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Risk factors of workplace bullying for men and women: The role of the psychosocial and physical work environment

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Workplace bullying has been shown to be a severe social stressor at work, resulting in high costs both for the individuals and organizations concerned. The aim of this study is to analyze risk factors in a large, nationally representative sample of Finnish employees ($n = 4,392$). The study makes three important contributions to the existing literature on workplace bullying: first, it demonstrates the role of the physical work environment alongside the psychosocial work environment – employees with a poor physical work environment are more likely than others to report having been subjected to or having observed bullying. Second, contrary to common assumptions, the results suggest that performance-based pay is associated with a lower, rather than higher risk of bullying. Third, the findings suggest that there are gender differences in risk factors, thereby constituting a call for more studies on the role of gender when identifying risk factors. Increased knowledge of risk factors is important as it enables us to take more effective measures to decrease the risk of workplace bullying.

Key words: Bullying, compensation system, gender, physical work environment, psychosocial work environment, risk factors.

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INTRODUCTION

According to the work environment hypothesis (e.g., Baillien, Neyens & De Witte, 2008; Reknes, Einarsen, Knardahl & Lau, 2014; Salin & Hoel, 2011) job-related and organizational factors play an important role in increasing or decreasing the risk of workplace bullying. Previous empirical research has supported this hypothesis, primarily presenting evidence for the role of the psychosocial work environment. Numerous studies show that the risk of bullying is clearly associated with, for instance, poor leadership (Hauge, Skogstad & Einarsen, 2007; Hoel, Glasø, Hetland, Cooper & Einarsen, 2010; Nielsen, 2013), role ambiguity and role conflict (Baillien & De Witte, 2009; Hauge *et al.*, 2007; Reknes *et al.*, 2014), stress (Baillien & De Witte, 2009; Hauge *et al.*, 2007; Hoel & Cooper, 2000), and a strained climate with poor information flow (Vartia, 1996). Studies have also examined how individual factors, both personality and demographic factors, may affect the likelihood of becoming a target of bullying (Notelaers, Vermunt, Baillien, Einarsen & De Witte, 2011; Zapf & Einarsen, 2011). The aim of this paper is to advance our understanding of risk factors by in more detail examining aspects of the work environment that have so far received rather limited attention. These include the physical work environment, the compensation system, and perceived gender-incongruence, and these are studied alongside risk factors in the psychosocial work environment.

A comprehensive definition of workplace bullying has been provided by Einarsen, Hoel, Zapf and Cooper (2011, p. 22), who concluded that

Bullying at work means harassing, offending, or socially excluding someone or negatively affecting someone's work. In order for the label bullying (or mobbing) to be applied to a particular activity, interaction or process the bullying

behavior has to occur repeatedly and regularly (e.g., weekly) and over a period of time (e.g., about six months). Bullying is an escalating process in the course of which the person confronted ends up in an inferior position and becomes the target of systematic negative social acts. A conflict cannot be called bullying if the incident is an isolated event or if two parties of approximately equal strength are in conflict.

Bullying can take many different forms and may include work-related negative acts, personal harassment, and social exclusion (Notelaers, 2010). Work-related bullying includes, but is not limited to, unjustified criticism, sabotaging and/or withholding of relevant information. Personal harassment includes gossip and rumors. Offensive and insulting comments about one's person, attitudes, or political or religious convictions are other examples.

Bullying is characterized by repeated and prolonged exposure to predominantly psychological mistreatment (Einarsen *et al.*, 2011). While the individual acts may seem trivial on their own, the accumulated effect of repeated negative acts may still be considerable. Workplace bullying is associated with numerous negative consequences. For the individual these involve effects on physical and psychological health, self-esteem, job satisfaction, and commitment (for meta-analyses see Hershcovis, 2011; Nielsen & Einarsen, 2012; for a review see Salin, 2013). Research has shown that bullying is a severe social stressor even after controlling for other well-documented job stressors, such as job demands, decision authority, role ambiguity, and role conflict (Hauge, Skogstad & Einarsen, 2010). On the organizational level bullying has been reported to result in increased turnover of personnel, absenteeism, lost productivity, and negative publicity (for a summary see Hoel, Sheehan, Cooper & Einarsen, 2011), although empirical evidence for this is weaker than for the individual consequences (Nielsen & Einarsen, 2012).

