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IS WORKPLACE HARASSMENT HAZARDOUS TO YOUR HEALTH?

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ABSTRACT: We examined cross-sectional and lagged effects of sexual harassment (SH) and generalized workplace harassment (GWH) on incidence of self-reported illness, injury, or assault in a sample of over 1,500 university employees. SH and GWH, but not other job stressors, were related to increased odds of illness, injury, or assault. This was true when SH, GWH, and illness, injury, or assault were measured at the same time point, as well as when SH and GWH were measured in year prior to illness, injury, or assault.

KEY WORDS: workplace harassment; occupational stress; health; safety.

Sexual harassment and other more generalized forms of harassment in the workplace have been established as forms of workplace stress (Fitzgerald, Drasgow, Hulin, Gelfand, & Magley, 1997; Richman, Flaherty, & Rospenda, 1996). In testament to the validity of studying workplace harassment from within a stress framework, a large body of research now clearly and consistently documents the negative effects of sexual harassment on mental health (e.g., anxiety, depression, PTSD,

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general well-being) and job-related outcomes (most notably job satisfaction, see Gutek & Koss, 1993; Pryor & Fitzgerald, 2003 for reviews). Research documents that similar negative effects on targets are associated with more generalized forms of workplace harassment as well (Einarsen & Gemzoe Mikkelsen, 2003; Keashly, Trott, & MacLean, 1994; Richman et al., 1999). Despite the fact that job stressors have been implicated as risk factors for illness, accidents, injuries (e.g., Cohen, Tyrrell, & Smith, 1993; Greiner, Krause, Ragland, & Fisher, 1998) and assaults (e.g., Hurrell, Worthington, & Driscoll, 1996), and sexual harassment and generalized harassment appear to be significant sources of workplace stress, the association between workplace harassment and incidence of serious illness, injury, or assault has not been explored. To address this gap in the literature, we examine whether experiences of sexual or generalized workplace harassment may place employed individuals at increased risk of illness, injury, or assault.

DEFINITIONS OF SH AND GWH

Although research definitions of sexual harassment (SH) vary, from a legal perspective it represents a form of illegal sex discrimination characterized by "unwelcome sexual advances, requests for sexual favors and other verbal or physical conduct of a sexual nature" that affects the terms, conditions, or employment decisions related to an individual's job ("quid pro quo" harassment) or creates an "intimidating, hostile, or offensive working environment" ("hostile environment" harassment) (Equal Employment Opportunity Commission, 1980).

While no US laws currently prohibit generalized forms of harassment in the workplace, we conceptualize it as a construct that has similar characteristics and consequences as sexual harassment. We define generalized workplace harassment (GWH) as negative workplace interactions that affect the terms, conditions, or employment decisions related to an individual's job, or create a hostile, intimidating, or offensive working environment, but which are not based on legally-protected social status characteristics. This type of harassment has been studied under various names in the literature, e.g., emotional abuse (Keashly, 2000), workplace harassment (Bjorkqvist, Osterman, & Hjelt-Back, 1994), bullying (Einarsen, Hoel, Zapf, & Cooper, 2003), aggression (Baron & Neuman, 1996), and incivility (Cortina et al., 2002). Throughout the remainder of this article, when referring to both sexual and generalized types of harassment in the workplace, we use the general term "workplace harassment" (WH).

JOB STRESS AS A RISK FACTOR FOR ILLNESS, INJURY, ACCIDENTS, AND ASSAULT

Research suggests a significant association between life stress and occurrence of illness, injury, and accidents. For example, stressful life events increase the likelihood that healthy research subjects will develop a cold when infected with the common cold virus under research conditions (Cohen et al., 1993). Similarly, research has found that emotional stress is a significant predictor of at-fault traffic accidents in a sample of enlisted soldiers (Legree, Haffner, Psotka, Medsker, & Martin, 2003). Likewise, occupational health and safety research has implicated job stress as a factor related to illness and injury. In a review of the literature, Sullivan and Adler (1999) describe how work environment factors (e.g., security, structure and context of work, and amount of work) create stress that is linked to an array of injury and illness conditions. As an example, Greiner and colleagues (1998) found that task-related stressors (scheduling pressures and lack of allowances for breaks) within a population of transit operators significantly predicted rates of accidents.

