Psychosocial safety climate as a moderator in role stressor- bullying relationships: A multilevel approach

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ABSTRACT

Drawing on the conservation of resources theory and safety signal theory, we investigate the hypothesis that an organizations psychosocial safety climate (PSC) moderates the well established relationships between individual experience of role stressors (role ambiguity and role conflict) and employees' exposure to workplace bullying. Multilevel modelling with a sample of 15,524 employees from 69 organizations, aligned with earlier findings: role ambiguity and role conflict were related to reports of exposure to workplace bullying. Furthermore, organization's PSC was negatively related to reports of exposure to workplace bullying. The main results however was the support for moderation hypotheses. The results showed that an organizatiońs PSC moderated the association between role conflict and workplace bullying across organizations. The association between role ambiguity and workplace bullying were also moderated by the organizatiońs PSC, yet not to the same extent. These cross-level findings expand our knowledge on how organizational level factors may act to prevent workplace bullying. As recently proposed, PSC seem to function as an organizational resource in the organization which is related to a lower prevalence of workplace bullying in the first place. Furthermore it buffers the risks of exposure to bullying associated with role conflict and to some extent the risk associated with role ambiguity. Thus, it is important for management to invest in the psychosocial safety of employees in a way that secures that such a climate prevails in the organization.

1. Introduction

Bullying is a prevalent problem in contemporary workplaces all around the globe (Zapf et al., 2020), with severe consequences for employees, organizations, and society, and even in its less extreme forms (see Mikkelsen et al., 2020 for an overview and review). Workplace bullying is often defined as a systematic form of aggression and social exclusion, directed persistently and over time toward one or a few employees, enacted primarily by other organizational members, yet in situations where the target finds it difficult to defend oneself against this treatment (Einarsen et al., 2020). Workplace bullying may come in many shapes and forms and in varying levels of intensity and frequency, yet often being a gradually escalating process (Einarsen et al., 2020). Exposure to bullying is related to reduced somatic and mental health (Mikkelsen et al., 2020; Høgh et al., 2021), as well as to job dissatisfaction, turnover and a risk of exclusion from working life (Berthelsen et al., 2011).

The work environment hypotheses attributes the occurrence of bullying to features in the psychosocial work environment such as job design and the organization of work, leadership and management practices, and organizational climate (Hauge et al., 2009). Empirical research adhering to this tradition has investigated different leadership practices (Francioli et al., 2018; Laschinger & Fida, 2013) and various job characteristics (Baillien et al., 2011; Notelaers et al., 2013) as potential risk factors for exposure to bullying. The most prominently and consistently investigated job characteristics related to bullying are role stressors, most often in the form of role ambiguity/clarity and role conflict (Bowling & Beehr, 2006; Van den Brande et al., 2016). Apart from job control, job resources (Notelaers et al., 2013), and social support (Tuckey et al., 2009), fewer studies have investigated preventive factors. The role of organizational - and departmental factors and climates have been suggested to be promising factors in this respect (Plimmer et al., 2022). Recently, organizations' High-Involvement Work Practices (HIWPs) have been shown to interact with job demands, thereby buffering the association between work pressure and workplace bullying (Vranjes et al., 2022).

In the light of the conservation of resources theory (Hobfoll et al., 2018), we assume that organizational conditions, values and practices

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may provide important organizational resources that may prevent stressful situations from escalating into bullying scenarios by making managers more inclined to intervene when needed and also acting as a strong mental and practical resource for the individual in need of support, help and resources to cope with stressful working conditions. In line with this, empirical evidence shows a clear negative association between psychosocial safety climate (PSC) (see Dollard & Bakker, 2010) at the group or organization level and reported exposure to workplace bullying (Bond et al., 2010; Dollard et al., 2017; Law et al., 2011). Theoretically, PSC is defined as an organizational resource that alleviates stressful experiences among employees (Dollard et al., 2012). By investigating whether organizational level resources in the form of PSC can mitigate the relationships between work-related risk factors and exposure to workplace bullying, we answer the call to advance bullying research by investigating possible moderators in the antecedent – workplace bullying relationship (Rai & Agarwal, 2018). Our main scope is therefore to investigate whether the well documented individual level relationships between role stressors and exposure to workplace bullying are moderated by organizational level PSC. In this we extend previous research by testing whether the relationships between role stressors and exposure to workplace bullying are functions of organizational level PSC. Testing Loh's (2020) proposition that PSC acts as a contextual resource, we contributes to the quest of pinpointing the role of PSC in occupational health more broadly and in relation to bullying more specifically. The present study therefore addresses important gaps in the literature and have both theoretical and applied implications for the prevention of bullying in workplaces.

1.1. Bullying at the workplace and role stressors

According to the work environment hypothesis (Einarsen et al., 2020) bullying tend to evolve from a combination of deficiencies in work design (Einarsen, 1999; Hauge et al., 2007) an absence of proper management interventions (Leymann, 1993), and particularly so in organizations that permit or even reward such behavior (Einarsen et al., 2020). With respect to work design, role conflict and – ambiguity are the most consistently documented risk factors for exposure to workplace bullying (Bowling & Beehr, 2006; Van den Brande et al., 2016).