Given the negative consequences discussed above it is important to increase our understanding of risk factors. The aim of this study is to advance our understanding of risk factors by in more detail examining the significance of the physical work environment, the compensation system, and perceived gender-incongruence alongside the psychosocial work environment. These potential risk factors have so far received rather limited attention. Many studies about risk factors have been undertaken within specific sectors or industries. In contrast, this paper seeks to study risk factors in a large, nationally representative sample. Given calls to acknowledge the gendered nature of bullying and the possibility that risk factors, too, may be gendered (e.g., Keashly, 2012; Salin & Hoel, 2013; Simpson & Cohen, 2004), this study also analyzes men and women separately. However, it is important to note that the study undertaken is a cross-sectional survey. As with all cross-sectional studies this leaves questions about causality unanswered (cf. Hauge, Skogstad & Einarsen, 2011).

The following section seeks to summarize what we know about risk factors in the work environment and advance our understanding of risk factors by suggesting some additional ones that have been only scarcely studied before. The subsequent step is then to test these simultaneously and report on these findings.

Risk factors of bullying: the work environment hypothesis

A number of studies have sought to identify risk factors of bullying. While individual factors, both demographic and personality factors, may partly influence who becomes bullies and victims, research has suggested that there is no general victim personality profile (Glasø, Matthiesen, Nielsen & Einarsen, 2007). In contrast, empirical studies have found strong support for the work environment hypothesis (e.g., Hauge *et al.*, 2007; Salin & Hoel, 2011). According to this perspective, the risk of bullying is largely determined by the quality of the work environment and by contextual factors in the workplace.

A poor work environment may increase the risk of bullying through several different mechanisms. Baillien, Neyens, De Witte and De Cuyper (2009) and Baillien *et al.* (2008) identified three different routes: (a) a poor work environment can lead to increased frustration affecting both perpetrator and victim behavior; (b) a poor work environment can lead to (badly managed) conflicts that in turn can escalate into bullying; and (c) a poor work environment and destructive culture may “permit” or even create incentives for negative interpersonal behavior.

Psychosocial work environment

Empirical studies have sought to identify which aspects of the work environment are most strongly associated with bullying. In particular, the results point to the significance of the quality of leadership (Hoel *et al.*, 2010; Nielsen, 2013; Salin & Hoel, 2011). Whereas a *laissez-faire* style of leadership, that is, a very passive style of leadership, may provide a fertile soil for bullying among colleagues, a very autocratic leadership style may itself be perceived as bullying. Non-contingent leadership – where punishment is used arbitrarily – is associated with an elevated risk of bullying (Hoel *et al.*, 2010), whereas transformational

leadership and authentic leadership have been shown to decrease the risk of bullying (Nielsen, 2013).

Hypothesis 1: A poor quality of leadership is associated with a higher risk of workplace bullying

High demands, coupled with low control (cf. Karasek’s job demand-control model) seem to increase the risk (Baillien, Rodriguez-Munoz, De Witte, Notelaers & Moreno-Jimenez, 2011; Notelaers, Baillien, De Witte, Einarsen & Vermunt, 2013). Stress and high time pressures lower the threshold for aggression and allow less time for constructive problem-solving (Baillien *et al.*, 2008; Hauge *et al.*, 2007). Not only victims report an association between being bullied and a stressful work environment, also self-reported bullies work in environments characterized by more role conflict and interpersonal conflicts (Hauge, Skogstad & Einarsen, 2009). Similarly, non-bullied colleagues in departments with high bullying levels also report higher work and performance demands than employees in departments with less bullying (Agervold, 2009).

