



# Role ambiguity as an antecedent to workplace bullying: Hostile work climate and supportive leadership as intermediate factors

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## ABSTRACT

Previous studies have shown role stress to be an important antecedent of workplace bullying. The present study investigated when and how a long-term effect of role ambiguity on exposure to bullying may be present. Based on the work environment hypothesis, we hypothesized that (a) there is a long-term effect of role ambiguity on exposure of bullying, (b) that this relationship is mediated by hostile work climate, and (c) moderated by supportive leadership. Using a three-wave design, with a time lag of 41–45 months, we showed support for all three hypotheses. The study underscores the importance of clear work-related roles as well as the importance of supportive leadership to prevent the onset of bullying following role stress and hostile climates.

## 1. Introduction

Studies have identified a range of organizational antecedents and work environment risk factors for exposure to workplace bullying, such as role stress, laissez-faire leadership, and excessive workloads (for reviews, see e.g., Salin & Hoel, 2020; Van den Brande et al., 2016). The mechanisms and interplay of how and when these antecedents are associated with exposure to workplace bullying have, however, not received as much attention (Nielsen & Einarsen, 2018). Yet, workplace bullying is generally seen as a gradually escalating process where exposure tend to develop and intensify over time, most likely as a result of a range of prevailing psychosocial conditions at work (Einarsen et al., 2020). In line with this notion, workplace bullying is defined as a systematic exposure (e.g., weekly) to mistreatment at work over an extended period of time (e.g., six months) in situations where the victims have increasing difficulties defending themselves, and with co-workers and superiors as the main perpetrators (Einarsen et al., 2020). One of the most consistently reported antecedents of such escalating exposure to workplace bullying is role stress (Van den Brande et al., 2016), including role ambiguity and/or role conflict (Reknes et al., 2014; Ågnes et al., 2023). Role stress is considered a hindrance stressor that may evoke negative emotions among and between employees

(Podsakoff et al., 2007), which again may escalate into interpersonal conflicts and interpersonal hostility, a mechanism for bullying set out in the so-called “work environment hypothesis” (Einarsen et al., 2020; Einarsen et al., 1994).

The first aim of the present study was to investigate to what extent a perceived hostile work climate may be a mechanism of how role stress in the form of role ambiguity increases the risk of employees’ subsequent exposure to workplace bullying. A hostile work climate is here defined as consistent acrimonious, antagonistic, and suspicious feelings within a work group (Mawritz et al., 2014; Mawritz et al., 2012).

Our second aim was to investigate if this mechanism is dependent on perceived supportive leadership from one’s immediate supervisor, possibly acting as a buffer in this potential chain of events. The protective effects of supportive leadership have been reported previously in association with workplace bullying (e.g., Blomberg & Rosander, 2022; Clausen et al., 2019; Nielsen, Christensen, et al., 2020), yet mainly seeing it as a buffer regarding the outcomes of exposure to bullying or a leadership style related to lower prevalence rates in the first place. To test these proposed relationships and mechanisms in relation to reports of exposure to workplace bullying, the study used a longitudinal three-wave sample with a total time lag of almost 4 years allowing us to investigate long-term effects and the proposed mediation.

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The contribution of the present study is to propose and investigate if deficiencies in work design may pose a risk for being exposed to bullying via the creation of a perceived hostile working climate with supportive leadership as a potential preventive factor in this mechanism. The rather long time lag is an important contribution and strength of the present study. Theoretically the study contributes to the understanding of how and when workplace bullying is an outcome of role stress; an issue that needs more research (see also Ågotnes et al., 2023).