While not widely studied, research also suggests that job stressors are related to workplace assault. For example, Hurrell et al. (1996) found that job characteristics, such as low job control, skill underutilization, limited opportunities, and responsibility were linked to increased odds of experiencing workplace assault for a sample of state employees. In a sample of nursing assistants, Gates, Fitzwater, and Succop (2003) likewise found that role ambiguity (e.g., unclear priorities and expectations), role insufficiency (e.g., mismatch between employees' training, education, or skills and the demands of the job), and occupational strain (e.g., poor job attitudes, lack of motivation, boredom) were linked to the frequency of assaults experienced on the job. As Hurrell et al. (1996) note, due to the cross sectional nature of these studies it is impossible to tell whether the job stressors are precursors to assault, or whether workplace assault creates changes in perceptions of job characteristics.

WORKPLACE HARASSMENT AS A RISK FACTOR FOR ILLNESS, INJURY, ACCIDENTS, AND ASSAULT

Thus, the research indicates that a variety of types of job stressors are associated with increased risk of illness, injury, accidents, and assault. One type of job stressor that has been neglected, however, is stress linked to interpersonal interactions in the workplace. Although qualitative evidence of negative physical health effects of SH and GWH abounds (e.g., see Gutek & Koss, 1993; Keashly & Jagatic, 2003 for reviews), a more limited number of empirical studies have focused on

physical health effects of workplace harassment. Existing research in this area supports an association between workplace harassment and negative physical health outcomes. Fitzgerald et al. (1997) found that SH was related to self-reported health conditions in a sample of women employed by a utility company. Schneider et al. (2001) demonstrated that experiences of gender harassment were related to physiological measures of cardiac and vascular reactivity consistent with a stress response, although they did not measure physical complaints or illness. In terms of GWH, Sheehan et al. (1990) found that 40% of a sample of medical students reported that abusive experiences in their training environment had negative effects on their physical health. Rogers and Kelloway (1997) found that more severe GWH experiences such as being hit, kicked, sworn at, bitten, or having personal property damaged predicted fear of future violence, which in turn predicted higher levels of somatic symptoms in a sample of bank employees.

Although research has suggested a relationship between workplace harassment and negative physical health outcomes, little research has examined whether harassment may be a risk factor for injury or assault. Given that both sexual (e.g., Fitzgerald, 1993) and non-sexual (Baron & Neuman, 1996; Glomb & Miner, 2002; Kaukiainen et al., 2001) types of workplace harassment have been conceptualized as forms of workplace aggression or violence, an association between workplace harassment and physical assault would be logical. The limited research that has been conducted in this area supports the notion that workplace harassment may occur alongside, or perhaps precipitate, physical violence or assault on the job. For example, Barling, Rogers, and Kelloway (2001) found that sexual harassment and workplace violence were moderately correlated in a sample of in-home health and mental health care workers. Similarly, Hurrell, Worthingon, and Driscoll (1996) found that state employees who experienced verbal threats (threats have been conceptualized as one form of workplace harassment, e.g., see Richman et al., 1999) had nearly three times the odds of being physically assaulted in the workplace. However, to date, all of the research in this area has been cross-sectional, precluding testing of the causal direction of harassment-illness/injury/assault relationships.

Thus, there is building evidence that both traditional measures of job stress and measures of workplace harassment are related to physical health symptoms, injury, and assault, although a lack of longitudinal data has been a limiting factor. Also, the question of whether one of these types of job stressors may be a more potent risk factor for illness, injury, or assault has yet to be answered. From a theoretical perspective, researchers have postulated that occupational conditions involving heavy work demands (e.g., work overload, time pressures) but limited control over work (e.g., choice of how to perform work) lead to job stress. This

perspective is known as the demand-control model of job stress (Karasek & Theorell, 1990). Research has shown mixed support for the tenets of this model. An older review of the literature concluded that there was fairly strong report for the link between high demands, low control, and cardiovascular disease (Schnall & Landsbergis, 1994), while a more recent review of only high-quality longitudinal studies revealed only modest support for the model in predicting health and psychological distress over time (deLange, Taris, Kompier, Houtman, & Bongers, 2003).