Hypothesis 2: High job demands are associated with higher levels of bullying

Competition and performance-based pay

The organizational climate and organizational norms may further help us explain why some organizations are more prone to bullying than others. For example, Vartia (1996) found that bullying was less common in organizations with an encouraging and easy-going climate, whereas a strained and competitive climate was associated with more bullying. An undesired effect of some reward systems may be an incentive to try to get rid of colleagues and subordinates perceived as threats or liabilities (Kräkel, 1997; Salin, 2003). During the past 20 years the popularity of different varieties of performance-based pay systems has grown. While several studies have highlighted the benefits of such compensation schemes in terms of increased performance (e.g., Gerhart, Rynes & Fulmer, 2009; Jenkins, Mitra, Gupta & Shaw, 1998) – others have raised concerns about potential drawbacks (Kohn, 1993; Pfeffer, 1998). It has further been argued that some reward systems may contribute to bullying, for example by giving an employee an incentive to bully a colleague (Kräkel, 1997; Salin & Hoel, 2011; Samnani & Singh, 2014). By sabotaging the work performance of a colleague, the perpetrator may improve his or her own ranking. Samnani and Singh (2014) draw attention to the risks with zero-sum performance enhancing compensation practices, arguing that they are likely to lead to increased competition and stress, both of which may in turn lead to increased risk of bullying. In other work environments, bullying may again be used to discipline colleagues who violate established production norms and thereby raise the barrier for others (Kräkel, 1997; Neuman & Baron, 1998). Group-level reward systems may in turn create incentives to discipline or even expel slow or low-performing team members (Salin, 2003).

In a Finnish study in the 1990s, Sutela and Lehto (1998) found support for the claim that performance-based pay was associated with higher bullying levels. Still, few studies have

specifically addressed the relationship between compensation scheme and risk of bullying. However, based on the above, that is, the risk of increased competition and decreased group cohesion, we hypothesize that:

Hypothesis 3: Performance-based pay is associated with a higher risk of bullying

Physical work environment

As for the general work environment, factors related to the psychosocial work environment have received most attention in research and the significance of them has been demonstrated in a number of studies. In contrast, the physical work environment has received rather limited attention. Restaurant work has often been associated with high levels of bullying (e.g., Einarsen & Skogstad, 1996; Mathisen, Einarsen & Mykletun, 2008) and the physical work environment – typically cramped, hot and noisy – has sometimes been put forward as a possible explanation (cf. Bloisi & Hoel, 2008). Similarly, in a qualitative study Baillien *et al.* (2008) found that interviewees mentioned high temperatures, crowded spaces or otherwise unpleasant and irritating environments as factors increasing the risk of bullying. Also research on aggression has found support for the role of temperature and crowdedness (Bell, 1992; Lawrence & Leather, 1999; Neuman & Baron, 1998).

The mechanisms linking a poor physical work environment and increased risk of bullying are likely to be the two first mentioned by Baillien *et al.* (2008, 2009). First of all, poor physical conditions may lead to more frustration, thereby eliciting more aggression in potential perpetrators and eliciting more norm-breaking and poor coping among potential victims. Second, poor physical environments, for instance cramped spaces, may lead to more conflicts which in turn can lead to bullying if managed poorly. In line with the above, we therefore want to study the significance of a poor physical work environment in a large sample of employees in diverse work settings.

Hypothesis 4: A poor physical work environment is associated with a higher risk of bullying

Gender-incongruence and gender-typing of work tasks

While a poor work environment may increase the risk for all employees, some other characteristics of the work may increase the risk only for certain employees. For instance, the composition of the workgroup may affect majority and minority members differently. A number of studies indicate that ethnic minority members report higher bullying rates (Lewis & Gunn, 2007; Fox & Stallworth, 2005). For gender, the situation appears to be more complicated. While a number of studies indicate a higher risk for women (Zapf, Escartin, Einarsen, Hoel & Vartia, 2011), the gender ratio of the work group and the way the occupation is gender-typed may also affect this risk. For instance, being a man in the female-dominated and female gender-typed nursing profession (Eriksen & Einarsen, 2004) or in child care (Lindroth & Leymann, 1993) has been put forward as a risk factor, and vice versa, being a woman in the male-dominated and

male gender-typed police force (e.g., Nuutinen, Kauppinen & Kandolin, 1999) has been associated with an elevated risk of bullying. However, the role of gender-incongruence – doing work typically associated with the opposite sex – has been studied only in a few selected occupations. Nevertheless, we also expect the same patterns to be repeated when studying this relationship in a nationally representative sample.

