

Associations of workplace bullying and harassment with stress reactions: a two-year follow-up study

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Abstract: The purpose of this prospective study was to investigate the effect of the patterning of workplace bullying and harassment over two time points (chronic, remission, onset, and never) on psychological and physical stress reactions. The subjects were 543 workers at welfare facilities for the elderly in Japan who completed a self-administered questionnaire at Time 1 (from August to September, 2009) and at Time 2 (from September to October, 2011). Workplace bullying and harassment were assessed using the Negative Acts Questionnaire (NAQ). Stress reactions were assessed using the Brief Job Stress Questionnaire. In the multiple logistic regression analyses, onset of person-related bullying was significantly ($p<0.05$) positively associated with both psychological and physical stress reactions at Time 2. Chronic form of person-related bullying was significantly ($p<0.05$) positively associated with psychological stress reaction at Time 2. Onset of sexual harassment was significantly ($p<0.05$) positively, and remission of sexual harassment was significantly ($p<0.05$) negatively associated with physical stress reaction at Time 2. Onset and chronic form of person-related bullying and onset of sexual harassment can cause stress reactions. Remission of sexual harassment can terminate physical stress reaction.

Key words: Bullying, Depressive symptoms, Harassment, Prospective studies, Psychological stress, Workplace

Introduction

According to the International Labour Office (ILO), the World Health Organization (WHO), the International Council of Nurses (ICN), and the Public Services International (PSI), bullying (or mobbing) is “repeated and long-term offensive behaviors involving vindictive, cruel, or malicious attempts to humiliate or undermine an indi-

vidual or groups of employees,” and harassment is “any conduct based on age, disability, HIV status, domestic circumstances, sex, sexual orientation, gender reassignment, race, color, language, religion, political, trade union or other opinion or belief, national or social origin, association with a minority, birth or other status that is unreciprocated or unwanted and that affects the dignity of men and women at work”¹.

Workplace bullying and harassment has been suggested to be associated with physical and psychological symptoms^{2–8}. Several studies investigated the longitudinal effect of workplace bullying and harassment on health^{9–24}. The experience of current workplace bullying was more

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associated with mental disorders in employee than past workplace bullying²¹). However, to our knowledge, there were no studies on the effect of the patterning of workplace bullying or harassment over two time points (chronic, remission, onset, and never) except for that on utilization of professional services²⁴). The purpose of this study was to investigate the effect of the patterning on psychological and physical stress reactions.

Methods

Participants

In an area in western Japan, there were 38 welfare facilities for the elderly. We asked all the directors of the 38 welfare facilities for participation in this study. Among them, those of 35 facilities agreed to participate. At Time 1 (from August 1, 2009 to September 30, 2009), the subjects were recruited from all the workers (N=1,931) at the 35 facilities. The questionnaires were mailed to the facilities and were distributed to the workers. The purpose and procedure of the survey were explained to the participants in the documents. Written informed consent was obtained from all participants, who were not compensated for their participation. A total of 1,642 questionnaires were returned in sealed envelopes. The results in the caregivers at Time 1 have already been published⁷). In the female caregivers, person-related bullying, work-related bullying, and sexual harassment were positively associated with psychological stress reactions⁷). At Time 2 (from September 12, 2011 to October 30, 2011), the same procedure was conducted to all the workers (N=1,913) at 34 facilities among the afore-mentioned 35 facilities at Time 1. A total of 1,552 questionnaires were returned. Among them, 746 subjects answered both at Time 1 and Time 2. Due to the missing data, 543 subjects among those who answered twice were included in the analyses. This study was approved by the ethics committee of the Okayama Prefectural University.

Measures

Participants completed a self-administered questionnaire including background information such as age, gender, occupational status, marital status, smoking status, and measures of stressors, stress reactions, and workplace bullying and harassment.