Consistent with Richman et al. (1996), however, we argue that this model takes a limited view of lack of control. In the case of accidents at work, some types of lack of control over task performance may actually be inherently protective of workers. Specifically, workers in some types of jobs (e.g., nuclear power plant workers) may need to adhere to regulations about the way a task is performed to ensure their own safety. Thus, there is probably wide variability in the extent to which lack of control over job tasks results in stress. Conversely, interpersonal relationships characterized by abuse or harassment may be seen as an unexpected and unnecessary aspect of work, and may be more stressful to victims. Thus, as Richman et al. (1996) argue, abusive or harassing workplace experiences may be better predictors of negative outcomes than traditional measures of job stress. Research that has examined the effects of workplace harassment variables in conjunction with other job stressors has generally shown that workplace harassment predicts negative job-related and mental health outcomes above and beyond the effects of more task- or role-related job stressors (e.g., role conflict, ambiguity, overload, decision latitude) (Fitzgerald et al., 1997; Munson, Hulin, & Drasgow, 2000; Rospenda, 1998; Rospenda, Richman, Wislar, & Flaherty, 2000), supporting the notion that harassment experiences may be particularly stressful for targeted individuals.

In addition, negative outcomes associated with workplace harassment have been shown to persist over time. Research on workplace harassment suggests that SH and GWH may exhibit lagged effects on certain outcomes, in addition to cross-sectional relationships. Glomb et al. (1999) found that SH experiences at one time point influenced job satisfaction and psychological conditions two years later in a sample of women employed by a university. Additionally, Rospenda (2002) found that both SH and GWH at one time point predicted self-reported use of health or mental health services one year later, controlling for prior use of services and other forms of job stress. In terms of research on illness, injury, or assault, however, we were unable to locate any studies that examined potential lagged effects of job stress or harassment on risk for these outcomes.

Drawing on the literature reviewed here, we hypothesize that: (1) SH and GWH will be significantly related to self-reported illness, injury,

or assault in an employed sample, beyond the effects of job stressors related to job characteristics, and (2) that SH and GWH will exhibit both cross-sectional and lagged effects on incidence of illness, injury, or assault.

METHOD

Participants

The sample derives from an ongoing study of current and former employees (faculty, graduate student workers, clerical/secretarial staff, and service/maintenance workers) of a large Midwestern university who have been surveyed at four points in time. The mail survey included measures related to occupational stress, mental health, coping resources, and use of alcohol. Only the data from Times 3 and 4 of the larger longitudinal survey are used for this paper, as we did not have a measure of illness, injury, or assault prior to Time 4. The 2,492 respondents who completed the Time 1 survey in 1996 (for a Time 1 response rate of 52%) were resurveyed in late 2001 (Time 3) and again in late 2002 (Time 4). At Time 3, 1,730 respondents returned a survey (70% retention rate). By Time 4, 14 respondents were deceased. A total sample of 1,654 (918 women and 736 men) individuals responded to the Time 4 questionnaire (66.7% retention rate of the 2,478 living Time 1 respondents). (For readers interested in learning more about the Times 1 and 2 survey, please see Richman et al., 1999 and Rospenda et al., 2000).

Dillman's (1978) total design method for mail surveys was used, with the addition of several additional follow-up strategies for nonrespondents (supplementary reminder postcards, two additional mailings, reminder e-mail messages, follow-up phone calls) to improve the response rates at each time of data collection. Surveys were mailed to home addresses unless the address was no longer valid and no forwarding address was available, in which case the work address was used. Respondents were paid $30 at Times 3 and 4. The racial/ethnic composition of this sample was 54.8% (n = 906) White, 22.4% (n = 370) African-American, 6.7% (n = 111) Hispanic, 12.4% (n = 205) Asian/Pacific Islander, 2.2% (n = 36) other, and 1.6% (n = 26) missing. The mean Time 4 age of the n = 1,614 for whom we had age data was 48.0 years (range 26–92 years, SD = 11.53).