## 2. Theoretical background

### 2.1. Workplace bullying and role stress

Workplace bullying is an escalating social process in the workplace mainly arising from existing stressors in the immediate psychosocial working environment (Baillien et al., 2009; Einarsen et al., 2003; Einarsen et al., 2020; Hauge et al., 2007). Exposure to bullying behaviours may come in different forms and intensities from occasional exposure to severe victimization from long-term, frequent, and ongoing mistreatment (Reknes et al., 2021; Rosander & Blomberg, 2019). Yet, workplace bullying is a complex and multi-causal phenomenon that likely depends on an interplay of many factors; societal, organizational as well as individual (Bowling & Beehr, 2006; Van den Brande et al., 2016). The main explanation as to why workplace bullying may emerge is however the work environment hypothesis (Einarsen et al., 1994; Leymann, 1996). It states that bullying is mainly a result of deficiencies in the organization in terms of work design, leadership practices, a hostile social climate in the work groups, and a culture permitting or even rewarding such bullying behaviours (Einarsen et al., 2003). The empirical support for this overarching hypothesis is strong (Van den Brande et al., 2016) but not fully conclusive when it comes to its mechanisms and the interplay between these factors (Nielsen & Einarsen, 2018). Hence, the internal relationships and chain of events between these risk factors have hardly been addressed in empirical studies (see Zahlquist et al., 2019; Ågotnes et al., 2018; Ågotnes et al., 2023, as notable exceptions).

An organizational psychosocial deficiency that has received much attention in regard to workplace bullying is role stress (Einarsen et al., 1994; Nielsen & Einarsen, 2018) in the form of role ambiguity or role conflict (Kahn et al., 1964). In the present study we investigated role ambiguity, which may be considered the most fundamental role stressor, or probably preceding role conflict (Ågotnes et al., 2023). Role ambiguity may be defined as a lack of, or unclear, information about responsibilities and demands connected to one's work role which may lead to unclear or conflicting expectations (Beehr, 1995). In this respect it can be seen as a social stressor (Bowling & Beehr, 2006), which may further create a negative effect in a work group as ambiguity makes it unclear what to expect from each other as well as how to behave and act in a proper way as seen by other organisation members (Boalt Boëthius, 2019; Kahn et al., 1964).

In a meta-analysis Van den Brande et al. (2016) found 21 studies in which role stress was associated with workplace bullying. However, most studies were cross-sectional, yet with some emerging evidence of a causal link (Salin & Hoel, 2020). For example, in a two-year study with two waves and 2835 employees, Reknes et al. (2014) found an association between role stress and subsequent workplace bullying employing a true prospective design looking at new cases of bullying only at follow up. The study provided important support of the notion of a causal link between role stress and subsequent exposure to bullying behaviours in that bullying seems to thrive when employees have experienced contradictory and unclear expectations and demands (Salin & Hoel, 2020).

There have, however, been few longitudinal studies of role stress. In the overview by Van den Brande et al. (2016) only three longitudinal studies were mentioned. Together with the studies referred to above by Reknes et al. (2014) and Ågotnes et al. (2023), of the five longitudinal studies known to us, three had a one-year time lag and two had a

two-year time lag. In the present study, we tested an almost four-year time lag (41 to 45 months) to investigate the long-term effects of role ambiguity. Hence, we propose the following hypothesis:

**Hypothesis 1.** *Role ambiguity is a long-term predictor of subsequent exposure to bullying behaviours in the workplace.*

We now turn to the question of *how* role ambiguity may be related to exposure to bullying behaviours, that is, the mechanisms involved within the work environment hypothesis. There is, to our knowledge, only one study that has investigated possible mediators for the association between role ambiguity and exposure to bullying behaviours—the recently published study by Ågotnes et al. (2023). They presented results that indicate that role ambiguity give rise to subsequent role conflicts which then is associated with exposure to workplace bullying making it more clear how different kinds of role stress are related to each other. There may, however, also be reasons to look into other possible mechanisms, outside the concepts of role stress, also as there may be circular relationships between the two. For example, in a qualitative study Baillien et al. (2009) proposed that such work stressors may lead to frustration and loss of energy increasing the general risk of irritation, aggressiveness, and increased vulnerability, that is, a risk of a developing toxic, hostile working climate. Hence, we propose that the work-related stressors described in the work-environment hypothesis may have its impact by creating a hostile work climate, at least as perceived by the focal targeted person.

