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Sexual Harassment Experiences and Harmful Alcohol Use in a Military Sample: Differences in Gender and the Mediating Role of Depression*

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ABSTRACT. Objective: Researchers and clinicians alike are interested in the effects of sexual harassment on mental health, including associations with problem drinking. The aim of the current investigation was to examine depression symptoms as a mediator of the association between sexual harassment during military service and current harmful alcohol use in a sample of former military personnel, stratified by gender. **Method:** Using a cross-sectional design, 3,946 former reservists were surveyed regarding their experiences of sexual harassment in the military and their current depression symptoms and harmful alcohol use. Fifty-nine percent of the final sample were female. **Results:** As expected, women endorsed experiencing sexual harassment more than men, and men endorsed harmful drinking more than women. Sexual harassment was associated with increased depression symptoms among both men

and women; however, depression symptoms mediated the association between sexual harassment and harmful alcohol use among women only. Sexual harassment was not a significant predictor of harmful alcohol use among men. **Conclusions:** The associations between sexual harassment, depression symptoms, and harmful alcohol use differ between men and women in this sample. Consistent with the self-medication hypothesis, sexual harassment is associated with harmful drinking among women, and this association can be accounted for by symptoms of depression. The high prevalence of harmful drinking among men and the lack of an association with sexual harassment suggest that, in this sample, men's harmful drinking is influenced by factors other than sexual harassment. (*J. Stud. Alcohol Drugs* 69: 348-351, 2008)

RESEARCHERS AND CLINICIANS ALIKE are interested in the effects of sexual harassment on mental health, including associations with alcohol use (Freels et al., 2005; Richman et al., 1996, 1999) and depression (Richman et al., 2002). The majority of studies examining sexual harassment and alcohol use have found associations among both genders, although some studies have identified gender differences in the specific type of drinking outcomes associated with harassment. In a study of physicians, Richman and colleagues (1996) found that unwanted sexual advances were related to the presence of alcohol-related problems (e.g., trouble at work, lost friends, hospitalization) for both men and women. However, the specific frequency and quantity of alcohol use were related to unwanted sexual advances among women only. A second study by

Richman and colleagues (1999) found that sexual harassment was associated with slightly different problematic drinking outcomes for male and female university employees. Both men and women who were harassed were more likely to endorse drinking to intoxication, but harassed men also reported an increased likelihood of heavy episodic drinking, whereas harassed women reported an increased likelihood of frequent drinking.

The self-medication hypothesis provides a theoretical framework for examining depression as a mediator of the association between sexual harassment and alcohol use. This hypothesis suggests that psychological trauma results in distress that, in turn, may be related to substance use because people who experience these events relieve these symptoms through the numbing effects of alcohol or drug use (Stewart and Conrod, 2003). Richman and colleagues (2002) expanded on their earlier work by exploring the mediational role of psychological distress in the association between workplace harassment (including sexual harassment) and alcohol use in a sample of university employees. Replicating their earlier work, gender differences were noted in that sexual harassment was found to be associated with different types of problematic alcohol use for men and women. However, for both genders, psychological distress mediated the association between chronic sexual harassment (i.e., sexual harassment reported by participants at

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both data collection time points within the study) and problematic alcohol use. To the best of our knowledge, the study conducted by Richman and colleagues (2002) is the only one that has examined gender differences in the associations among sexual harassment, depression, and alcohol use.

The current investigation aimed to examine the association between past sexual harassment and current harmful alcohol use in a sample of former military personnel, a population in which this association has yet to be examined. Previous investigations have found a high prevalence of both sexual harassment (e.g., 38% and 78% among men and women, respectively; Bastian et al., 1996) and heavy alcohol use (e.g., 32.2% and 8.1% among men and women, respectively; Bray et al., 2003) in the military, making this a uniquely appropriate sample for the examination of these associations. We hypothesized that sexual harassment would be associated with harmful alcohol use among both men and women. In addition, we hypothesized that current depression symptoms would mediate the association between sexual harassment that occurred during military service and current harmful alcohol use for both men and women.