To examine the extent to which those who did not complete the Time 4 survey (i.e., "non-completers") may have differed from those who completed the Time 4 survey (i.e., "completers"), we compared completers with non-completers on a variety of Time 1 characteristics. Completers were more likely to have had a doctoral level degree, and less likely to

have had some graduate study or a master's degree at Time 1 ($p \leq .001$), reflecting the fact that faculty members were more likely to have been Time 4 completers compared to those who were in the graduate student worker group at Time 1. Completers were more likely to be White ($p < .001$), to be women ($p < .01$), were older on average at Time 1 ($p < .001$), and had higher levels of Time 1 decision latitude ($p < .001$) than non-completers. Completers did not differ from non-completers in levels of Time 1 workplace harassment or psychological workload. Because approximately 30% of Time 4 respondents were no longer employed at the university, we did not carry out sample-population comparisons.

Measures

Sexual Harassment

SH was measured at Times 3 and 4 by a modified version of the 19-item Sexual Experiences Questionnaire (SEQ; Fitzgerald, 1990), re-worded to make items applicable to both males and females. The SEQ behaviorally depicts three types of sexual harassment (6 items each): gender harassment (crude sexual comments or comments that demean the target's gender), unwanted sexual attention (unwanted touching and repeated requests for dates), and sexual coercion (demands for sexual favors that imply job-related consequences). An additional item assessed sexual assault. Respondents rated each experience in their current job during the past year as occurring "never," "once," or "more than once," for a potential scale range of 19–57.

Generalized Workplace Harassment

GWH was measured at Times 3 and 4 by the Generalized Workplace Harassment Questionnaire (GWHQ, see Rospenda & Richman, 2004), a 29-item instrument developed to assess general, non-sexual harassing experiences at work. The GWHQ was developed from transcripts of focus group sessions conducted with representatives of four occupational groups: faculty, graduate student workers, clerical/secretarial staff, and service/maintenance workers. Development of the items also drew from similar measures described in the existing literature. The GWHQ measures such experiences as being subject to hostile verbal exchanges involving yelling or swearing (verbal hostility), being excluded from important work activities (covert hostility), being threatened or bribed (manipulation), and also more serious experiences such as being hit, pushed, or grabbed (physical hostility). Experiences were rated similarly to the SEQ items, with a potential scale range of 29–87.

Job Stress

Job stress related to job characteristics was measured at Times 3 and 4 using the Psychological Demands (5 items) and Decision Latitude (9 items) from the Job Content Questionnaire (Karasek & Theorell, 1990). Both scales were designed to have a range of 12–48. Psychological Demands measures psychological workload of the job, e.g., the extent to which one's job involves excessive work, conflicting demands, and time pressure. Decision Latitude is composed of two related components: (a) decision authority (e.g., the degree to which one has a say in job-related decisions and choice of how to perform work), and (b) skill discretion (e.g., the extent to which the job involves learning new things, developing skills, creativity, and variety). Under the demand-control model (Karasek & Theorell, 1990), workers who experience their jobs as being high in psychological demands (i.e., Psychological Workload) and low in control (i.e., Decision Latitude) will experience the most stress or job strain.

Illness/Injury/Assault

As part of a measure on stressful life events used at Time 4 only, respondents were asked to indicate whether they had "suffered a serious illness, injury, or assault" in the past 12 months.

Demographics

We measured age, race/ethnicity, gender, and level of education as controls in the present study.

RESULTS

Descriptive statistics and correlations for all study variables are presented in Table 1. Cronbach's coefficient alpha reliabilities are presented on the diagonal for multi-item scales. All scales exhibited acceptable reliability. For dichotomous variables, the means in Table 1 represent the proportion of respondents reporting the characteristic coded as "1." Thus, 12% of the Time 4 sample reported experiencing a serious illness, injury, or assault in the past 12 months (incidence did not differ by gender). The average level of SH reported was fairly low at both Times 3 and 4 (given that those reporting no SH would obtain scores of 19), whereas average GWH, psychological workload, and decision latitude were higher, given their potential scale ranges. It should be noted that average levels of SH, GWH, and psychological workload did not differ by gender, though men exhibited higher levels of decision latitude than women, $t = 3.99$, df = 1240, $p < .001$. SH and GWH, but not other

Table 1
Descriptive Statistics, Correlations, and Coefficient Alpha Reliabilities for Study Variables

