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Mental Health Expenditures: Association with Workplace Incivility and Bullying Among Hospital Patient Care Workers

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Abstract

Objective—Bullied workers have poor self-reported mental health; monetary costs of bullying exposure are unknown. We tested associations between bullying and health plan claims for mental health diagnoses.

Methods—We used data from 793 hospital workers who answered questions about bullying in a survey and subscribed to the group health plan. We used two-part models to test associations between types of incivility/bullying and mental health expenditures.

Results—Workers experiencing incivility or bullying had greater odds of any mental health claims. Among claimants, unexposed workers spent \$792, those experiencing one type of incivility or bullying spent \$1,557 (p for difference from unexposed=0.016), those experiencing two types spent \$928 ($p=0.503$), and those experiencing three types spent \$1,446 ($p=0.040$).

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Conclusions—Workplace incivility and bullying may carry monetary costs to employers, which could be controlled through work environment modification.

MeSH Keywords

bullying; workplace; health expenditures; hospital personnel; mental health; health care utilization; health care costs

Introduction

The word “bullying” may evoke images of schoolyard teasing, but bullying is a serious problem for adults as well as for children. In the US in 2017, approximately 9% of working adults experienced workplace bullying; exposure over the course of working life approaches 20% (1). Workplace bullying goes beyond occasional mistreatment, both in terms of intensity and intent (2). It is repeated targeting of an individual by coworkers or supervisors, causing distress, humiliation, or difficulties performing core job tasks (3), with consequences for both workers and employers (4–8).

Prevalence and type of bullying vary by country, industry, and workplace context, with lower rates in Scandinavia and higher rates in the U.S. and UK (9, 10). Scholars have noted especially high prevalence in social services, health services, and other industries in which organizational and social hierarchies are strict and workers may be emotionally vulnerable as a result of their work tasks (11). In nursing specifically, workplace bullying is a widespread phenomenon, attributed to the preceding factors as well as the female-dominated workforce (12). Conversely, more egalitarian and team-oriented workplaces and industries may be less likely to engender, tolerate, or perpetuate bullying behavior (10). Much research has documented individual and organizational consequences of both vertical (supervisor-to-subordinate) and horizontal (peer-to-peer) violence—either physical or verbal—between hospital nurses (13, 14).

Bullying may negatively impact physical and mental health of victims, in the form of depression, anxiety, suicidal ideation, symptoms of post-traumatic stress disorder, health-damaging coping behaviors, and psychosomatic complaints such as headaches and insomnia (5–7, 15–19). Cross-sectional associations between bullying and poor mental health are especially well-documented. The relationship between bullying and poor mental health may also be reciprocal over time. From a public health perspective, poor mental health, particularly depression, is a large contributor to overall burden of disease and associated costs (20, 21). Depression also carries costs for employers in lost work productivity, absenteeism, and short-term disability (22). While most causes of depression—including major life events, genetic predisposition, and comorbid illness—are difficult to prevent, workplace bullying is not inevitable (23). This makes it an attractive target for improving mental health among working adults.

Documented economic consequences of workplace bullying for employers include turnover, absenteeism, reduced productivity, and in especially severe cases, litigation (18, 24). However, no study has explicitly tested whether health care costs—a major expense for American employers—are associated with workplace bullying. If indeed, workplace

bullying is associated with higher mental health care utilization, American employers may indirectly pay the price of bullying through higher health care costs. Such evidence would also bolster the economic argument against workplace bullying.

Methodologically, literature on workplace bullying and mental health has several gaps. Most studies are cross-sectional and use self-report surveys to assess both bullying exposure and mental health over the same time period. This may upwardly bias estimates if traits such as negative affect make workers more likely to report both bullying and poor mental health (16, 23). Additionally, those who suffer from mental illness may be more likely to be victimized, creating potential for reverse causation. Drawing exposure and outcome data from different sources in a prospective rather than cross-sectional study—for example, assessing bullying with a survey but using health claims data to assess mental health—could help reduce this common-method bias.