Role conflict is characterized by the experience of incompatible expectations and demands linked to one's work role (Beehr, 1995). Role conflicts may involve; (1) conflicting demands and expectations directed towards an employee and his or her role set, (2) incongruent demands and expectations from two or more members of the role set, (3) incongruent demands and expectations from more than one member from different role sets, and (4) a combination of demands and expectations within and between employees' role set (King & King, 1990). The experience of role conflict is typically followed by stress reactions (Rizzo et al., 1970), which may trigger or make the employee vulnerable to bullying processes, yet in different ways. Firstly, in accordance with the frustration-aggression hypothesis (Berkowitz, 1989) ambient stressful working situations may lead to aggressive behavior through the production of negative affect among employees. Hence, role conflict may be a designated risk factor through creating of tension, stress, and frustration in the workgroup (Einarsen, 2000) as shown by studies were perpetrators also reports elevated levels of role conflict (Hauge et al., 2009). Secondly, according to "Social interaction Theory" (Neuman & Baron, 2011), stressed out employees may violate established social norms because of their high level of strain and inappropriate ways of coping (Reknes et al., 2014) as well as by venting emotions like anger and frustration eliciting revenge and negative spirals in the working environment. Previously, cross-sectional (Notelaers et al., 2010a), prospective (Reknes et al., 2014) and meta- analytical research (Bowling & Beehr, 2006) concludes that role conflict is an important antecedent and risk factor of exposure to workplace bullying.

Hypothesis 1. Role conflict is positively associated with exposure to workplace bullying.

Role ambiguity involves uncertainty about actions and behaviors required to fulfill expectations associated with a given work role, resulting in a lack of predictability (Beehr, 1995). Accessible information is necessary for adequate role performance, and a lack of adequate information will challenge the focal person's ability to understand and conform to onés role expectations, thus triggering role ambiguity (Kahn et al., 1964). Additionally, role ambiguity makes for individual uncertainty regarding the appraisal of one's roles by important stakeholders, with the risk of this uncertainty being transferred to other social interactions in the work environment (Kahn et al., 1964). Our understanding of role ambiguity as an antecedent of exposure to workplace bullying may, similarly to the case of role conflict, be drawn from the frustration-aggression hypothesis (Berkowitz, 1989) and "Social interaction Theory" (Neuman & Baron, 2011). Role ambiguity may lead to aggressive behavior because of negative affect or via violations of social norms. In addition, role ambiguity may lead to a defensive attitude towards unfavorable feedback (Kernis et al., 1993), thereby depriving oneself of the opportunity for constructive communication with important others at work. This may increase the risk of both perceiving others as threatening and of actual acts of aggression, mistreatment, and social exclusion (Reknes et al., 2021). Empirical evidence support role ambiguity as an important antecedent of exposure to workplace bullying, both in cross-sectional (Notelaers et al., 2010a), prospective (Reknes et al., 2014), and in meta-analytical analyses (Bowling & Beehr, 2006; Van den Brande et al., 2016).

Hypothesis 2. Role ambiguity is positively associated with exposure to workplace bullying.

1.2. Psychosocial safety climate and bullying at the workplace

Social contextual conditions may create resilience or fragility, social skillfulness or social awkwardness, tolerance or intolerance among individuals (Hobfoll et al., 2018). Hence, collective and shared perceptions of the working environment and the procedures and practices of the organization may translate into important team and organizational level outcomes, influencing social processes, experiences, and even individual behavior (Loh et al., 2020; Schneider et al., 2017), including incidents of workplace bullying (Samnani & Singh, 2016). Yet, scholars have to date hardly tuned into such multi-level thinking to further our understanding of antecedent-bullying relationships (León-Pérez et al., 2021; Rai & Agarwal, 2018). In this there are strong reasons to propose psychosocial safety climate (PSC) as a particularly relevant contextual or organizational level resource which then may affect individual behavior, coping abilities and experiences of ones more immediate working environment.

Psychosocial safety climate refers to employeeś shared perceptions of the organizatiońs practices, policies, and procedures for the protection of workers psychological health and safety (Dollard & Bakker, 2010). PSC includes and is fostered by four important principles (Idris et al., 2012); (1) management decisiveness in ensuring workers' psychological health and their focus on safeguarding employee psychological health, (2) management addressing and resolving issues about psychological health and safety, (3) the organization communicating clearly around matters affecting psychological health and safety, and (4) management valuing and supporting employees who communicate and participate in issues related to psychological health and safety. Due to the open communication and trust prevailing around these issues, an organization where management continuously works to ensure psychological health and safety among employees is then created (Bond et al., 2010). Hence, an organization with a high level of PSC is characterized by resources facilitating employees in completing their daily tasks and achieving the organizational goals (Loh et al., 2020), yet without stress or ill-health. At least, such an organization makes sure that the latter is prevented at an early stage.

In such organizations we expect that there will be less workplace bullying in the first place. Hence, a high PSC in an organization may serve as a preventive factor in itself as workplace bullying will not be tolerated, by having fewer risk-factors and by addressing these early on. In addition, PSC may hamper the onset and escalation of workplace bullying because frustration, social stress and signs of interpersonal tension and conflicts, often preceding workplace bullying (Baillien et al., 2009), are handled quickly and effectively (Dollard et al., 2017). Previous cross-sectional research on organizational level PSC have reported a negative relationship with exposure to workplace bullying among Australian workers (Law et al., 2011). In a prospective study among Australian police officers, PSC at the police station level was related to less exposure to bullying (Bond et al., 2010). We expect to replicate these earlier findings, assuming that the PSC is an organizational level factor which prevents workplace bullying.

Hypothesis 3. At the organizational level, high psychosocial safety climate (PSC) is negatively related to reports of exposure to workplace bullying.