Stress reactions were evaluated using a self-reported measure, the Brief Job Stress Questionnaire (BJSQ), published in a research report relating to stress in the workplace and its impact on workers' health²⁵). The BJSQ has been developed validly and reliably in Japan with the

support of the Japanese Ministry of Labour²⁵). The BJSQ has been widely used in Japan for evaluating work-related stressful situations in various clinical and occupational settings^{26–29}). The BJSQ has several subscales, such as psychological stress reaction (18 items) and physical stress reaction (11 items; e.g., “I have a pain in my lower back.”)²⁵). Psychological stress reaction consists of 5 subscales: vigor (3 items; e.g., “The energy is springing.”), anger-irritability (3 items; e.g., “I feel angry.”), fatigue (3 items; e.g., “I’m very tired.”), anxiety (3 items; e.g., “I’m in anxiety.”), and depression (6 items; e.g., “I feel sad.”)²⁵). According to the authors' method, 4-point Likert-type response options (“very rarely”=1, “sometimes”=2, “frequently”=3, and “almost all the time”=4) was scored as 0, 0, 1, and 1, respectively²⁵). Because the vigor score was indicative of having more positive feelings, the vigor score was reversed²⁵). The scores were summed to make a total score, so that the greater scores indicated greater stress reactions²⁵). According to the authors, in men or women, a psychological stress reaction total score >13 or >12 indicated that a subject had high psychological stress reaction, respectively²⁵). In men or women, a physical stress reaction total score >4 or >5 indicated that a subject had high physical stress reaction, respectively²⁵).

Workplace bullying and harassment were assessed using the Japanese version of the Negative Acts Questionnaire (NAQ)^{1, 30}). The NAQ is a self-administered questionnaire originally developed by Einarsen and Raknes and measures exposure to specific negative acts typical of bullying³⁰). Its items refer to both direct and indirect behaviors but do not require respondents to label themselves as targets of bullying (e.g., “Someone withholding necessary information so that your work gets complicated,” “Social exclusion from co-workers or work group activities”). Respondents indicate on a five-point scale (1=never, 2=now and then, 3=monthly, 4=weekly, and 5=daily) whether they have experienced the designated negative acts in the context of their job during the previous six months³⁰). The Japanese version of the NAQ has been developed validly and reliably using a back-translation method¹). Three bilingual individuals translated the NAQ using a back-translation method¹). An English specialist from the US city of San Francisco, who worked in a college English Communications department compared the original and back-translated questionnaires to evaluate any differences in the meanings of the individual items¹). Translation and back-translation were repeated four times until no differences in meaning between the original and back-translated items were found¹). A cross-validation study revealed that

Table 1. Baseline demographic characteristics (n=543)

		N	Mean	SD	Range	%
Gender	Men	143				26.3
	Women	400				73.7
Age (yr)			36.7	11.6	18–65	
Job career (yr)			6.0	5.5	0–33	
Type of occupation	Care worker	413				76.1
	Nurse	41				7.6
	Dietician	22				4.1
	Rehabilitation	1				0.2
	Office worker	32				5.9
	Care manager	29				5.3
	Others	5				0.9
Marital Status	Married	272				50.1
	Unmarried	219				40.3
	Divorced or widowed	52				9.6
Employment status	Regular	471				86.7
	Contractual	72				13.3
Work shift	Regular daytime work	164				30.2
	Shift work with night shift	306				56.4
	Shift work without night shift	73				13.4
Smoking status	Current smoker	66				12.2
	Others	477				87.8

it has three subscales: person-related bullying (6 items), work-related bullying (3 items) and sexual harassment (3 items)¹⁾.

Data analyses

As for differences between two groups, continuous variables were compared by unpaired *t*-tests and categorical variables were compared by the χ^2 tests. In the confirmatory factor analysis, the goodness of fit of the three factor model (i.e., person-related bullying, work-related bullying, and sexual harassment) previously suggested¹⁾ was tested. The structural equation model in which factors were correlated each other was used in each subjects at Time 1 or Time 2. Model fit was assessed using a combination of fit indices including the goodness-of-fit index (GFI), the adjusted goodness-of-fit index (AGFI), the comparative fit index (CFI), and the root mean square error of approximation (RMSEA). The acceptability of model fit was judged by the following criteria: GFI, AGFI, and CFI >0.90, and RMSEA <0.05³¹⁾ or <0.08³²⁾. Then, logistic regression analyses were used to examine the associations of workplace bullying or harassment with stress reactions. In the analyses, participants who answered all the items of the subscale of the NAQ as 1 (never) were categorized into non-victims and the others (those who reported having

experienced at least one of the behaviors of the subscale) were categorized into victims. SPSS version 18 (IBM SPSS Tokyo, Japan) was used for the statistical analyses. All the tests were two-tailed and statistical significance was set at $p < 0.05$.