The present study

The aim of the present study is to determine the extent to which hospital workers' exposure to several types of workplace incivility and bullying is associated with increased utilization of mental health care services. Guided by a conceptual model focusing on the conditions of work as drivers of worker health and safety outcomes (25), we hypothesized that hospital workers reporting exposure to incivility and bullying at work would be more likely to use mental health care services than those who were not bullied, and that among mental health claimants, claim amounts would be higher among those with greater exposure burden.

Method

Sample

We used data from a study of patient care workers at two Boston-area hospitals as part of the Harvard Center for Work, Health, and Wellbeing. In September 2012, a random sample of 2,000 patient care workers was invited to participate in a survey. Those eligible were registered nurses (RNs) and patient care associates (PCAs) currently employed by the hospital and working at least 20 hours per week. 1,595 workers (80%) responded to at least half the survey and were eligible for inclusion. Workers in some units were oversampled to address a different research question (26); we account for such oversampling in our analyses.

The hospitals participate in the health system's self-insured group health insurance pool with an insurer acting as the third-party administrator. Among survey respondents, 841 (53%) had outcome data because they were members of the employer's health plan for the entire period from September 1, 2012 to August 31, 2013. Of these, 793 (94%) had complete data on all covariates and thus were eligible for inclusion. Among surveyed workers, we found no differences in health plan membership by occupational title ($p=0.26$), gender ($p=0.70$), marital status ($p=0.14$), or race/ethnicity ($p=0.51$), but on average those who were members of the health plan were older (42.5 versus 39.2 years, $p<0.001$). Plan members did not have different levels of bullying (the main exposure variable) than non-plan members ($p=0.15$). Because Massachusetts, where the study hospitals are located, has mandated since 2007 that

individuals carry health insurance, we do not suspect underlying differences in coverage status by whether workers carried the group health plan.

Outcome: Mental health care utilization—Health care utilization was measured using data from the employer-sponsored health plan, provided by Truven Health Analytics, Inc. (Ann Arbor, MI). We focused on mental health care utilization, defined as payment by the health plan for services with mental health diagnoses: anxiety disorder, depression, neuroses not elsewhere classifiable, substance use, and eating disorders. We excluded expenditures on psychoses and bipolar disorder since these more severe mental illnesses may not be sensitive to environmental triggers like bullying (27).

Total costs were measured by the health plan's expenditure on those diagnoses from September 1, 2012 to August 31, 2013 (the 12 months following survey administration), capturing costs accruing after exposure assessment to reduce the risk of reverse causation. For the specified diagnoses, we used aggregated expenditure data that encompassed inpatient care, outpatient care (including mental health counseling and psychiatry consultations), and prescription drugs. We did not have access to disaggregated expenditures or employee out-of-pocket costs or copayments. We merged health expenditure data with individual employees' survey data using secure study ID numbers.

Exposure: Incivility and bullying—Incivility and bullying behaviors were assessed via survey using a shortened version of the nursing-specific Negative Acts Questionnaire—Revised (28). Respondents were asked: “Considering the last six months, please indicate how often you have experienced the following behaviors at your workplace (never, now and then, monthly, weekly, daily): a) someone withholding information which affects your performance; b) being humiliated or ridiculed in connection with your work; or c) being ignored or excluded.”

Each behavior was split into three categories: unexposed (never experienced), “incivility” (experienced now and then or monthly), or “bullying” (experienced weekly or daily). This classification is consistent with studies using similar measures (2, 4–7). We distinguished between these two constructs because incivility (occasional mistreatment that nevertheless can degrade the quality of the work environment) may have different health effects than more severe bullying, for which persistent or relentless targeting (here, weekly or daily) is part of the definition (2).

The three behaviors were moderately to strongly correlated (polychoric r 's of the behaviors, categorized as unexposed, incivility, or bullying, ranged from 0.58 to 0.80). While the items were not originally designed to be used as separate measures, doing so follows the convention of other studies of psychosocial workplace aggressions (29).