1.3. Psychosocial safety climate as a moderator in role stressor-bullying relationships

Drawing on conservation of resources theory (COR; see Hobfoll, 1989), and safety signal theory (Lohr et al., 2007; Seligman, 1968), we further hypothesize that PSC interacts with role stressor thereby reducing the relationships between roles stressors and exposure to workplace bullying. According to COR, the presence of role stressors may deplete one's existing personal resources (Bowling et al., 2017) while threatening existing resources (Salanova et al., 2010), hence potentially creating stress reactions among employees. Furthermore, employees with few internal and external resources are more vulnerable to stress (Hobfoll, 2011), while their need for resources is even more profound. Yet, negative emotions and negative interactions following the experience of role stress may be softened in a pro-social ecology characterized by a high PSC. Drawing upon the notion of resource caravans and resource passageways (Hobfoll, 2011), we theorize that a high PSC strengthen contextual resources by complementing other resources or by compensating for the loss of resources associated with the given stressors (Loh et al., 2018), in our case role stressors. Indeed, through management commitment and support for PSC, and a priority of employee psychological wellbeing, along with the firm communication of the importance of psychological wellbeing management, and finally the participation of all levels of the organization in addressing stress issues, many resources are supplied, supported, fostered, enriched and protected (Loh et al., 2018). In organizations where PSC was high, Loh and colleagues (2018) found the relationship between employees' emotional demands and somatic symptoms to be reduced by job resources, such as rewards. However, an opposite effect on somatic symptoms was found when both PSC and rewards were low. This indicates that when demands are high, the PSC will strengthen existing resources and reduce negative outcome of demands. Employees working in a pro-social ecology like e.g., PSC, will likely experiences an improvement in their resources, such as their coping abilities, resilience, and optimism, when dealing with stressors (Salanova et al., 2010). Employees are then more likely equipped with the resources to cope and respond appropriately to stressors (Parzefall & Salin, 2010). Yet, working in an organization with a low PSC has been related to job strain, depression (Hall et al., 2013), psychological distress and emotional exhaustion (Dollard & Bakker, 2010; Idris et al., 2012), and with presenteeism when being ill (Liu et al., 2020). As a low PSC will neither facilitates nor provide existing resources, but rather deplete potential resources (Loh et al., 2018) when experiencing role stressors, the situation may even worsen. Taken together, a high PSC may be an organizational factor supporting, promoting, enriching, and protecting employees and their resources, making it easier to deal with role

stressors, whereas a low PSC in the organization may deteriorate, undermine, obstructor deplete resources making it more difficult to dealt with these demands (Loh et al., 2018). According to safety signal theory (Lohr et al., 2007; Seligman, 1968), employees perceive signals in the environment, including signals promoting security or insecurity. A high PSC will facilitate employees' sense of security and psychological safety (Dollard et al., 2012; Law et al., 2011), represented by cues about existing options and resources in the workplace (Hall et al., 2013; Law et al., 2011). Perceiving that available resources exist, and that they are available when needed, may in itself alleviate the consequences of role stress. A qualitative study on the relationship between bullying and coping indicated that it is easier to raise your voice when bullied in a context with a high PSC (Kwan et al., 2016). Hence, such "voice" should also be easier when experiencing role stressors, related stress, and escalating interpersonal problems when working in a high PSC context. Kwan and colleagues (2016) found that in a low PSC context respondents use less constructive coping strategies such as neglect and acquiescence more so than voice, hence calling for less help and support. Furthermore, in a low PSC context, negative reactions such as criticism and admonition may surface when using resources to deal with demanding situations (Loh et al., 2018). This may then limit the ability to defend oneself, which again may strengthen the relationship between role stressors and exposure to bullying in the workplace.

Hypothesis 4a. The relationship between role conflict and exposure to workplace bullying is stronger for employees working in an organizational environment where the shared perception of the psychosocial safety climate (PSC) is lower.

Hypothesis 4b. The relationship between role ambiguity and exposure to workplace bullying is stronger for employees working in an organizational environment where the shared perception of the psychosocial safety climate (PSC) is lower.

2. Method

2.1. Procedure and sample

The current sample stemmed from a statistical consulting agency that specializes in the measurement of occupational stress for [Anonymized] Health and Safety Executives. The latter are by [Anonymized] law entitled to guide organizations and employers with respect to their prevention policies regarding safety, ergonomics, health, and wellbeing. In accordance with the [Anonymized] law on occupational health and wellbeing, this agency uses the Short Inventory to Monitor Psychosocial Hazards (Notelaers et al., 2007) to measure occupational risk factors in working life. In addition to this standardized measurement instrument, [Anonymized] Health and Safety Executives add extra modules to meet the need of the organizations, including psychosocial safety climate and workplace bullying. The data were collected between January 2014 and January 2019. No members of a surveyed organization had access to any of the completed questionnaires, whether manually or electronically completed, and all e-mail addresses were deleted. Socio-demographic variables such as age, tenure, etcetera were anonymized, herewith guaranteeing respondents anonymity. The researchers therefore worked with anonymous data only. The final sample consisted of 15,524 employees from 69 organizations. The sample characteristics are denoted in Table 1.

2.2. Measures

Exposure to workplace bullying was measured using a standardized nine-item version of the Negative Acts Questionnaire-Revised (Einarsen et al., 2009; Notelaers et al., 2019). Each item was evaluated by the respondents in terms of frequency of exposure over the past six months, using a four-point scale ranging from (1) *never* to (4) weekly or more often. Cronbach α was 0.83.