Results

Baseline demographic characteristics are shown in Table 1. The answers for the NAQ at Time 1 and Time 2 are shown in Table 2. In the confirmatory factor analysis of the NAQ at Time 1, we found fit indices of 0.94, 0.91, 0.90, and 0.078 for GFI, AGFI, CFI, and RMSEA, respectively. At time 2, they were 0.94, 0.90, 0.92, and 0.074, respectively.

Baseline demographic characteristics and the patterning of the results of the NAQ over two time points (chronic, remission, onset, and never) according to stress reactions at Time 2 are shown in Table 3. Age, marital status, and work shift at Time 1 and the pattern of person-related bullying were significantly associated with psychological stress reaction at Time 2. The patterns of person-related bullying and sexual harassment were significantly associated with physical stress reaction at Time 2.

The results of logistic regression analyses for high psy-

Table 2. Answer distributions of the Negative Acts Questionnaire (n=543)

	Baseline						2-yr follow-up													
	Never		Now and then		Monthly		Weekly		Daily		Never		Now and then		Monthly		Weekly		Daily	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Person-related bullying																				
Gossip or rumors about you.																				
	317	58.4	183	33.7	17	3.1	15	2.8	11	2.0	301	55.4	183	33.7	20	3.7	21	3.9	18	3.3
Social exclusion from co-workers or work group activities.																				
	448	89.0	49	9.0	5	0.9	3	0.6	3	0.6	475	87.5	58	10.7	6	1.1	3	0.6	1	0.2
Repeated offensive remarks about you or your private life.																				
	433	79.7	86	15.8	10	1.8	8	1.5	6	1.1	410	75.5	104	19.2	17	3.1	8	1.5	4	0.7
Verbal abuse.																				
	445	82.0	69	12.7	9	1.7	11	2.0	9	1.7	448	82.5	69	12.7	9	1.7	7	1.3	10	1.8
Repeated reminders about your blunders.																				
	422	77.7	98	18.0	11	2.0	5	0.9	7	1.3	427	78.6	94	17.3	10	1.8	7	1.3	5	0.9
Silence or hostility as a response to your questions or attempts at conversations.																				
	369	68.0	135	24.9	15	2.8	16	2.9	8	1.5	351	64.6	154	28.4	16	2.9	16	2.9	6	1.1
Work-related bullying																				
Someone withholding necessary information so that your work gets complicated.																				
	186	34.3	269	49.5	29	5.3	45	8.3	14	2.6	150	27.6	290	53.4	41	7.6	42	7.7	20	3.7
Ordered to do work below your level of competence.																				
	391	70.2	124	22.8	17	3.1	6	1.1	5	0.9	360	66.3	154	28.4	16	2.9	10	1.8	3	0.6
Reactions from others because you work too hard.																				
	358	65.9	151	27.8	8	1.5	17	3.1	9	1.7	325	59.9	151	27.8	21	3.9	26	4.8	20	3.7
Sexual harassment																				
Unwanted sexual advances.																				
	514	94.7	25	4.6	1	0.2	2	0.4	1	0.2	510	93.9	25	4.6	6	1.1	2	0.4	0	0.0
Unwanted sexual attention.																				
	514	94.7	23	4.2	5	0.9	0	0.0	1	0.2	511	94.1	20	3.7	6	1.1	3	0.6	3	0.6
"Funny" surprises.																				
	483	89	49	9.0	4	0.7	1	0.2	6	1.1	472	86.9	58	10.7	6	1.1	3	0.6	4	0.7

Table 3. Baseline participant characteristics by the psychological and physical stress reactions at 2-yr follow-up