We also counted the number of behaviors of which someone reported either incivility or bullying (range: 0–3), creating a composite variable based on evidence that total load of workplace incivility and bullying, in addition to experience of specific acts, is associated with negative health outcomes (30). We did not create a composite variable for number of bullying behaviors reported, as cells were very small.

Covariates—We included covariates collected via survey: age (continuous, centered at group mean), gender (man/woman), job title (staff nurse; patient care associate; other), race/ethnicity (non-Hispanic black; non-Hispanic white; Hispanic; mixed race/other).

Statistical Analyses

We used two-part GLM models to test associations between bullying exposure and mental health care costs (31). In two-part models, two separate parameters are modeled: first, the probability of having any mental health expenditures using a logit model with results shown as odds ratios, and second, the costs incurred used, conditional on having any positive expenditure (32), specifying a gamma distribution with log link, with results modeled as dollars expended and associated 95% confidence intervals. We present the two parts separately (odds of any utilization and then costs incurred among users; Table 2); the latter number is also referred to as the conditional mean, as it is the mean expenditure associated with a given type of bullying behavior, *conditional* on having any expenditure. The separation of the two parts is useful because they touch on two different questions: first, are those who self-report incivility and bullying more likely to seek mental health services? And, given that services have been sought, do those who self-report incivility and bullying consume more care?

Analyses were conducted using SAS 9.4 (SAS Institute, Cary, NC) using the GENMOD procedure. All analyses are weighted to account for sampling design (see “Sample” above). The study was approved by human subjects committees at the Harvard T.H. Chan School of Public Health.

Results

Our sample of 793 patient care workers was composed of 93% women with average age 42.4 ($SD=12$). Respondents were mainly staff nurses (85%) and non-Hispanic white (80%) (Table 1). Approximately 30% of people reported having information withheld that could affect their performance (26% incivility, 5% bullying; Table 1). Incidence of any mental health care utilization was not significantly different by information withholding, χ^2 $p=0.627$. Nearly one-quarter of respondents reported being humiliated or ridiculed (21% incivility, 3% bullying); those exposed were marginally more likely than the unexposed to have mental health expenditures ($p=0.065$). Over one-third of workers reported being ignored or excluded (30% incivility, 6% bullying). Again, exposed workers were more likely to have mental health expenditures ($p=0.026$). Across the three exposures, 51% reported no bullying or incivility, 21% reported bullying or incivility in one way, 16% in two ways, and 12% in three ways. Mental health care utilization was (non-significantly) higher among the exposed ($p=0.407$). In this study, incivility rates of 20–30% and bullying rates of 5% were similar to those in other studies of nurses and health care professionals (16, 30, 33).

Next, we calculated the unadjusted distribution of costs (mean, standard deviation, median, and range) within each stratum of exposure, both overall and among claimants. We did this analysis because one outlier can drive regression outcomes when subgroups are small. Indeed, one individual—unexposed to any type of incivility or bullying—had a very high total claim amount (\$11,229) which could bias results towards the null. Overall, among all

participants, increasing exposure to each type of bullying was associated with greater expenditures. This was particularly apparent for being ignored or excluded. Among claimants, we observed these monotonically increasing trends for being humiliated/ridiculed and being ignored/excluded; a few unexposed individuals with very high spending again drove means, as evidenced by the discrepancies between mean and median.

We modeled adjusted associations between incivility/bullying and both outcome measures: 1) odds of using any mental health care (Table 3, left-hand side) and 2) mean expenditures given any mental health care utilization (Table 3, right-hand side). All models are adjusted for worker age, gender, occupational type, and race/ethnicity.

Workers who were bullied by having someone withhold information that could affect their performance did not have significantly greater odds of any expenditures than unexposed workers (Table 3). For information withholding, we also did not observe differences in mean utilization among users.

Being humiliated or ridiculed in connection with one's work was associated with higher odds of any mental health care utilization compared to the unexposed, $OR=2.10$ for incivility, (95% CI 1.48, 2.99), but the OR for bullying was not statistically significant, nor were the conditional mean expenditures.