Method

The Defense Manpower Data Center provided the study investigators with the names and social security numbers of former reservist forces. A stratified random sampling design was used, with the seven specific reserve components (i.e., Army Reserve, Army National Guard, Navy Reserve, Marine Corps Reserve, Air Force Reserve, Air National Guard, Coast Guard Reserve) and gender (women oversampled) as the stratification variables. There were 4,022 telephone interviews conducted during a 7-month data collection period, with 76 interviews deleted owing to insufficient data, representing a cooperation rate of 74.4%. The final sample consisted of 3,946 participants (59% female and 41% male). The mean (SD) age for women was 39.1 (9.5) years; it was 39.6 (10.3) years for men. Sixty-five percent of the women were white, 25% were black, and 5% were Hispanic, compared with 80%, 11%, and 5% of men, respectively. On average, participants' service in the Reserves ended 9.12 years before data collection.

Measures

Sexual harassment. The 24-item military version of the Sexual Experiences Questionnaire (SEQ-DoD; Fitzgerald et al., 1999) was used in this study to assess participants' experiences of sexual harassment during their service in the Reserves. Cronbach's α for the SEQ-DoD total scores was .81 for women and .78 for men in the current sample.

Alcohol use. The 10-item Alcohol Use Disorders Identification Test (AUDIT; Saunders et al., 1993) was used to assess participants' current problem drinking behavior. As

recommended by Saunders and colleagues, a participant who received a score of 8 or more on the AUDIT was categorized as a harmful drinker, whereas one with a score of 7 or less was categorized as a nonharmful drinker.

Depression. Current depression symptoms were measured using the 10-item Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). Cronbach's α for the scale was .88 for women and .86 for men in the current sample.

Statistical analysis

All analyses were conducted separately for men and women to explore the associations within each group. Descriptive analyses were used to examine the proportion of men and women who endorsed experiencing behaviors consistent with sexual harassment while serving in the reserves as well as the proportion of men and women who endorsed current depression symptoms and harmful drinking.

We employed methodology described by Baron and Kenny (1986) to test the potential mediation of the association between sexual harassment and harmful alcohol use by depression symptoms, stratified by gender. According to this method, the following criteria must be met for mediation to be present: (1) sexual harassment (X, the predictor of interest) must be associated with harmful alcohol use (Y, the outcome of interest), (2) sexual harassment must be associated with depression symptoms (M, the mediator of interest), and (3) depression symptoms must be associated with harmful alcohol use, and there must be a decreased or eliminated association between sexual harassment and harmful alcohol use in the same model. We used logistic regression for the analyses examining associations with harmful alcohol use and linear regression to examine the association between sexual harassment and depression symptoms. Additionally, we used the Sobel test (1982) to determine if the associations between sexual harassment and depression symptoms and the association between depression symptoms and harmful alcohol use were significant when assessed simultaneously, providing further evidence of mediation.

Because of the length of time between reserves service and data collection (9.12 years on average), we conducted analyses to explore how time might have affected our results by examining "time since reserves service" as a moderator using methodology to test moderated mediation as outlined by Muller and colleagues (2005). Years since reserves service was not a significant predictor in any of our regression analyses; therefore, this variable was excluded from the analyses presented in this article.

Results

With regard to sexual harassment, 72.5% of women and 41.6% of men endorsed experiencing at least one behavior

TABLE 1. Results of mediational analyses assessing the associations between sexual harassment, depression, and harmful alcohol use, stratified by gender

Predictors	Equation 1: (Criterion Y, harmful alcohol use)		Equation 2: (Criterion M, depression symptoms)		Equation 3: (Criterion Y, harmful alcohol use)	
	<i>B</i>	Wald	<i>B</i>	<i>t</i>	<i>B</i>	Wald
Females ^a						
X: Sexual harassment	.02	6.62 [†]	.11	12.33 [‡]	.005	0.62
M: Depression symptoms					.087	38.99 [‡]
Males ^b						
X: Sexual harassment	.01	0.61	.28	9.85 [‡]	-.012	0.55
M: Depression symptoms					.073	37.08 [‡]

Notes: Logistic regression used in analyses predicting harmful alcohol use; linear regression used in analyses predicting depression; unstandardized beta estimates presented. X = predictor; M = mediator; and Y = outcome. The third criterion for mediation is filled if sexual harassment is no longer a significant predictor of harmful alcohol use when the mediator (depression symptoms) is entered into the model. ^a*n* = 2,221-2,226; ^b*n* = 1,572-1,577.

[†]*p* < .01; [‡]*p* < .001.

consistent with sexual harassment during their military service. Women reported a mean score of 10.5 (13.9) on the SEQ, whereas men reported a mean score of 2.3 (4.5). Among women, 8% met the criteria for depressive symptoms on the CES-D (mean = 5.4 [6.0]), whereas 5.7% of men met these criteria (mean = 4.3 [5.4]). Men met the criteria for current harmful drinking more frequently than women, with 13.7% and 4.1% endorsing harmful drinking, respectively.