### 2.2. Hostile work climate

Affective work climates, also called affective organizational climates or in short *work climates*, have been studied for more than 50 years as important influences in organizations (Jones and Lawrence, 1979; Kuenzi & Schminke, 2009). Work climates can be studied either as an organizational overall climate or as facet-specific climates associated with particular aspects of the work environment, such as safety climate (Zohar, 2000), climate for innovation and creativity (Pirola-Merlo & Mann, 2004), and psychosocial safety climate (Dollard & Bakker, 2010; Hu et al., 2022). A range of studies have established these and other work climates as predictors, mediators, or moderators that, for example, influence performance, turnover, safety, and health among employees (for a review, see Dollard & Bakker, 2010; Kuenzi & Schminke, 2009). A work climate is defined as a set of shared perceptions, for example, regarding the policies, practices, and procedures that an organization rewards, supports, and expects (Kuenzi & Schminke, 2009; Schneider & Reichers, 1983), or as perception of behaviours, values, and emotions typical for a given working group (De Rivera, 1992), establishing climate as a perceptual phenomenon, rather than an objective characteristic of an organization (Schneider & Reichers, 1983). A work climate can be clearly sensed and is related to underlying structures (De Rivera, 1992), which, for example, may include role characteristics such as variety, challenge, job pressures, and role ambiguity (Jones and Lawrence, 1979). Work climates account for a substantial variance in work attitudes and behaviours (De Rivera, 1992; Tse et al., 2008). When work climates are investigated, measures are often aggregated into group or organizational constructs but may also be treated as individual perceptual constructs, as is the case in the present study investigating mediating mechanisms on the individual level. The latter may be denoted psychological climate and reflects individual perceptions of the organization of the immediate social working environment (James & James, 1989; Kuenzi & Schminke, 2009; Parker et al., 2003). Regardless of whether the climate is investigated on an individual or group level, the aim is to examine individuals' subjective perceptions of their own work environment and how these perceptions influence their behaviours and reactions (Schneider, 2000).

The work environment hypothesis specifies a particular kind of work climate important for the development of workplace bullying, denoting it a hostile working climate. This specific work climate has received

more recent attention also in relation to abusive supervision, a concept close related to the concept of workplace bullying (Mawritz et al., 2014; Mawritz et al., 2012). In work groups with a hostile climate, group members tend to be aggressive and untrusting which creates a social context that encourage deviant behaviours (Mawritz et al., 2012). Zahlquist et al. (2023) investigated the cross-sectional association between role conflict and exposure to bullying behaviours and found a stronger association at departments with high levels of a hostile work climate. Rosander and Salin (2023) showed a longitudinal association between a hostile work climate and exposure to bullying. They also showed that the association was reciprocal, that is, that there also is a reversed effect where occurrence of bullying over time contributes to a more hostile work climate. Antecedents of a hostile work climate can be decisions, structures, or procedures creating conditions where it is difficult or even impossible to know how one is expected to behave and perform work duties, laying the ground for disappointments and interpersonal tensions (De Rivera, 1992). However, to understand how a hostile work climate may influence employees, we turn to social learning theory (Bandura, 1977), and the theory of social information processing (Salancik & Pfeffer, 1978).

According to both social learning theory and the theory of social information processing, human behaviour is shaped through modelling which produce learning through an informative function which serves as a guide of appropriate actions (Bandura, 1977; Salancik & Pfeffer, 1978). In this learning process, people attend to and perceive how others, who they regularly are associated with in their social context, consistently behave (Salancik & Pfeffer, 1978). According to the theory of social information processing, an individual's behaviour is shaped through this attentional process where cues and events in the social environment are interpreted as expectations of individual behaviours (Salancik & Pfeffer, 1978). As pointed out by social learning theory, by repeating and performing modelled response patterns the behaviours are remembered as guides of performance, especially if the consequences do not have punishing or unrewarding effects (Bandura, 1977). Based on these theories, we argue that role ambiguity in the organization may lead to a perceived hostile work climate through social learning processes. Unclear situations at work may create tensions (De Rivera, 1992) and heighten the risks of irritation, frustration, and aggressive outlets for all involved (Baillien et al., 2009). As a result, behavioural cues of deviant and aggressive behaviours may become more salient (Bandura, 1977; Salancik & Pfeffer, 1978). Following this, a perceived hostile work climate may increase the risk of workplace bullying through frustration and escalating aggression as well as by increasing the vulnerability and the insecurity of the target to be (Baillien et al., 2009). According to the work environment hypothesis, perceived hostile working climate will also reduce the chances of social support and empathy for the targeted employee. Hence, bystanders may not recognize and intervene, nor may they sympathize with those targeted by bullying behaviours. Thus, based on social learning theory and the theory of social information processing and the theorizing of the work environment hypothesis, we propose that role ambiguity may be an antecedent to a hostile work climate, which, in turn, may increase the risk of reports of being exposed to acts of workplace bullying.