Hypothesis 5: Working in work tasks dominated by the opposite sex is associated with a higher risk of bullying

The hypotheses above are tested in a nationally representative sample of Finnish employees. In addition, recent literature on workplace bullying has sought to describe bullying as a gendered rather than gender-neutral phenomenon (Hutchinson & Eveline, 2010; Salin & Hoel, 2013; Simpson & Cohen, 2004). While, these studies have demonstrated that gender may affect both how targets themselves and third parties make sense of bullying acts and how they respond to them little attention has been given to the possibility that risk factors, too, might be gendered (cf. Salin & Hoel, 2013; Simpson & Cohen, 2004). Therefore an additional research question was presented to address this gap in the existing literature:

Research question 1: Are the same work environment characteristics risk factors for both men and women?

The procedures for analysing the hypotheses and research question are described in the following section.

METHOD

Sample and procedures

The questions analyzed in this study were part of a large, national data set on work conditions in Finnish work life.¹ Respondents were interviewed using a standardized questionnaire. The author could not influence the questions used and was not personally involved in the data collection process.

The data set included 4,392 respondents, of whom 2,011 were men and 2,381 women. Given that women make up approximately 48.2% of the total workforce in Finland (Official Statistics of Finland, 2012) it indicates a slightly higher tendency for women to respond. Mean age was 42.2, ranging from 16 to 64. Of the respondents 1.3% were below 20 years, 17.2% were between 20 and 29, 22.8% between 30 and 39, 26.1% between 40 and 49, 27.1% between 50 and 59 and 5.6% 60 or over. Of the respondents 88% had permanent contracts, 12% fixed-time contracts, 1.2% were hired workers. Mean years of work experience was 20.9 years, 9% had less than 5 years of work experience, 30% had between 5 and 15 years, 37% had between 16 and 30 years of work experience, and 24% had more than 30 years of work experience.

Measures

Respondents were asked a large battery of questions. Here we only report the questions relevant for our hypotheses. The correlation matrix is presented in Table 1.

Demographic factors. The two first questions respondents were asked to respond to were gender (man or woman) and age (in full years).

Constructive leadership. Constructive leadership was measured with 15 items rated on a five-point Likert type of scale (Cronbach's alpha = 0.837). Example items were: "My superior is inspiring," "My superior

Table 1. Correlation matrix

	Mean	SD	1	2	3	4	5	6	7	8	9
1. Gender	0.46	0.50	1								
2. Age	42.16	11.79	-0.49**	1							
3. Constructive leadership	3.80	0.77	0.022	-0.044*	1						
4. Job demands	1.25	0.55	-0.119***	0.068***	-0.300***	1					
5. Physical work environment	0.82	0.78	0.102***	-0.014	-0.194***	0.181***	1				
6. Performance-based pay	0.41	0.49	0.048**	0.073***	0.041*	0.112***	-0.033*	1			
7. Gender-incongruence	1.96	0.96	-0.007	-0.055***	0.037*	0.042*	-0.164***	0.068***	1		
8. Bullying (no/yes)	0.06	0.23	-0.088**	-0.015	-0.189***	0.193***	0.101***	-0.021	0.029	1	
9. Bullying observed (yes/no)	0.44	0.50	-0.137**	-0.031*	-0.199***	0.287***	0.158***	0.040**	0.048**	0.293***	1

* Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed). *** Correlation is significant at the 0.001 level (2-tailed). N = 2,509–4,392.

supports and encourages me” and “My superior informs openly about what is going on at my workplace,” “My superior gives sufficient feedback about my performance.” The response scale ranged from completely agree to completely disagree.

Job demands. Job demands were measured with 20 items rated on a 4-point Likert type of scale (Cronbach’s alpha = 0.885). Example items were: “I often have to give up my breaks because of work pressures” and “My work involves tight schedules.” The response scale ranged from completely agree to completely disagree.

Physical work environment. The quality of the physical work environment was measured by asking the respondent to indicate how much he or she had been bothered by 18 different possible nuisances in the workplace on a scale from 0 (does not exist) to (causes very much nuisance) (Cronbach’s alpha = 0.854). These included heat, cold, draught, mould, poor ventilation, cramped spaces, poor lightening, heavy lifting, and noise.

Performance-based pay. Respondents were asked whether the compensation system was based on evaluation of the individual performance level. This was coded as a dummy variable (no/yes).