Table 1

Sample characteristics in percentages.

	%		%
Managerial position		**Branch**	
No	79.0	Industry	24.1
Yes	21.0	Production and distribution of energy	13.4
Gender		Construction	0.6
Female	44.6	Retail and fixing cars and motorbikes	17.4
Male	55.1	Transport and logistics	3.0
Other	0.3	IT and Communication	6.9
Age		Financial activities and insurances	2.8
< 25	3.2		
25–34	25.7	Liberal professions, science and technology	13.7
35–44	30.2	Administrative and supportive services	2.9
45–54	27.7	Public service, Defense and Social Security	0.6
55+	13.2	Education	12.4
Contract		Social Services and Health	2.3
Full-time	79.9		
Part-time > 60%	16.6	**Educational Level**	
Part-time < 60%	3.4	Primary school	0.6
Type of contract		Lower secondary school	7.0
Permanent	84.0	Higher secondary school	27.9
Temporary	11.8	Academic bachelor	31.7
Other	4.2	Master or higher level	32.8
		Occupational Tenure	
Organizational Tenure		≤ 1 year	3.0
≤ 1 year	3.6	1–4 years	38.1
1–4 years	24.0	5–9 years	22.8
5–9 years	21.1	10–14 years	11.7
10–14 years	15.2	15–19 years	15.1
15–19 years	12.2	> 20–24 years	9.9
> 20–24 years	24.3		

Psychosocial safety climate was measured using the 8-items version of Dollards̓ scale (Dollard & Bakker, 2010; Hall et al., 2010). Example questions are "*In my workplace senior management acts quickly to correct problems/issues that affect employees' psychological health*", "*Senior management considers employee psychological health to be as important as productivity*" and "*Employees are encouraged to become involved in psychological safety and health matters*". The respondents evaluated each item using a five-point scale, ranging from (1) *not at all to* (5) *completely agree.* Cronbach α was 0.95). *Role conflict and role ambiguity* were measured with seven items from the Short Inventory to Monitor Psychosocial Hazards (Notelaers et al., 2007). Role conflict was measured with four items. The respondents evaluated each item using a four-point scale ranging from (1) never to (4) always. Cronbach α was 0.74. Role ambiguity was measured with three items. The respondents evaluated each item using a four-point scale ranging from (3) never to (0) always. Cronbach α was 0.79).

2.3. Aggregation statistics

Prior to aggregating individual responses to the organisational level, we assessed within-group agreement for PSC using the rwg(J)- index (James et al., 1984) and a uniform null-distribution. A value of 0.70 or higher is often held to suggest strong agreement (George, 1990; Lebreton et al., 2003), while values below 0.50 indicate disagreement. For group (organization) PSC we obtained a rwg(J) of 0.90. Next, we computed the intra-class correlation coefficient ICC(1) (Bliese, 2000) to examine the relative consistency of responses among group members. ICC(1) for PSC was 0.12 Altogether, the ICC(1)'s suggest that organizational membership influenced employees' perceptions of PSC to a degree that justified the use of multi-level analyses (LeBreton & Senter, 2008). We further estimated the reliability of the group mean by assessing the ICC(2) (Bliese, 2000). ICC(2) of PSC was 0.97, well above the critical value of 0.70, indicating that mean scores can be used to

reliably differentiate between organizations (Klein & Kozlowski, 2000). Finally, we carried out a one-way analysis of variance (ANOVA) to ascertain mean-level differences between organizations in terms of PSC. The F value was statistically significant for PSC (F (69, 15546) = 33.41, $p < .01$). Taken together, the indices provided justification for aggregation.

2.4. Hypotheses testing

The study hypotheses were tested in MLwiN version 3.02 using stepwise estimation of different models (Charlton et al., 2017). We used a hierarchical linear modelling approach for analyzing the data, as this will account for the nested dependent nature of the measurements at the lower level (Hox, 2002). The independent variables (role conflict and – ambiguity) and the dependent variables (exposure to workplace bullying) were individual level variables. PSC as moderator and predictor was modelled as a group-level (level 2) variable. To study the cross-level interaction hypotheses, we added the cross-level interactions separately (M6 + M7). Hence, the between-organization interactions were controlled to describe the existing multilevel relationships more clearly in the present data (Enders & Tofighi, 2007; Hofmann & Gavin, 1998). Pseudo-R^2s were calculated after each step and focused on the *within* and the *between* part of the variances explained by adding a variable in a step (Snijders & Bosker, 1994). The increase in model fit is represented by the decrease of the Δ-2 loglikelihood statistic. This statistic follows a χ^2 distribution with only 1 degree of freedom because of the stepwise procedure. We plotted all interactions at two levels of the moderators (i.e. +1 SD and −1 SD; Bauer & Curran, 2005) and conducted simple slope tests to examine the nature of the interactions by using Preacher's hierarchical linear modelling tools (see Preacher et al., 2006), available on the web (http://www.quantpsy.org/interact/hlm3.htm).

3. **Results**

The descriptive statistics are presented in Table 2. The results of the main analysis, including the estimation of model fit and the variance components (i.e., the within- and the between-level variance) are presented in Table 3.