Of the three behaviors assessed, being ignored or excluded was most strongly associated with mental health care utilization; those who were bullied had $OR=2.51$ (95% CI 1.40, 4.53). Among users, those who were bullied with this behavior had significantly greater expenditures than those who were unexposed, with expenditures of \$2,461 (95% CI 1040, 5822) for bullied workers versus \$957 (95% CI 490, 1,869) for unexposed workers, p for difference=0.003. We did not observe such differences among those experiencing incivility with this behavior.

In general, the more incivility or bullying someone experienced overall, the more likely they were to incur any mental health care costs. Compared to those with no self-reported exposure, those reporting exposure to one behavior had $OR=0.74$ (95% CI 0.49, 1.13) for any utilization; those with two types had $OR=1.56$ (95% CI 1.03, 2.34); those with three types had $OR=1.68$ (95% CI 1.03, 2.75). Among users, compared to those unexposed to any bullying or incivility (mean expenditures \$792, 95% CI 398,1577), those with one type of incivility or bullying had significantly greater expenditures (\$1557, 95% CI 725,3345, $p=0.016$), as did those with three types of incivility or bullying (\$1446, 95% CI 653,3203, $p=0.040$).

The small sample size precluded analyses of associations between workplace incivility and bullying and diagnosis-specific mental health outcomes.

Discussion

In this study, victims of certain types of workplace incivility and bullying had higher mental health care utilization and spending than their unexposed peers. Specifically, those who reported being ignored or excluded at work had significantly higher rates of utilization, and

users of mental health services experiencing this type of bullying had higher expenditures. We also found that, in general, increasing number of bullying or incivility exposures were associated with higher expenditures. Overall, we could estimate health care costs to the employer associated with workplace incivility and bullying, a novel contribution to the literature on psychosocial exposures and workplace health outcomes. Furthermore, in using mental health claims data rather than self-reported mental health for the outcome, we addressed the common-method bias of prior studies.

Our study has several limitations, namely related to temporal ordering and sample size. While we used claims data only for the period after the survey was conducted to avoid overt reverse causation (in which a person who was seeking mental health treatment would be more likely to be bullied at work), we do not know the temporal ordering of bullying initiation and mental health treatment initiation. Furthermore, persons with pre-existing mental health problems may also be more sensitive to bullying or incivility and be more likely to report it on the survey. However, the possibility of reciprocal effects is germane to all studies of mental health and bullying.

We also had a small sample size (793 workers), and thus a risk of Type II error, particularly because some exposures, particularly the more severe bullying exposures, were rare, between 3% and 6% prevalence. The small sample size also meant that outliers may have had a disproportionate influence, as seen in Table 2, biasing results towards the null. The measure of mental health expenditures may be conservative because some may use services from a provider not covered by the health plan and for whom there is no payment data. We did have a high (80%) response rate to our survey, which may limit selection bias. The further halving of our sample to include only those with expenditures data was shown to be unrelated to participant gender, race, occupational title, marital status, or bullying exposure, reducing threats to validity.

The major contribution of this study, from an applied perspective, is the estimation of monetary costs to the employer associated with workplace bullying. It is rare to be able to merge individual-level survey data with detailed health claims in a workplace setting, and even rarer to derive estimates of the excess costs of bullying to the employer. While the actual dollar amounts are not generalizable to other organizations, the finding that hospital workers reporting bullying or incivility have measurably higher mental health expenditures than their unexposed peers has implications for employers seeking to control health care costs. Other studies have shown that worker incivility and bullying are associated with enterprise outcomes such as sickness absence (34) and turnover (35). This study adds additional evidence to the economic argument for addressing workplace bullying.

This study also addresses common-method bias present in most studies of bullying and mental health, wherein both bullying and mental health are self-reported by the individual worker (5). This could lead to an upward bias in the literature because negative affect or dissatisfaction with the overall work environment could lead someone who experiences occasional negative acts or incivility to report that they are bullied (6, 11), and could also be associated with self-reporting worse mental health. In contrast, we collected workplace

bullying measures through self-report surveys and linked those surveys with workers' subsequent health care utilization records.