Gender-incongruence. Respondents were asked to indicate whether the tasks they were responsible for were generally in their organization done by women only, predominantly by women, by both men and women, predominantly by men, or by men only. Based on the respondent’s gender this variable was coded to reflect whether the work was done only by employees of the same sex as the respondent, predominantly by employees of the same sex, by both men and women, by predominantly employees of the other sex, or only by members of the other sex.

Bullying. Bullying was measured with a single item. Respondents were first given the following definition “Psychological violence or workplace bullying means that a member of the work community is isolated, his/her work is disregarded, he or she is threatened, talked about behind her/his back or pressured in some other way.” They were then asked “Have you been subject to such harassment?” Respondents could choose between four options: (a) yes, I am currently subjected (4.4%); (b) yes, I have previously been subjected in this workplace (12.6%); (c) yes, I have previously been subjected in another workplace (8.1%); and (d) no, I have not been subjected to such harassment (74.9%). For this study the first category (currently bullied) was compared with the last category (no exposure to bullying).

Bullying is typically measured either by asking respondents to self-label as bullied or not (as in this study) or by asking about exposure to specific negative acts. The latter, the behavioral classification method, is sometimes described as more objective (Nielsen, Matthiesen & Einarsen, 2010). However, it does not measure the respondent’s possibilities to defend him or herself against such behavior and does not capture whether the respondent actually feels victimized as a result of the exposure (cf. Salin & Hoel, 2013). In Scandinavian and Finnish studies the self-labeling method has been reported to result in lower prevalence rates than the behavioral classification method (Nielsen *et al.*, 2009, 2010; Salin, 2001), possibly because it eliminates cases where negative behaviors have been experienced, but not perceived as threatening enough to be labeled bullying. When asking respondents to self-label or not the researcher may further choose whether or not to give the respondent a definition of bullying or rely on the respondent’s own understanding of the term. Providing a definition has been shown to decrease reported bullying rates, although this effect is not as accentuated in Scandinavia as in many other parts of the world (Nielsen *et al.*, 2010). This means that the measure used in this study is a rather conservative one, which is more likely to underestimate, rather than overestimate, the prevalence.

Relationships between observed bullying and risk factors were also studied to get potentially stronger support for the hypotheses. After being given the definition of bullying (see above) respondents were asked whether such behavior exists at their workplace and could choose between “not at all,” “sometimes” and “continuously.” Those who had observed

bullying “sometimes” or “continuously” were grouped into a witness category and compared with those who had not witnessed bullying at their workplace. A binomial logistic regression analysis was conducted.

Based on their studies of Norwegian samples Nielsen and Einarsen (2013) noted that observers’ own experiences of bullying may be a confounding factor when seeking to study the effects of bullying on observers and therefore strongly encouraged other researchers to take this into account when studying observers of bullying. To avoid that the results get distorted by respondents’ own experiences of bullying, a decision was made to analyse only those respondents who did not have current or previous experiences of bullying themselves – respondents who were both targets and observers were therefore not included in this analysis.

RESULTS

Binomial logistic regression analyses were undertaken to test the hypotheses. First, risk factors for the respondents’ own experiences of bullying were tested. A test of the full model against a constant only model was statistically significant, indicating that the predictors as a set reliably distinguished between bullied and non-bullied (chi square = 140.404, $p < 0.000$ with $df = 7$). Nagelkerke’s R^2 of 0.197 indicated a modest association between prediction and grouping, typical in bullying research. The findings are reported in Table 2. After the binomial logistic regression analysis was undertaken for all respondents, men and women were analyzed separately. Below the findings are discussed with respect to the hypotheses put forward.

In addition to the variables listed in the hypotheses, two demographic factors – age and gender – were included as control variables. The results confirmed that gender was significant – men were less likely to experience bullying than women (OR = 0.531, CI 0.346–0.813) – but age was not. To be more precise, 3.0% of all men, compared to 5.5% of all women were currently victims of bullying.