Following the recommendations of Hoffmann and Gavin (1998), we centered all predictors. We centered the Level 1 predictor i.e., exposure to workplace bullying around the organization mean and the Level 2 moderator around the grand mean (see Hofmann & Gavin, 1998) to reduce possible problems with multicollinearity (Enders & Tofighi, 2007; Hofmann & Gavin, 1998). From the null model, we may conclude that the proportion of the variance attributed to the difference between organizations is rather small. Specifically, 7.3% of the variance in exposure to bullying at work can be attributed to difference between organizations, whereas 92.70% of the variance stems from the difference between employees and their specific work situations. Model 1 showed that role conflict was positively related to workplace bullying. Compared to the null model this model showed a strong improvement of fit. In addition, we note that role conflict accounted for 21.8% of the (individual level) variance in exposure to bullying behaviors. Hence, the first hypothesis was supported. Model 2 further showed that role ambiguity was also significantly associated with exposure to workplace

Table 2

Descriptive statistics.

Within- level	Mean (sd)	RA	RC	WB
1. Role ambiguity	1.01 (0.61)			
2. Role conflict	0.80 (0.47)	0.39		
3. Exposure to workplace bullying	1.43 (0.46)	0.31	0.47	
Between-level				
4. Organizations' PSC	2.04 (1.00)	−0.40	−0.61	−0.52

Table 3

Results of multi-level unstandardized regression coefficients exposure to negative acts (and standard errors).

Model	Model 0	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Intercept	1.447*** (0.015)	1.447*** (0.016)	1.448*** (0.016)	1.447*** (0.015)	1.447*** (0.015)	1.444*** (0.014)	1.443*** (0.014)	1.433*** (0.014)
Role conflict (RC)		0.453*** (0.007)	0.396*** (0.007)	0.402*** (0.011)	0.400*** (0.011)	0.355*** (0.014)	0.340*** (0.011)	0.341*** (0.010)
Role ambiguity (RA)			0.112*** (0.006)	0.112*** (0.006)	0.117*** (0.007)	0.095*** (0.007)	0.096*** (0.007)	0.093*** (0.006)
Psychosocial SafetyClimate (PSC)						−0.072*** (0.003)	−0.072*** (0.003)	−0.073*** (0.034)
RC*PSC							−0.057*** (0.006)	−0.0152* (0.007)
RA* PSC								−0.011*** (0.005)
Between variance intercept	0.014*** (0.003)	0.015*** (0.003)	0.015*** (0.003)	0.015*** (0.003)	0.015*** (0.003)	0.012*** (0.002)	0.012*** (0.002)	0.012*** (0.002)
Between variance slope RC	–	–	–	0.0047*** (0.0015)	0.0035*** (0.0012)	0.0032*** (0.0012)	0.0031*** (0.0011)	0.0031*** (0.0011)
Between covariance intercept-slope	–	–	–	0.0072*** (0.0017)	0.0060*** (0.0016)	0.0062*** (0.0014)	0.0056*** (0.0014)	0.0056*** (0.0013)
Between variance slope RA	–	–	–	–	0.0006 ns (0.0004)	0.0006 ns (0.0004)	0.0007 ns (0.0004)	0.0005 ns (0.0004)
Between covariance intercept-slope	–	–	–	–	0.0022** (0.0008)	0.0011 ns (0.0007)	0.0017* (0.0008)	0.0017* (0.0007)
Within variance (SD)	0.197*** (0.002)	0.154*** (0.002)	1.150*** (0.002)	1.149*** (0.002)	1.149*** (0.002)	1.145*** (0.002)	1.149*** (0.002)	1.149*** (0.002
R^2 between level intercept in %	–	–	–	–	–	20	20	20
R^2 slope (RC / RA) in %	–	–	–	–	–	31.9/ 0	34 / 0	34 / 0
R^2 within level in %	–	21.82	24.49	24.49	24.49	24.49	24.49	24.49
−2*loglikelihood	19011.2	15166.3	14761.8	14695.6	14684.9	14253.4	14167.3	14163.2
Δ-2*loglikelihood	–	3844.9***	404.7***	66.1***	10.7***	431.5***	86.1***	4.2*

***$p < .001$; **$p < .01$; *$p < .05$; +$p < 0.1$ ns: not significant. NA: not applicable because the change.

bullying. This model also resulted in an improvement of fit. Noteworthy, role ambiguity accounted for approximately 2.7% of the (individual level) variance in exposure to workplace bullying. Thus, the second hypothesis was also supported. In Model 3 and 4 we allowed the relationships between role ambiguity and role conflict on the one hand, and workplace bullying on the other hand, to vary across organizations. This resulted in four new variance parameters with the variance of both slopes and covariances between the intercept and the slopes (see Table 3). For both Model 3 and Model 4 fit improved significantly. The significant variance of the slope of role conflict indicated that the relation between role conflict and workplace bullying varied across organizations. The positive sign of the significant covariance between intercept and slope indicated that the relationship between role conflict and workplace bullying depends upon the level of role conflict within the given organization. The more role conflict in the organization, the stronger the relationship between role conflict and workplace bullying in the organization. Adding a varying slope for role-ambiguity also resulted in a significant decrease in −2LL. Yet, the slope did not to vary significantly across organizations. Hence, the relationship between role ambiguity and bullying is the same across organizations. In model 5 we added PSC as a predictor to the model. Hence, this model tests whether organizational level PSC accounts for the differences between organizations with respect to reported exposure to bullying (intercept) and the differences in the relationship between role conflict (and role ambiguity) and bullying, and, finally for the covariances between intercepts and slopes. Compared to model 4, the decrease in −2LL was significant. The significant decrease in −2LL and the direction of the significant effect of PSC provides support for the third hypothesis in that organizational level PSC accounts for organizations' average rate of reported workplace bullying. PSC accounted for 20% of the variance in bullying across organizations. It also explained both covariances between intercepts and slopes. Hence, PSC explains that the higher the level of role conflicts and -ambiguity are in an organization, the stronger the relationship between both, respectively, and exposure to workplace bullying. Before testing

the cross-level interaction in models 6 and 7, we note that model 5 also revealed that organizations' PSC accounted for 31.9% of the variance of the relationship between role conflicts and workplace bullying across organizations.