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Illness/Injury/Assault T4 (1=Yes, 0=No)	.12	.33	–												
2. Sexual Harassment T4	20.52	3.33	.07	*.83*											
3. Generalized Harassment T4	36.88	9.75	.16	.52	*.92*										
4. Decision Latitude T4	37.98	6.19	.01	−.14	−.29	*.85*									
5. Psychological Workload T4	32.75	6.33	.04	.11	.27	.10	*.74*								
6. Sexual Harassment T3	20.75	3.79	.09	.64	.48	−.11	.10	*.85*							
7. Generalized Harassment T3	37.16	10.23	.15	.40	.64	−.23	.18	.56	*.93*						
8. Decision Latitude T3	37.88	6.47	.00	−.16	-.25	.71	.08	−.09	−.29	*.85*					
9. Psychological Workload T3	32.33	6.53	.01	.13	.20	.14	.61	.14	.20	.12	*.73*				
10. Gender (1=Female, 0=Male)	.56	.50	.03	−.03	.00	−.11	-.02	.00	.03	−.05	.03	–			
11. Race (1=White, 0=Other)	.56	.50	.03	−.04	−.09	.34	.07	.00	−.08	.33	.05	−.06	–		
12. Age	48.00	11.53	.12	−.12	−.09	.06	−.08	−.15	−.10	.02	−.08	−.07	.13	–	
13. Education level (1 ≤ High School; 4=Doctorate)	3.09	1.06	−.04	−.09	−.15	.52	.09	−.05	−.16	.51	.12	−.17	.41	−.09	–

Note: Underlined correlation coecients are significant at the $p \leq .01$ level or lower. Ns ranged from 960 to 1274 for most variables, but were 1601 or higher for correlations among the demographic variables.

job stressors, exhibited weak but significant zero-order correlations with illness, injury, or assault.

To test the hypotheses, we ran a series of hierarchical logistic regression equations with the demographic control variables entered as block 1, job stress variables entered as block 2, and SH or GWH entered as block 3. We performed separate analyses for SH and GWH, as these variables have been found to be related but distinct constructs (Fendrich, Woodword, & Richman, 2002). This allowed us to examine whether job stress and workplace harassment variables were significant predictors of illness, injury, or assault at the same time point and one year later, as well as whether the workplace harassment variables significantly and independently improved model fit beyond the effects of the other job stressors. Analyses were run to test (a) the effects of the Time 4 variables on Time 4 illness, injury, or assault and (b) the lagged effects of the Time 3 variables on Time 4 illness, injury, or assault. Although we did not hypothesize differences in the effects of SH and GWH on illness, injury, or assault based on gender, race, or education level, we conducted exploratory analyses to test the 2-way interactions of SH and GWH by these demographic variables.

The results presented in Tables 2 and 3 indicate that age was the demographic variable most consistently related to illness, injury, or assault status at Time 4, which is consistent with research linking increased age to risk for illness and injury (e.g., Burns, 2001). Those with some college or a masters-level graduate degree also had increased odds of illness, injury, or assault compared to those with a doctorate in the analysis examining the lagged effects of GWH on the outcome variable (see Table 3). Although the odds ratio for gender is significant in the analyses predicting illness, injury, or assault from Time 4 SH, the presence of the SH by gender interaction precludes interpreting this directly. In terms of Hypothesis 1, Tables 2 and 3 indicate that higher levels of both SH and GWH at Time 4 were related to slightly elevated odds of Time 4 illness, injury, or assault, while Psychological Workload and Decision Latitude were unrelated to illness, injury, or assault. Thus, Hypothesis 1 was supported. SH and GWH at Time 3 also exhibited lagged effects on Time 4 illness, injury, or assault, supporting Hypothesis 2. Interactions of workplace harassment variables with age and education were not significant in any of the analyses. We did find a significant SH by gender interaction in the cross-sectional analyses, such that high versus low levels of Time 3 SH were associated with over 2 times the odds of Time 4 illness, injury, or assault for men, but not for women.