Regarding the psychosocial work environment the results confirmed the importance of both leadership and job demands. Constructive leadership was associated with lower levels of bullying (OR = 0.545, CI = 0.424–0.700), whereas those reporting higher levels of job demands reported an almost four times higher risk of bullying than those with low job demands (OR = 3.702, CI = 2.439–5.617). The results thus provided support for Hypotheses

1 and 2. When separately analyzing risk factors for men and women, leadership was however significant for women only. Men with high job demands reported a particularly high risk of bullying (OR = 5.593, CI = 2.705–11.566), while the risk for women with also considerable, but not quite as striking (2.974, CI = 1.777–4.974).

Subsequently, we expected employees who worked in organizations using performance-based pay to report more bullying. However, this hypothesis (Hypothesis 3) was rejected. In fact, employees in such organizations reported significantly less bullying (OR = 0.552, CI = 0.360–0.845). When analyzing men and women separately the finding was statistically significant for women only.

The results further provided support for Hypothesis 4. Those reporting a poor physical work environment were more likely to report bullying (OR = 1.641, CI = 1.285–2.097). Nuisances in the physical work environment were associated with a higher risk of bullying both among men and women.

The results also provided support for Hypothesis 5. The overall results indicated a significant association between working in a task dominated by the opposite sex and increased risk of bullying (OR = 1.253, CI = 1.022–1.535). However, the gender specific analyses revealed this relationship was significant for men only. For women there was no significant difference in working in female or male gender-typed tasks.

Subsequently, it was analyzed whether the same factors predicted observer reports of workplace bullying. To avoid the results becoming distorted by respondents’ own experiences of bullying, a decision was made to analyze only those respondents who did not have current or previous experiences of bullying themselves – respondents who were both targets and observers were therefore not included in this analysis.

The results from a binomial logistic analysis are reported in Table 3. As for the demographic factors, men (OR = 0.676, CI = 0.550–0.831) and older employees (OR = 0.988, CI = 0.979–0.997) reported a significantly lower risk of having observed bullying in their work communities. Also, a poor work environment was associated with observing more bullying, despite the fact that respondents who had both observed and experienced bullying

Table 2. Logistic regression analyses predicting exposure to bullying

	All respondents (N = 1,852)		Men only (N = 915)		Women only (N = 937)	
	Exp (β)	CI 95%	Exp (β)	CI 95%	Exp (β)	CI 95%
Gender	0.531**	0.346–0.813				
Age	0.983	0.965–1.002	0.975	0.945–1.007	0.989	0.966–1.012
Leadership	0.545***	0.424–0.700	0.664	0.415–1.061	0.502***	0.373–0.676
Job demands	3.702***	2.439–5.617	5.593***	2.705–11.566	2.974***	1.779–4.974
Physical work environment	1.641***	1.285–2.097	1.662**	1.173–2.356	1.780**	1.237–2.563
Gender-incongruence	1.253*	1.022–1.535	1.491*	1.068–2.080	1.120	0.863–1.453
Performance based pay	0.552**	0.360–0.845	0.536	0.263–1.093	0.573*	0.335–0.980
Nagelkerke R ²	0.197			0.190		0.193
Cox & Snell R ²	0.073			0.057		0.083
Chi-square	140.404***			53.277***		80.808***
df	7			6		6

Note: Bullying 0 = no, 1 = yes. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Cases with missing data and respondents with previous, but not current experiences of bullying have not been included in analyses.

Table 3. Logistic Regression Analysis Results Predicting Observations of Bullying (targets excluded)

	All respondents (N = 1,719)	
	Exp (β)	CI 95%
Gender	0.676***	0.550–0.831
Age	0.988*	0.979–0.997
Leadership	0.776**	0.668–0.902
Job demands	2.001***	1.620–2.471
Performance based pay	1.430***	1.238–1.651
Physical work environment	1.093	0.982–1.217
Gender-incongruence	1.152	0.936–1.417
Nagelkerke R2		0.100
Cox & Snell R2		0.073
Chi-square		131.169***
df		7

Note: Bullying 0 = no, 1 = yes. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Cases with missing data have not been included in analyses. Respondents with current or previous own experiences of bullying have been excluded.

themselves were not included. High job demands (OR = 2.001; CI = 1.620–2.471), constructive leadership (OR = 0.776, CI = 0.688–0.902), and a poor physical work environment (OR = 1.430, CI = 1.238–1.651) were all significant. This provided additional support for both the work environment hypothesis in general and hypotheses 1, 2 and 4 of this study. In contrast, the gender-congruence of the respondent's work tasks and the compensation system were not related to observations of bullying.