Given high prevalence of mental health problems in the population (21) and stigma around seeking help, utilization of mental health services is in some senses positive in that, if effective, it reduces the overall burden of mental illness through treatment. However, such treatment is tertiary prevention because it is typically used after mental health problems have already interfered with a person's functioning. From a primary prevention perspective, mental health care utilization may reflect high levels of exposures, such as bullying, that precipitate mental disorders for which people seek treatment. Addressing workplace bullying could positively impact levels of mental illness among working adults, ultimately reducing health care costs for employers.

In this study, not all incivility or bullying behaviors were equally associated with mental health care utilization among targets. Information withholding was not associated with any of the three outcome measures. Being treated uncivilly by humiliation or ridicule was associated with increased odds of any mental health care utilization, but being bullied with this behavior was not. Being bullied through ignoring or exclusion was related both to odds of any utilization and total expenditures among users. The first two exposures are primarily related to work tasks (withholding information *that affects your performance*, humiliation or ridicule *in connection with your work*; emphasis added), while the third (ignoring or exclusion) is personal. This finding echoes research that work-related bullying exerts a stronger influence than person-related bullying on organizational outcomes such as commitment and satisfaction (36), but person-related bullying may exert a stronger effect on health (37). Additionally, in a team-based setting such as a hospital, in which team engagement is necessary, exclusion can have powerful consequences that extend into outcomes such as patient care (38). Despite these differences in specific exposures, the relationship between number of types of bullying and odds of any mental health expenditures suggests that the exposures may be cumulatively harmful.

While this study provides preliminary evidence that workplace bullying is associated with mental health expenditures, and it makes efforts to reduce risk of reverse causation, more robust methods to avoid endogeneity could be employed. These include a prospective, longitudinal design in which workers are free of mental health problems at baseline. The study could also be replicated in larger samples to reduce Type II error. Finally, the relationship between bullying and other types of health claims—for example, infections and other outcomes susceptible to life stress (39)—could add further evidence of overall health care costs associated with incivility and bullying.

Workplace incivility and bullying have been shown to have many negative health consequences for individual workers; this study suggests that such exposures may also carry economic consequences for the employer. Although crafting interventions to successfully reduce incivility and bullying in the workplace is far more difficult than diagnosing the problem (13), such interventions could jointly benefit both workers and their employers.

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Social and demographic characteristics and workplace mistreatment/bullying exposures in a sample of hospital patient care workers, overall and by whether the person had any mental health claims during the study period ($\chi^2 p$ for difference between claimants and non-claimants)

Table 1

	All participants (n=793)		Any mental health claims (n=142)		No mental health claims (n=651)		$\chi^2 p$
	n/mean	%/SD	n/mean	%/SD	n/mean	%/SD	
Social/demographic characteristics							
Age (mean/SD)	42.36	12	40.92	10.75	42.68	11.90	0.103
Gender							0.086
Man	54	7	5	4	49	8	
Woman	739	93	137	96	602	92	
Job title							0.002
Staff nurse	672	85	133	94	539	83	
Patient care associate	74	9	3	2	71	11	
Other	47	6	6	4	41	6	
Race/ethnicity							0.005
Hispanic	29	4	3	2	26	4	
Non-Hispanic white	638	80	129	91	509	78	
Non-Hispanic black	73	9	4	3	69	11	
Mixed race/other	53	7	6	4	47	7	
Uncivil and bullying behaviors							
Withholding information that affects your performance							
Unexposed	552	70	98	69	454	70	0.627
Incivility (monthly or less)	203	26	35	25	168	26	
Bullying (weekly or more)	38	5	9	6	29	4	
Being humiliated/ridiculed in connection with your work							
Unexposed	607	77	98	69	509	78	0.065
Incivility (monthly or less)	164	21	39	27	125	19	
Bullying (weekly or more)	22	3	5	4	17	3	
Being ignored/excluded							
Unexposed	510	64	85	60	425	65	0.026
Incivility (monthly or less)	237	30	42	30	195	30	