Adding the cross-level interaction between PSC and role conflict did lead to a significant improvement of fit in model 6. The cross-level interaction was significant. The interaction explained an additional 2.1% of the variance of the slope of role conflict. In Fig. 1 we portrayed the cross-level effect using the output of the R script from the Preacher website.

This finding provide support for our fourth hypothesis stating that organizations' PSC moderate the relationship between role conflict and exposure to workplace bullying across organizations. The higher the organization's PSC, the weaker the relationship between role conflict and exposure to workplace bullying (low PSC: slope = 0.394 (s.e. = 0.012); average PSC: slope = 0.341(s.e. = 0.011) and high PSC: slope = 0.287(s.e. = 0.0013)).

In model 7, we added the cross-level interaction involving role ambiguity and PSC, with a significant improvement of fit. The interaction was also significant. In Fig. 2 we portrayed the cross-level effect using the output of the R script from the Preacher website.

The meaning of the cross-level interaction effect is as hypothesized: the higher the PSC score of the organization, the weaker is the relationship between role ambiguity and exposure to workplace bullying (low PSC: slope = 0.105 (s.e. = 0.008); average PSC: slope = 0.093 (s.e. = 0.0064) and high PSC: slope = 0.082 (s.e. = 0.0091)). In addition, approximately 28% of the variance of the slope was explained by this interaction term. According to Aguinis and collegues (2013) it is recommended to continue with the interaction test based on the theoretical framework, independently of significant slope across organizations. This means that irrespective of the variance of the slope being insignificant, the significant interaction between organizations' PSC and role ambiguity lends support to our fourth hypothesis.
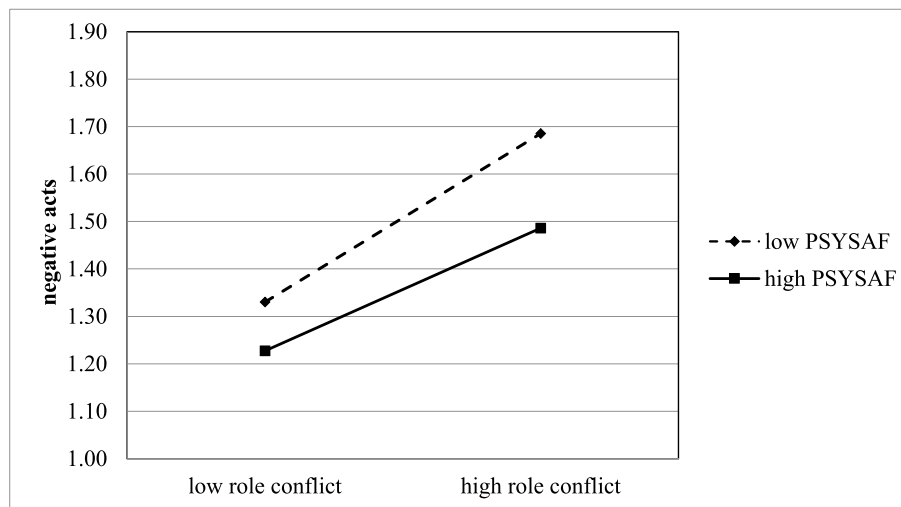
Fig. 1. Cross-level interaction plot: PSC accounting for the random slope of role conflict.
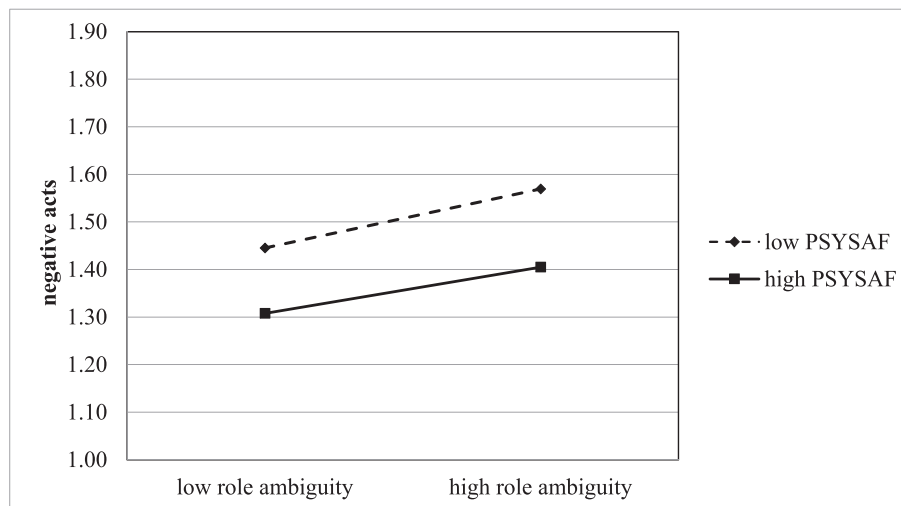

Fig. 2. Cross-level interaction plot: PSC accounting for the random slope of role ambiguity.