DISCUSSION

The aim of this paper was to study risk factors in a large, nationally representative survey of Finnish employees. Overall, the results provide support for the work environment hypothesis of bullying. Poor leadership and job demands both significantly increased the risk of bullying. The results confirm previous findings about the importance of the psychosocial work environment (Baillien & De Witte, 2009; Hauge *et al.*, 2007; Hoel *et al.*, 2010; Salin & Hoel, 2011).

An important contribution of this study is that it presents empirical evidence for the role of the physical work environment. While previous interview studies with human resource professionals and union representatives have put these forward as possible risk factors (e.g., Baillien *et al.*, 2008), this study actually allowed us to study the effects in a large, heterogeneous sample. The results strongly support a relationship between a poor physical work environment and increased risk of bullying. It seems likely that the physical work environment has the potential to cause frustration, which according to the frustration-aggression hypothesis may lead to increased aggressive behavior (Berkowitz, 1969). This is also in line with findings from aggression research indicating that temperature and crowdedness are associated with increased risk of aggression (Bell, 1992; Lawrence & Leather, 1999; Neuman & Baron, 1998).

Finding clear empirical evidence for the role of the physical work environment has important implications. This shows that

investment in a good physical work environment may, beyond having positive direct effects on job satisfaction and well-being, also have indirect effects on these by decreasing the risk of bullying.

The study offered another highly important finding, that is, that performance-based pay appears to reduce rather than increase the risk of harassment. In the late 1990s, Sutela and Lehto (1998) reported the opposite, that performance-based pay increased the risk of bullying. This has been associated with the finding that highly competitive work environment may provide a fertile soil for bullying and micropolitical behavior as they provide both incentives to sabotage the work performance of rivals and, in cases of team performance, incentives to eliminate team members who do not pull their weight (Kräkel, 1997; Salin, 2003). This change may possibly reflect that performance-based pay systems have become increasingly popular and no longer constitute an anomaly in Finnish work life. Also, it may reflect the fact that performance-based pay system have become more sophisticated, not merely looking at individual production and sales, but also acknowledging the individual's contribution to the work group more generally. However, again we need to acknowledge the possibility that occupation and sector may be confounding factors and that performance-based pay is likely to be more common in certain sectors – such as business and industry – than in for instance health care or social work. As shown in previous research bullying is more frequent in some sectors than others (Zapf *et al.*, 2011). An important venue for further research would therefore be to study the effect of performance-based pay within specific sectors.

As a response to calls for gender-sensitive studies of bullying (Hutchinson & Eveline, 2010; Salin & Hoel, 2013; Simpson & Cohen, 2004), this study also analyzed the role of gender proportions and analyzed risk factors from a gendered perspective. Working in an occupation which is typically associated with the other gender has often been presented as a risk factor of bullying. However, this has usually been supported by a few studies undertaken in a few specific occupations heavily dominated by one gender (Eriksen & Einarsen, 2004; Nuutinen *et al.*, 1999). This study allows us to draw stronger conclusions, as this pattern also was repeated in a nationally representative sample. However, interestingly, working in tasks dominated by the other sex was a significant risk factor for men only. Although women in general experienced more bullying, women doing male-dominated work tasks were not necessarily at more risk than other women. However, it is still possible that women in these work tasks experience higher risks than men doing the same work. That women are approximately equally at risk for bullying in female-dominated work groups may reflect underlying differences in occupations. Women (and men) working in female-dominated work tasks may often be employed in sectors such as education, health, and social services – sectors previously reported to be plagued by higher bullying rates (see Zapf *et al.*, 2011 for a review). To be able to truly control for the effect of gender ratio of employees doing a specific task we would need to be able to control for occupation.