**Hypothesis 2.** *A perceived hostile work climate is a mediator for the long-term association between role ambiguity and exposure to bullying behaviours.*

### 2.3. Supportive leadership

Finally, we turn to the question of *when* this hypothesised long-term risk of role ambiguity leading to exposure to bullying behaviours, mediated by a perceived hostile work climate, may occur, or rather be prevented. According to the work environment hypothesis, it is the combination of psychosocial work-related problems (e.g., role stressors and a hostile work climate) combined with deficiencies in management practices that trigger episodes of workplace bullying. Yet, few studies

have investigated moderators that may buffer the association between antecedents and workplace bullying (Nielsen & Einarsen, 2018; Rai & Agarwal, 2018). The moderators related to management and leadership practices that have been studied in these respects are, for example, psychosocial safety climate (Hamre et al., 2023), conflict management climate (Zahlquist et al., 2019) and laissez-fair and/or transformational leadership (e.g., Ågotnes et al., 2023). In the present study, we investigated to what extent perceived supportive leadership moderates and buffers the hypothesised mediated association between role ambiguity and exposure to bullying behaviours, hence searching for important factors that may hinder bullying. As already noted, the moderating effect of a supportive leadership has been studied before (e.g., Blomberg & Rosander, 2020, 2022) but not in relation to such work-related antecedents of workplace bullying.

In general, social support may have a protective effect in many situations in working life and elsewhere. The job-demand-control-support model (Karasek & Theorell, 1990) has been tested in studies for 30 years establishing social support as an important protective factor when facing stressful situations. Social support may take various forms (see e.g., Cohen, 2004; Schat & Kelloway, 2003; Thoits, 1982), such as (a) emotional support through trusting and empathic behaviours, (b) instrumental support through hands-on and practical help, (c) informal support through advice and guidance, and (d) valuing and appreciative support through feedback and evaluative information. Social support may also be provided through different sources, such as co-workers, supervisors, the work organization, and friends and family (Foster, 2012).

Studies have shown that social support from such different sources have protective effects on health outcomes associated with workplace bullying (e.g., Blomberg & Rosander, 2020; Nielsen, Christensen, et al., 2020). Leadership support has in particular been shown to protect against health risks (Gardner et al., 2013) and early retirement (Clausen et al., 2019) from bullying exposure as well as to strengthen employees' control and influence which in turn may reduce the risk of exposure to bullying behaviours (Goodboy et al., 2017). It has also been shown that the risk associated with poor health and the subsequent exposure to bullying behaviours may be completely buffered by the perception of a supportive leadership style in one's immediate supervisor (Blomberg & Rosander, 2022).

Theoretically, supportive leadership is a specific facet included in the broader leadership model transformational leadership (Bass, 1985; Carless et al., 2000), with an overlap with what is called compassionate leadership (Gilbert & Basran, 2019). It is also a part of the broad meta-category of relation-oriented leadership (Cao et al., 2023). In practical terms, a supportive leadership style reflects a supervisor who provides both emotional, instrumental, informal, as well as valued and appreciative support, but with most weight on the emotional dimension (House, 1981), providing care, listening, and understanding. In the present study, we use the term supportive leadership to reflect emotional support from a leader with a focus on listening, caring, and creating trust and confidence.

A supportive leader may be effective in these respects in many ways as described above, also acting as a constructive role model in the working environment as proposed by both social learning theory (Bandura, 1977) and the theory of social information processing (Salancik & Pfeffer, 1978). As a role model, the behaviours and actions of a leader inform and model appropriate actions that group members may attend to and learn from (Bandura, 1977; Salancik & Pfeffer, 1978). Thus, supportive leadership may include actions and interventions that provide salient cues and events in the social environment that can be interpreted as expectations and inspirations of civil and ethical behaviours (Hattke & Hattke, 2019). Such actions could be interventions that provide understanding of personal needs (Avolio & Bass, 1999), trust and acceptance (Baumeister & Leary, 1995), a conflict management climate (Einarsen et al., 2016) which may lower the risk of escalating interpersonal tension, frustration, and conflicts on an individual or

dyadic level (Tse et al., 2008). Altogether, a supportive supervisor may through such actions and interventions provide a safe environment where employees may voice their concerns and frustrations. Such actions and interventions may itself mitigate the risk of bullying in a perceived hostile work climate growing out of an organizational structure of ambiguous roles, and also serve as salient cues of expected ethical behaviours, that is, acting as a constructive role model preventing the development of a perceived hostile climate.