4. Discussion

The present study extends the current body of knowledge in the domain of workplace bullying. By investigating whether organizations' psychosocial safety climate (PSC) moderate relationships between role stressors and bullying, employing a multilevel research design, we shed light on the work environment hypothesis that attributes workplace bullying to qualities of the psychosocial work environment, including aspects of the organisational climate at work (see Einarsen et al., 2020). As hypothesized, role ambiguity and role conflict were related to reports of exposure to workplace bullying (H1 and H2). Next, hypothesis H3 were also supported as we saw a negative and significant effect of organizational PSC on reported exposure to bullying. Employees in organizations scoring high on PSC, reported less exposure to acts of workplace bullying. Finally, hypothesis four, stating that an organizatioń s PSC moderate the relationship between role stressors and exposure to workplace bullying was also accepted (H4). Organizational PSC accounted for the differences in the relationship between role conflict and workplace bullying between organizations. Hence, H4a was supported. Regarding H4b, the relationship between role ambiguity and reports of bullying did not vary across organizations. Still, we saw that PSC did moderate the relationship. Following Aguinis and collegues (2013), we may therefore conclude support for the last hypothesis as

well. Taken together, these results indicate that PSC acts as an organizational level resource important for the prevention of workplace bullying, acting both directly and as a moderator. The positive relationships between both role ambiguity and role conflict and exposure to workplace bullying, respectively, is hardly surprising. It is in line with extant research (Bowling & Beehr, 2006; Notelaers et al., 2010a; Van den Brande et al., 2016). Less investigated, yet also not surprising, is the preventive effect of organizational PSC on the prevalence of workplace bullying. A negative relationship between PSC and workplace bullying has been shown in some prior studies (Bond et al., 2010; Dollard et al., 2017; Hall et al., 2013; Law et al., 2011; Nguyen et al., 2017). High PSC organizations highlight and support – thus signals -the importance of open communication and trust (Bond et al., 2010) addressing stress and health-related issues among employees (Loh et al., 2018), creating a culture where constructive and supportive communication prevails and preventing the lack of trust anchors within the working environment. Organizations with a high PSC secure persistent management focus on issues related to workers psychological health and safety. In such a climate, bullying will most likely not be tolerated and actively prevented. This supports the more overarching theoretical assumption about organizations' PSC being an important contextual resource even in relation to a specific interpersonal problem such as workplace bullying.

Building on the idea of a resources passageway and on safety signal theory, we sought to extend current knowledge of the work-environment hypothesis which also states that the larger organizational context, i.e., the climate and culture of the organization, will influence the risk of workplace bullying and its associated antecedents. Hobfoll (2011) argues that resources link together (e.g., form a resource caravan), yet this linkage depends upon supportive environmental conditions (resource caravan passageway). More precisely, he describes resource caravans' passageways to allow access between different resources. As a result, resource caravan passageway affects not only resource preservation, but also the development of resources (Hobfoll, 2011; Hobfoll et al., 2018). Hence, supportive contextual conditions created by the different elements of psychosocial safety climate may act as a resource caravan passageway, allowing employee resources to link and fortify their effects. We found some support for this idea, as organizations with high PSC buffer the relationship between role conflict and exposure to workplace bullying. Furthermore, acting as a resource caravan with multiple active ingredients working in concerto (Hobfoll, 2011), organizations that facilitates such a sense of psychosocial safety, due to the coherent display of concern for employee's psychological health among managers. This again likely provides signals that it is safe to use said resources (Hall et al., 2013; Law et al., 2011). In other words, when employees experience a psychosocial safety climate with its focus on psychological health and wellbeing, employees will be safe to communicate directly about these and other related issues. Hence, high PSC may act as a prominent resource opening the use of personal resources such as positive conflict handling strategies, thereby hampering uncertainty and negative emotions and consequently reducing the risk that role stress is associated with subsequent reports of exposure to workplace bullying. Thus, organizations with a high PSC prevent workplace bullying by sending safety signals and by proving and facilitating resources if needed. In contrast, an organization with a low PSC will not facilitate existing resources but rather dismiss potential resources, particularly if criticism and admonition are encountered when trying to evoke and use resources (Loh et al., 2018). Therefore, an organization with a low PSC holding an etiological role, sends signals that it is not psychosocial safe place to be, having a deleterious effect on role stress indiscriminately of the actual use of resources.

However, in the present study, a high PSC moderated the relationship between role conflict and exposure to bullying more clearly than it did in relation to role ambiguity and exposure to bullying. The interaction plots, pointed to a rather weak cross-level interaction effect. A reasonable explanation for this finding is that the tension and frustration associated with role ambiguity are generally lower than that associated with role conflict (Bedeian & Armenakis, 1981; Keenan and Newton, 1984). Whereas role conflict may to a higher degree deplete one's existing personal resources, making the focal person experiencing role conflict particularly vulnerable, role ambiguity may be perceived as a less salient role stressor, thereby not activating the type of personal resources that depend upon the presence of organizations' PSC. Earlier research has resulted in similar findings. While high involvement work practices (HIWPs) at the organizational level did moderate the relationship between role conflict and workplace bullying, it did not moderate the relation between job insecurity and workplace bullying (Vranjes, Notelaers & Salin, 2022). Studies have also indicated that role conflicts mediate the relationship between ambiguity and exposure to bullying (Notelaers et al., 2010b). Hence, role ambiguity like job insecurity may be a more distal factor in relation to bullying and one that is more difficult to influence by organizational factors.