Our measure of SH contained an item measuring sexual assault, and our GWH measure contained items on physical aggression, which may have artificially inflated the relationship between these constructs and

Table 2
Cross-sectional and Lagged Effects of Job Stress and Sexual Harassment on Time 4 Illness, Injury, or Assault

	Time 4 Illness, Injury, or Assault			
	Stress and SH Measured at Time 4[a] (n=1138)		Stress and SH Measured at Time 3[b] (n=1039)	
Variable	OR	95% CI	OR	95% CI
Block 1.				
Gender (1=Women)	12.37[c]	(1.17, 130.60)	.86	(.57, 1.28)
Education				
< High School	.72	(.28, 1.84)	.95	(.41, 2.23)
Some coll./coll. degree	1.05	(.57, 1.94)	1.30	(.72, 2.36)
Some grad./grad degree	1.46	(.87, 2.45)	1.62	(.97, 2.71)
Doctorate (reference category)	1.00		1.00	
Race (1=White)	.71	(.45, 1.12)	.91	(.57, 1.43)
Age	1.02[c]	(1.00, 1.04)	1.03[c]	(1.01, 1.05)
Model $\chi^2_{(df = 6)}$		10.54+		12.17+
Block 2.				
Decision Latitude (DL)	.99	(.96, 1.03)	1.01	(.97, 1.04)
Psych. Workload (PW)	1.01	(.98, 1.04)	1.00	(.97, 1.03)
DL*PW	1.00	(1.00, 1.00)	1.00	(.99, 1.00)
Improvement $\chi^2_{(df = 3)}$		1.21		1.39
Block 3.				
Sexual Harassment (SH)	1.12[c]	(1.05, 1.19)	1.08[c]	(1.03, 1.12)
Improvement $\chi^2_{(df = 1)}$		4.86*		10.68***
Block 4.				
SH*Gender			NA	
High vs. Low | Women	.86	(.45, 1.65)		
High vs. Low | Men	2.12[c]	(1.40, 3.21)		
Improvement $\chi^2_{(df = 1)}$		6.53**		
Nagelkerke R^2		.04		.04

Note: SH= Sexual harassment; OR= Odds ratio; CI=Confidence interval; + $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$. OR and CIs presented are for the complete model, while the chi-square values are for each step.

[a]Model $\chi^2_{(df = 10)} = 23.85$, $p < .01$. Hosmer Lemeshow Goodness-of-Fit, $\chi^2_{(df = 8)} = 4.56$, $p = .80$.

[b]Model $\chi^2_{(df = 11)} = 23.15$, $p < .05$. Hosmer Lemeshow Goodness-of-Fit, $\chi^2_{(df = 8)} = 8.21$, $p = .41$.

[c]Odds ratio is significantly different than 1.00 (but CI may contain 1.00 due to rounding error).

Table 3
Cross-sectional and Lagged Effects of Job Stress and Generalized Workplace Harassment on Time 4 Illness, Injury, or Assault

	Time 4 Illness, Injury, or Assault			
	Stress and GWH Measured at Time 4[a] (n=1096)		Stress and GWH Measured at Time 3[b] (n=983)	
Variable	OR	95% CI	OR	95% CI
Block 1.				
Gender (1=Women)	.79	(.53, 1.18)	.88	(.58, 1.33)
Education				
< High School	.90	(.37, 2.21)	.85	(.34, 2.13)
Some coll./coll. degree	1.01	(.55, 1.87)	1.38	(.74, 2.55)
Some grad./grad degree	1.29	(.76, 2.19)	1.71[c]	(1.00, 2.92)
Doctorate (reference category)	1.00		1.00	
Race (1 = White)	.70	(.44, 1.11)	.91	(.57, 1.46)
Age	1.02[c]	(1.00, 1.04)	1.03[c]	(1.01, 1.05)
Model $\chi^2_{(df=6)}$		10.71+		12.86*
Block 2.				
Decision Latitude (DL)	1.03	(.99, 1.04)	1.03	(.99, 1.07)
Psych. Workload (PW)	.99	(.95, 1.02)	.98	(.96, 1.02)
DL*PW	1.00	(1.00, 1.01)	1.00	(1.00, 1.00)
Improvement $\chi^2_{(df=3)}$		.90		.30
Block 3.				
Generalized Harassment (GWH)	1.06[c]	(1.04, 1.08)	1.05[c]	(1.03, 1.07)
Improvement $\chi^2_{(df=1)}$		33.04***		28.37***
Nagelkerke R^2		.08		.08

Note: GWH = Generalized workplace harassment; OR = Odds ratio; CI = Confidence interval; + $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$. OR and CIs presented are for the complete model, while the chi-square values are for each step.

[a]Model $\chi^2_{(df = 10)} = 44.66$, $p < .001$. Hosmer Lemeshow Goodness-of-Fit, $\chi^2_{(df = 8)} = 3.98$, $p = .86$.