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	All participants (n=793)		Any mental health claims (n=142)		No mental health claims (n=651)		χ^2 p
	n/mean	%/SD	n/mean	%/SD	n/mean	%/SD	
<i>Bullying (weekly or more)</i>	46	6	15	11	31	5	0.407
N uncivil or bullying behaviors*							
0	401	51	66	46	335	51	
1	170	21	28	20	142	22	
2	126	16	27	19	99	15	
3	96	12	21	15	75	12	

Table 2

Distribution of mental health claim amounts (mean, median, and range), in dollars, by types of incivility and bullying.

	All participants				Among claimants			
	Mean	Median	Range	Mean	Median	Range		
Withholding information that affects performance								
<i>Unexposed</i>	\$316	0	\$11,229	\$1,783	\$811	\$11,149		
<i>Incivility</i>	\$355	0	\$11,689	\$2,057	\$458	\$11,609		
<i>Bullying</i>	\$378	0	\$2,943	\$1,596	\$1,458	\$2,705		
Being humiliated/ridiculed in connection with work								
<i>Unexposed</i>	\$282	0	\$11,229	\$1,746	\$761	\$11,149		
<i>Incivility</i>	\$472	0	\$11,689	\$1,984	\$852	\$11,605		
<i>Bullying</i>	\$570	0	\$5,653	\$2,510	\$2,389	\$5,195		
Being ignored/excluded								
<i>Unexposed</i>	\$259	0	\$11,229	\$1,552	\$704	\$11,149		
<i>Incivility</i>	\$314	0	\$8,177	\$1,774	\$731	\$8,093		
<i>Bullying</i>	\$1,188	0	\$11,689	\$3,643	\$1,910	\$11,605		
N uncivil or bullying behaviors								
0	\$250	0	\$11,229	\$1,519	\$716	\$11,149		
1	\$392	0	\$8,177	\$2,379	\$1,470	\$8,097		
2	\$348	0	\$6,292	\$1,622	\$920	\$6,208		
3	\$525	0	\$11,689	\$2,400	\$852	\$11,605		

Table 3

Two-part models of odds ratio (OR)/95% confidence interval (CI) of any mental health care expenditures (yes/no; logit portion) and costs among those using any care (conditional mean and 95% CI; GLM portion), as associated with reporting of different types of incivility and bullying behaviors. Each behavior or sum of behaviors was modeled separately, and all models are adjusted for age, sex, race, and job type.

	Odds of any mental health expenditures			Among those with any expenditures, mean amount spent		P for difference from unexposed
	OR	95% CI	Mean	95% CI		
Withholding information that affects performance						
<i>Unexposed</i>	1.00		\$994	(505, 1956)		
<i>Incivility</i>	0.89	(0.61, 1.30)	\$1327	(629, 2797)		0.220
<i>Bullying</i>	1.46	(0.72, 2.97)	\$888	(311, 2537)		0.789
Being humiliated/ridiculed in connection with work						
<i>Unexposed</i>	1.00		\$1009	(556, 2134)		
<i>Incivility</i>	2.10	(1.48, 2.99)	\$1247	(654, 2818)		0.303
<i>Bullying</i>	2.20	(0.89, 5.41)	\$1904	(587, 6410)		0.214
Being ignored/excluded						
<i>Unexposed</i>	1.00		\$957	(490, 1869)		
<i>Incivility</i>	1.13	(0.80, 1.58)	\$1028	(514, 2058)		0.723
<i>Bullying</i>	2.51	(1.40, 4.53)	\$2461	(1040, 5822)		0.003
N uncivil or bullying behaviors						
0	1.00		\$792	(398, 1577)		
1	0.74	(0.49, 1.13)	\$1557	(725, 3345)		0.016
2	1.56	(1.03, 2.34)	\$928	(433, 1990)		0.503
3	1.68	(1.03, 2.75)	\$1446	(653, 3203)		0.040