Furthermore, this study also examined risk factors for men and women separately to identify potential differences. Overall, the patterns were fairly similar for men and women with both

the psychosocial and physical work environment playing a significant role for both men and women. However, the study also revealed some interesting differences. First of all, leadership reached significance for women only. Here it is interesting to note that Nielsen (2013) found leadership to be a significant risk factor in an almost all-male sample of seafarers. This suggests that leadership is an important risk factor at least in some male-dominated contexts. It is possible that the special circumstances that surround seafarers – narrow space, tight cooperation with a small group, and isolation from the rest of society (Nielsen, 2013) – make leadership particularly important. This raises further questions not only on whether risk factors are gendered, but also about the mechanisms through which certain risk factors, such as poor leadership, result in more bullying. Also, it is worth noting that of the seafarers, a slight majority were Philippines, whereas this was a Finnish sample. It is therefore possible that cultural differences have affected the results. Finally, it is worth noting that only the negative form of leadership included in Nielsen's (2013) study – laissez-faire leadership – was associated with more self-reported victimization. In his study respondents reporting high scores on positive forms of leadership – authentic leadership and transformational – did report lower levels of exposure to negative acts, but did not report significantly lower levels of self-reported victimization. As this study focused on constructive leadership and on self-labeled bullying, the results are in fact not contradictory.

Furthermore, working with a female-dominated task was a risk factor for men, whereas women faced equal risk regardless of whether the task was male- or female-typed. Performance-based pay also reached significance for women only, but appeared to act as a buffer rather than as a risk factor. However, as discussed previously, it is very possible that sector and occupation may be confounding factors. Further studies are needed to examine whether these factors in themselves affect men and women differently, or whether other factors, such as occupation and sector, explain these results.

Limitations

Access to a large data set, with a representative sample of the Finnish working population, was a major strength of this study. As questions concerning bullying made up only a fraction of the total questionnaire it is unlikely that this particular topic has had any effect on the respondents' willingness or unwillingness to reply, ensuring that this did not skew the sample. However, using this existing data set gave the author no control over the data collection process and also did not make it possible to include additional variables that could have been of interest for studying these particular questions. For instance, since role ambiguity and role conflict have been found to be among the most important predictors of bullying (Hauge *et al.*, 2007; Reknes *et al.*, 2014) it would have been desirable to include them, as well. Also, rather than using only a general "constructive leadership scale," ideally more specific leadership behaviors and styles should have been measured. However, given the current set-up this was not possible.

Another disadvantage of using an existing dataset was that the researcher did not have control over the scales used. The scales

used by Statistics Finland were not subject to strict scientific validation. However, as reported earlier, all scales exhibited good Cronbach alpha values, which can be seen as an indicator of reliability.

Both the findings regarding the physical and the psychosocial work environment appear to provide support for the work environment hypothesis, that is, the assumption that poor work environments increase the risk of bullying and harassment. However, it is important to bear in mind that the causality cannot be tested here. Hauge *et al.* (2011) raised questions concerning causality after a longitudinal study of risk factors of bullying indicated that the causality might well go the other way around. As such, a poorer work environment, less satisfaction with leadership, and higher job demands may in fact be the result of bullying. Similarly, giving someone less attractive work tasks, less appropriate tools, and less attractive work spaces may in fact be bullying strategies in themselves, providing an alternative explanation for why bullying is associated with more cramped work spaces and poorer ergonomics. Longitudinal studies are needed to confirm how much the relationship is explained by the two different rival hypotheses.

Also, the data material did not include information about the respondent's occupation. This makes it impossible to control for occupation and to examine risk factors within specific occupations. In particular when it comes to the physical work environment, we need to remember that different nuisances occur in different occupations and that the same risk factor may take different forms in different work contexts. For instance, men in construction and transportation may be more exposed to harsh weather conditions and vibrations, whereas women in clerical work or health care and social work may experience more exposure to problems with in-door air quality and mold. "Noise" may refer both to loud children in day care centres and to sounds made by heavy equipment. To get a more correct picture of the influence of individual stressors we would need to study more homogenous samples to be able to control for other confounding factors.

CONCLUSION

All in all, this paper points to the importance of the work environment for explaining workplace bullying, providing support for the work environment hypothesis of bullying. It advances our understanding of workplace bullying by drawing attention to the role of the physical work environment, an aspect so far highly neglected. Further, it questions previous findings regarding performance-based pay as a risk factor and shows that some factors – such as leadership and gender balance – may have different effects on male and female employees. Increased knowledge of risk factors and how risk factors affect different employee groups enables us to take more effective measures to decrease the risk of workplace bullying.

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NOTE

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