	Psychological stress reaction			Physical stress reaction		
	Low	High	<i>p</i> -value	Low	High	<i>p</i> -value
	N=442	N=101		N=446	N=97	
	Mean (SD)	Mean (SD)		Mean (SD)	Mean (SD)	
Age (yr)	37.6 (11.7)	33.0 (10.5)	0.001>	37.1 (11.6)	35.6 (11.7)	0.128
Job carrer (yr)	6.2 (5.7)	5.3 (4.6)	0.096	6.1 (5.7)	5.6 (4.8)	0.301
	N (%)	N (%)		N (%)	N (%)	
Gender						
Men	119 (29.9)	24 (23.8)	0.303	115 (25.8)	28 (28.9)	0.306
Women	323 (73.1)	77 (76.2)		331 (74.2)	69 (71.1)	
Type of occupation						
Care worker	335 (75.8)	78 (77.2)	0.436	334 (74.9)	79 (81.4)	0.106
Others	107 (24.2)	13 (12.8)		112 (25.1)	18 (18.6)	
Marital Status						
Never married	167 (37.8)	52 (51.5)	0.008	173 (38.8)	46 (47.4)	0.073
Married, divorced or widowed	275 (62.2)	49 (48.5)		273 (61.2)	51 (52.6)	
Employment status						
Regular	378 (85.5)	93 (92.1)		384 (86.1)	87 (89.7)	0.221
Contractual	64 (14.5)	8 (7.9)		62 (13.9)	10 (10.3)	
Work shift						
Regular daytime work	144 (32.6)	20 (19.8)	0.028	143 (32.1)	21 (21.6)	0.060
Irregular with night work	238 (53.8)	68 (67.3)		241 (54.0)	65 (67.0)	
Irregular without night work	60 (13.6)	13 (12.9)		62 (13.9)	11 (11.3)	
Smoking status						
Current smoker	50 (11.3)	16 (15.8)	0.209	54 (12.1)	12 (12.4)	0.943
Others	392 (88.7)	85 (84.2)		392 (87.9)	85 (87.6)	
Negative Acts Questionnaire						
Person-related bullying						
Never	83 (18.8)	8 (7.9)	0.005	89 (18.4)	9 (9.3)	0.007
Onset	103 (23.3)	34 (33.7)		102 (22.9)	35 (36.1)	
Remission	103 (23.3)	16 (15.8)		104 (23.3)	15 (15.5)	
Chronic	153 (34.6)	43 (42.6)		158 (35.4)	38 (39.2)	
Work-related bullying						
Never	30 (6.8)	2 (2.0)	0.106	30 (6.7)	2 (2.1)	0.082
Onset	94 (21.3)	19 (18.8)		88 (19.7)	25 (25.8)	
Remission	61 (13.8)	10 (9.9)		63 (14.1)	8 (8.2)	
Chronic	257 (58.1)	70 (69.3)		265 (59.4)	62 (63.9)	
Sexual harassment						
Never	312 (70.6)	64 (63.4)	0.115	312 (70.0)	64 (66.0)	<0.001
Onset	61 (13.8)	23 (22.8)		57 (12.8)	27 (27.8)	
Remission	57 (12.9)	10 (9.9)		64 (14.3)	3 (3.1)	
Chronic	12 (2.7)	4 (4.0)		13 (2.9)	3 (3.1)	

chological stress reaction are shown in Table 4. As regards person-related bullying, for those who experienced onset or chronic form, odds of high psychological stress reaction were significantly higher than those who were not bullied in crude and multivariable analyses. As regards sexual harassment, for those who experienced onset, odds of high

psychological stress reaction were significantly higher than those who were not harassed in crude analysis, but the odds ratio did not remain significant after adjustment for demographics.

The results of logistic regression analyses for high physical stress reaction are shown in Table 5. As for person-

Table 4. Odds ratios (95% confidence intervals) for high psychological stress reaction at 2-yr follow-up

	Crude	Adjusted for demographics ^a
Person-related bullying		
Never	1.00	1.00
Onset	3.43 (1.50, 7.80)	3.46 (1.49, 8.05)
Remission	1.61 (0.66, 3.95)	1.66 (0.67, 4.13)
Chronic	2.92 (1.31, 6.49)	2.91 (1.28, 6.58)
Work-related bullying		
Never	1.00	1.00
Onset	3.03 (0.67, 13.78)	2.85 (0.61, 13.26)
Remission	2.46 (0.51, 11.94)	2.40 (0.48, 11.95)
Chronic	4.09 (0.95, 17.51)	3.64 (0.83, 15.92)
Sexual harassment		
Never	1.00	1.00
Onset	1.84 (1.06, 3.19)	1.73 (0.98, 3.08)
Remission	0.86 (0.42, 1.76)	0.88 (0.42, 1.84)
Chronic	1.63 (0.51, 5.20)	1.42 (0.42, 4.79)

^aAdjusted for gender, age, job carrier, type of occupation, marital status, employment status, work shift, and smoking status. Bold values signify statistical significance.

related bullying, for those who experienced onset, odds of high physical stress reaction were significantly higher than those who were not bullied in crude and multivariable analyses. For those who experienced chronic form, the odds were significantly higher than those who were not bullied in crude analysis, but the odds ratio did not remain significant after adjustment for covariates. As regards sexual harassment, for those who experienced onset, odds of high physical stress reaction were significantly higher than those who were not harassed in crude and multivariable analyses. For those who experienced remission, odds of high physical stress reaction were significantly lower than those who were not harassed in crude and multivariable analyses.