[b]Model $\chi^2_{(df = 10)} = 41.53$, $p < .001$. Hosmer Lemeshow Goodness-of-Fit, $\chi^2_{(df = 8)} = 11.51$, $p = .17$.

[c]Odds ratio is significantly different than 1.00 (but CI may contain 1.00 due to rounding error).

occurrence of self-reported serious illness, injury, or assault. To examine the extent to which this was a problem, we omitted the SH and GWH items measuring sexual assault and physical aggression and re-ran the analyses, which did not affect the strength or magnitude of the results reported here.

DISCUSSION

The findings of this study provide preliminary evidence that exposure to workplace harassment increases risk for illness, injury, or assault. Thus, harassment may be hazardous not only to targets' health, but also to organizations' bottom lines in the form of costly worker's compensation claims. The significance of the results is heightened by two factors. First, the results of the lagged analyses demonstrate the enduring negative effects of harassment over time, and increase the strength of the argument that workplace harassment may be a cause of illness, injury, or assault, rather than the reverse. Second, SH and GWH were found to be more important in the prediction of risk for illness, injury, or assault than more typically-studied job stressors related to job characteristics (e.g., psychological workload and decision latitude). To our knowledge, no other research has allowed a comparison of interpersonal sources of job stress and stressors stemming from job characteristics in terms of their impact on incidence of illness, injury, or assaults.

One unexpected finding was that SH was related to risk of illness, injury, or assault for men, but not women. Post-hoc analyses indicated that men working in service-maintenance type jobs were also more likely to report higher levels of SH compared to men in faculty jobs, while women reported similar levels of SH across occupational categories. It is likely that the job duties of faculty members also place them at lower overall risk for work-related illness and injury compared to service/maintenance workers. Thus, it is possible that this finding is an artifact of occupation-related risk factors for illness and injury. Future research should explore this possibility.

Several limitations of this study should be noted. First, our measures were all self-report. Future research should attempt to gather data on illness, injury, and assaults from independent sources (e.g., from employment records) to reduce monomethod bias. Second, our measures were not ideal. Our single-item measure of illness, injury, or assault was rather crude. Also, as noted above, our measures of workplace harassment contained items which potentially overlapped our self-report measure of serious illness, injury, or assault. However, we examined whether deleting the problematic items from the harassment measures changed the results, and it did not. In the future, however, researchers should develop a more refined outcome measure that separates illness, injury, and assaults, assesses whether these are work-related events, and measures number and frequency of different types of these experiences. For researchers who are interested in studying the link between harassment and injury in particular, it will be critical to better distinguish between injury directly or indirectly resulting from interpersonal interactions (which may be closer to a definition of "assault," the

measurement of which may result in unwanted overlap with certain measures of workplace harassment), versus injury incurred as a result of an individual's own carelessness, unsafe work practices, or other factors (i.e., accidents).

Third, individuals who were white, female, and/or were older at Time 1 were more likely to have completed the Time 4 questionnaire. Thus, these results may not generalize as well to those who are ethnic/racial minorities, men, or younger. We recommend that harassment researchers exert special effort to retain a better response rate among individuals in these groups. Finally, the sample for this study consists of those who are either current or former employees of one university. Although there were a variety of occupations represented in the sample, large portions of them were faculty or former faculty members. Future research should examine the relationship between SH, GWH, and illness, injury, or assault in more representative samples, as well to study specific occupations which may be at particular risk for both workplace harassment **and** occupational illness, injury, or assault, such as firefighting (Yoder & Aniakudo, 1996), police (Martin, 1994), and mental health work (Hurrell et al., 1996).

Although, we were not able to distinguish workplace illness, injury, or assault from non-work illness, injury, or assault, preliminary data (n=40) from a national telephone study of workplace harassment suggests that SH and GWH are stronger work-related correlates of workplace illness, injury, or assault than other job stressors (Rospenda, 2003, unpublished data). Because SH and GWH are stressors stemming from interpersonal behaviors, which are potentially modifiable, we recommend that organizations wishing to decrease work-related accidents or absences due to illness, injury, or assault consider addressing workplace harassment issues as one step towards promoting a healthier and safer working environment.

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