The results of the mediation analyses are presented in Table 1. The three criteria for mediation, as outlined by Baron and Kenny (1986), were met among women. Additionally, the Sobel test of mediation was significant ($z = .0029$, $p < .001$). The results for the mediational analyses among men indicate that the criteria for mediation were not met because a statistically significant relationship was not observed between sexual harassment and harmful alcohol use. These results are also presented in Table 1.

Discussion

We found evidence of an association between sexual harassment and harmful alcohol use among women. However, contrary to our hypothesis, this relationship was not found among men. Although somewhat inconsistent with the work of Richman and colleagues (1996, 1999, 2002), this gender difference is consistent with the work of Freels and colleagues (2005), who found that sexual harassment at one time point in their study predicted increased frequency of intoxication and problem drinking at later time points among female university employees but not among male employees. Further, in our sample, depression symptoms are a mediator of the association between sexual harassment and harmful alcohol use among women but, contrary to our hypothesis, not among men. These results may provide additional support for the finding that women drink to cope with stress and emotional distress more than men (Holahan et al., 2001; Timko et al., 2005).

Men in our sample reported more harmful alcohol use than women; however there was no evidence of an association between sexual harassment and harmful alcohol use among men. This finding may be because of low variance in sexual harassment among men or the relatively small number of men reporting harassment experiences in our sample. Also, it is likely that men's harmful alcohol use in this sample was influenced by social expectations for increased drinking among men in the military or a potential increased genetic risk for harmful alcohol use among men (Nolen-Hoeksema and Hilt, 2006). However, the association between sexual harassment and depression symptoms among men indicates that men are affected by harassment experiences even though they are not associated with an increase in harmful alcohol use in our sample.

Richman and colleagues (2002) found that sexual harassment was associated with drinking outcomes and that depression was a mediator of this association for both men and women. The inconsistency between this finding and our findings may be the result of differences in the analysis of sexual harassment in these studies. The methodology employed by Richman and colleagues (2002) involved grouping participants into categories according to the timing of their harassment experience (no harassment, past harassment, and current harassment), whereas in our study and in the study conducted by Freels and colleagues (2005), the participant's total SEQ score was examined. These different measurement strategies capture different pieces of information. Richman and colleagues (2002) examined the association between timing of sexual harassment and alcohol use, an approach that was not possible in this investigation because sexual harassment was assessed only as a retrospective account of past experiences. In our study, the association between the total frequency of different types of sexual harassment and harmful alcohol use was examined.

Several limitations are worth noting. First, self-report measurement was used in the current study. Although the

SEQ, CES-D, and AUDIT have been found to have satisfactory validity and reliability, our results are susceptible to biases inherent in the use of self-report measures. Additionally, the SEQ was developed to measure the sexual harassment experiences of women (Fitzgerald et al., 1995) and therefore potentially measures women's experiences of harassment more effectively than men's experiences (Donovan and Drasgow, 1999). Although previous studies using the SEQ have found an association between sexual harassment and alcohol use among men, it is possible that the lack of an association in the present study may be the result of not effectively capturing the full range of harassment experiences among men. Second, the data in this study were collected using a cross-sectional methodology with retrospective reporting of experiences during reserves service, including sexual harassment; therefore, caution must be used in interpreting the findings. Third, we did not collect data regarding participants' history of depression symptoms or harmful alcohol use before military service, making it impossible to determine if the observed harmful alcohol use and depression symptoms reflect a change since experiencing sexual harassment or a continuation of symptomatology that existed before experiencing sexual harassment. Finally, the current study was not initially powered to examine gender differences in the associations between sexual harassment and harmful alcohol use. Future investigations specifically powered to examine these associations may benefit from testing gender as a moderator for a direct statistical comparison of men and women.

The major strengths of this study are the large sample of women who lived and worked in a male-dominated environment and the large sample of men who had experienced harassment. The current work in this field has been conducted mostly among university employees in the general population; this study provides a unique opportunity to expand on that work by exploring these associations in an environment where sexual harassment and alcohol use are highly prevalent. Although the associations are relatively small, they are meaningful in that they are the first to provide insight into gender differences in the association between sexual harassment, depression symptoms, and harmful alcohol use among a previously unexplored sample of former military personnel.

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