Discussion

In the confirmatory factor analyses based on the three factor model (i.e., person-related bullying, work-related bullying, and sexual harassment) suggested in the previous study¹⁾, all fit indices reached predetermined acceptable levels of fit in each subjects at Time 1 or Time 2.

The present prospective study revealed that onset and chronic forms of person-related bullying were positively associated with psychological stress reaction, that onset of person-related bullying was positively associated with physical stress reaction, and that onset of sexual harass-

Table 5. Odds ratios (95% confidence intervals) for high physical stress reaction at 2-yr follow-up

	Crude	Adjusted for demographics ^a
Person-related bullying		
Never	1.00	1.00
Onset	3.13 (1.42, 6.88)	3.14 (1.41, 7.01)
Remission	1.31 (0.55, 3.15)	1.29 (0.54, 3.13)
Chronic	2.19 (1.30, 4.75)	2.15 (0.98, 4.72)
Work-related bullying		
Never	1.00	1.00
Onset	4.26 (0.95, 19.07)	4.32 (0.95, 19.57)
Remission	1.91 (0.38, 9.52)	1.74 (0.34, 8.78)
Chronic	3.51 (0.82, 15.08)	3.45 (0.80, 14.95)
Sexual harassment		
Never	1.00	1.00
Onset	2.31 (1.36, 3.93)	2.31 (1.34, 3.99)
Remission	0.23 (0.07, 0.75)	0.23 (0.07, 0.75)
Chronic	1.13 (0.31, 4.06)	1.16 (0.31, 4.26)

^aAdjusted for gender, age, job carrier, type of occupation, marital status, employment status, work shift, and smoking status. Bold values signify statistical significance.

ment was positively and remission of sexual harassment was negatively associated with physical stress reaction. These seem to be new findings.

Previous researchers suggested that chronic stressors have more deleterious effects on health and well-being than acute stressors²⁴⁾. In this study, for those who experienced onset of person-related bullying or sexual harassment, odds of high stress reaction tended to be higher than those who experienced chronic form of person-related bullying or sexual harassment. This is inconsistent with the suggestion. This should be confirmed in the future prospective studies with larger sample size.

The strength of this study was that we used a prospective design. However, we must also note several limitations. First, due to convenience sampling, the results may not be applicable to the entire workforce. The results should be confirmed in other workplace populations. Second, because over two years, approximately 31% of the professional caregivers leave their organizations in recent Japan³³⁾, the rate of participants who answered at both Time 1 and Time 2 was relatively low. Serious victims of bullying or harassment might leave their organizations and selection bias could have occurred. Third, the observed variables were self-reported. More objective measurements are needed in future studies. Fourth, unstudied confounding variables might affect the results. For example, drinking alcohol was positively associated with physical

symptoms among nursing home staff in central Japan³⁴. Fixed-schedule daytime work, experience of nursing for more than ten years, effort-reward imbalance, and over-commitment were positively associated with musculoskeletal pain among health-care staff in nursing homes for the elderly in France³⁵. Such variables should be included in future studies.

In this study, onset of person-related bullying and sexual harassment were positively associated with stress reactions. To help prevent stress reactions in workers, measures for primary prevention against person-related bullying and sexual harassment should be considered. A stressful work environment often causes worsened interpersonal relationships, leading to workplace bullying^{6, 36}. Workplace social support was negatively associated with workplace bullying^{1, 4, 6}. Primary prevention may include measures against a stressful work environment and enhancing workplace social support.

In this study, chronic form of person-related bullying was positively and remission of sexual harassment was negatively associated with stress reactions. To reduce the impact of workplace bullying or harassment that has already occurred, measures such as the introduction of occupational conventions against bullying or harassment, looking actively for workplace bullying or harassment, and taking measures to deal with it through a mediation committee or by top executives with aspects of criminal, civil, social, industrial or occupational law may be necessary³⁷.

In conclusion, onset and chronic form of person-related bullying and onset of sexual harassment can cause stress reactions. Remission of sexual harassment can terminate physical stress reaction.

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