained in the study, since it is particularly important to capture how onset of harassment might result in initiation of alcohol use or heavy drinking. Also, our sample was drawn from students in one Midwestern U.S. state, and is limited to young adult workers who are enrolled in post-secondary educational institutions. It is unknown whether these findings would extend to other geographical regions or to young adult workers who are not enrolled in college.

Isolating the factors that lead to increased first-year drinking can help pinpoint targets for early intervention. Most prevention efforts initiated by colleges and universities have been geared towards cognitive-behavioral skills training for moderating alcohol consumption, challenging drinking expectancies and motivations, and other interventions targeted at the individual level (Saltz, 2004), rather than on changing or addressing environmental factors that may contribute to student drinking (although inroads have been made in terms of community-level interventions; see Saltz, 2011 for a review). Our findings have several implications for prevention and intervention. First, our results suggest that prevention efforts occurring *prior* to college, i.e., at the high school level, may be important in helping to reduce or head off problem drinking at the college level, particularly for women who work and who may be exposed to harassment. Second, although they are potentially modifiable, sexual and generalized harassment at work, and coping with these experiences in the school or workplace environment, have been neglected as a potential target for prevention efforts, particularly as related to alcohol use. While off-campus workplace environments are outside the control of colleges and universities, policies prohibiting generalized harassment or bullying on college campuses, similar to SH policies already in place, could help reduce the prevalence of these harmful experiences at on-campus jobs. Also,

career planning and job centers at colleges and universities could incorporate training sessions to help students recognize harassment in the workplace, inform student workers of their rights in terms of reporting such experiences, and help suggest positive, healthier ways of coping with stressful workplace experiences.

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Declaration of interest

The authors alone are responsible for the content and writing of this article and they do not represent the official views of the NIAAA or the National Institute for Occupational Safety and Health (NIOSH).

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