5. Methodological strengths limitations and future research

The primary strength of the present study is its adoption of a multilevel design to extend knowledge on the work environment hypothesis in relation to workplace bullying. Even if the said hypothesis clearly has a multilevel perspective on antecedents of bullying, it is seldom investigated from a multi-level perspective. Another important strength of the study is the large number of organizations included in the sample.

There are however some limitations to be noted as well. First of all, a heterogeneous sample and a large number of organizations and employees investigated are not equal to that of a representative sample. Hence, we cannot generalize our findings without caution. Secondly, we used self-reported data only. Some of the associations may therefore be influenced by common method variance (see Podsakoff & Organ, 1986). Although the latter may be less of a problem when investigating moderation and using a multi-level design, information collected from more sources than mere self-reports, would avoid some of the problems associated with common method variance (Evans, 1985). That being said, assessing role stressors and workplace bullying from others point of view may have its own problems due to the subjective and individual nature of these concepts (Notelaers et al., 2011; Parzefall & Salin, 2010). Still, to assess PSC, future research could use the group referent to measure PSC and perhaps collect data from multiple sources like the HR officers and employee representatives.

Another limitation stems from the cross-sectional nature of the data. Therefore, we are unable to infer causality. Still, at the individual level there is evidence that role stressors precede workplace bullying. For instance, using a true prospective design, Reknes and colleagues (2014) found role stressors to predict new cases of workplace bullying. With respect to organizations' PSC, previous longitudinal research found that high PSC at the individual level (Dollard et al., 2017), and team level (Bond et al., 2010) was negatively related to subsequent reports of exposure to workplace bullying. Notwithstanding this evidence, no previous study attempted to investigate the directionality at the organizational level. Adopting such a multilevel longitudinal design is advisable in future research, yet will involve the challenge of measuring a large number of organizations more or less simultaneously over time and in multiple waves. Such a design would have some inherent problems and challenges with regard to attrition (e.g., internal and external job mobility, turnover, etc.).

Finally, both COR and safety signal theory can be investigated more profoundly. With respect to COR theory, future research should in addition to the organizational level of PSC, investigate also the effect of other resources. Earlier research demonstrated that the use of resources is more likely when the climate at organizational level is safer (Probst, 2015; Dollard et al., 2012). Furthermore, research indicates that PSC strengthens resources, link resources together, and then by this reduce negative outcome related to demands, thus supporting PSC acting as a resource passageway (Loh et al., 2018). By investigating resource passageways in more depth, bullying research may in the future test not only whether the risk associated with demands are buffered, but also whether PSC at an organization level strengthens the effect of other resources. In the context of bullying, individual and social resources are especially relevant because bullying can be conceived as a process where loss of both kinds of resources is typical for later phases in the bullying process (Einarsen et al., 2020). Clearly the latter can only be investigated using longitudinal designs and statistical analysis that allow us to capture a stage like process (see for example: Reknes et al., 2020). Secondly with respect to safety signal theory a more profound test may consist of testing both the availability and the use of resources and specifically if their use is dependent upon the existing PSC. However, to investigate whether PSC acts as a safety signal (Dollard et al., 2012; Law et al., 2011) providing social cues regarding how safe it is to use job resources to compensate for demands, one needs perhaps to go further. More specifically, we should in future studies test whether it is the case that resources are only more utilized when it is safe, that is, when there is a high PSC context (Loh et al., 2018). In extremis, this means that safety signal theory would receive strict support if resources are available but not or hardly used - to reduce the effect of demands - until the PSC is high. To test this proposition future research should not only measure the extent to which these resources are available, but also the

extent to which they are used.

6. Practical implications and conclusion

The quest for formal or informal organizational level factors that may act to prevent workplace bullying is an important one, yet not widely studied. Employing a multilevel design, we have expanded current research investigating whether organizational differences in psychosocial safety climate may act to prevent bullying and alleviate the risk of bullying associated with role stressors. First, our findings showed that organizations' PSC seems to prevent bullying in general. Even more, in cases where employees experience an elevated degree of role stressors, high organizations' PSC reduce the risk of exposure to bullying in the workplace associated with these stressors. Hence, PSC seems to be a valuable organizational resource worth investing in as the present findings indicate that such an organizational level factor is important in explaining the occurrence of bullying at work in multiple ways. Employers and managers of organizations should take notice of these findings and work to improve the pro-social ecology associated with a high PSC, promoting it both on a structural organizational level and in their own daily work. For management consultants and HSE practitioners, the present study should provide ample evidence for the direction their efforts should take when working to prevent bullying and promoting and healthy organization. Yet, a high PSC is not a panacea, and efforts must be made to prevent and handle bullying in and of itself, including setting up explicit complaints and investigating systems to counterattack actual cases of bullying, in line with the 2019 convention#190 developed by the International Labor Organization in Geneve.

Disclosure statement

There is no conflict of interests.

Data availability statement

Data is available upon request.

Ethnics approval

The study was performed in line with the principles of the Declaration of Helsinki.

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Kristina Vaktskjold Hamre: Design of study, Interpretation of data, Writing the first draft, - review & editing, Approval of the version of the manuscript to be published. Worked on both major and minor revisions, approving the article to be published. **Ståle Valvatne Einarsen:** Writing -review & editing, Approval of the version of the manuscript to be published. Worked on both major and minor revisions, approving the article to be published. **Guy Notelaers:** Design of study, Formal analysis, Interpretation of data, Writing -review & editing, Approval of the version of the manuscript to be published. Worked on both major and minor revisions, approving the article to be published.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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