**Hypothesis 3.** *A perceived supportive leadership moderates the indirect effect of role ambiguity through a hostile work climate on exposure to bullying behaviours (a moderated mediation).*

3. Methods

3.1. Study design and sample

In this three-wave study starting in 2015 and ending 2020, the participants belong to three cohorts: a governmental institution ( $n = 754$ ), a municipality ( $n = 205$ ), and a private company ( $n = 75$ ). The waves started at different times for the three cohorts, between March 2015 and April 2017. The time span between wave 1 and 2 was 18–22 months, and between wave 2 and 3 it was 22–25 months. Between wave 1 and wave 3 the time span was 41–45 months (see Table 1). A web-based work environment survey was used. At the first wave 2911 employees were invited to participate and 1978 responded (68%). The response rate for wave 2 was 71%, and 72% for wave 3. In total, 1034 employees participated at all three waves.

There were 59% women and 41% men participating as respondents. The mean age was 45.7 ( $SD = 9.6$ ). They had worked on average 9.4 years at their current workplace ( $SD = 8.2$ ), and 9% had a managerial position.

The project was approved by The Regional Ethical Review Board at Linköping, Sweden, protocol number: 2014-282-31, and have been performed in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards. All participants gave their informed consent before participating in the study.

3.2. Measures

Exposure to bullying behaviours was measured using the Negative Acts Questionnaire-Revised (NAQ-R; Einarsen, Hoel, & Notelaers, 2009). The NAQ-R is a behavioural experience method covering exposure to bullying behaviours from sporadic incidents to full-fledged, systematic exposure to workplace bullying (e.g., Nielsen, Notelaers, et al., 2020; Rosander & Blomberg, 2019). It consists of 22 items describing different passive or active behaviours that can be part of a bullying process when occurring regularly. We used the Swedish translation of the NAQ-R (Rosander & Blomberg, 2018). For each of the 22 items respondents indicate the frequency of the exposure during the last six months on a scale from 1 (*never*) to 5 (*daily*). In the study we used the sum of the 22 items as the score. High scores on the NAQ-R indicate

systematic exposure to workplace bullying. The internal consistency of the NAQ-R, measured by Cronbach's alpha, was .83 at wave 1 and .88 at wave 3.

We also used two established scales, Roles in the Organization (RIM) and Perceived Supportive Leadership (PSL) taken from the Psychosocial Work Environmental Questionnaire (PSYWEQ; e.g., Blomberg & Rosander, 2020; Nielsen et al., 2021; Rosander, 2021; Rosander & Blomberg, 2018, 2019), which is a questionnaire validated in a Swedish context. Finally, the measure of a Hostile Work Climate (HWC) is a new measure validated by Rosander and Salin (2023). All three scales use a seven-point Likert scale.

The RIM is a measure of role ambiguity. It contains six items covering the level of clarity regarding division of tasks, roles, routines, responsibilities, and role expectations as well as an overall assessment of the orderliness in the organization. An example item is "It is well-known and clear who is responsible for different issues and tasks (i.e., we have clear roles at our workplace)". High scores in this study mean high levels of role ambiguity. The Cronbach's alpha for the RIM was .91 (wave 1).

The PSL is a measure of a perceived supportive leadership style in one's immediate supervisor. It contains ten items covering different aspects of trust and confidence in one's immediate supervisor, mainly focusing on areas such as trust, getting help or support, and feeling safe. An example item is "I trust the supervisor". High scores on the PSL indicates a perceived supportive leadership. The Cronbach's alpha for the PSL was .96 (wave 1) and .97 (wave 2).

The HWC is a measure of the perceived affective climate at the workplace. It contains five items: (a) "There are ongoing conflicts that negatively affect our business", (b) "There are co-workers who are treated badly at our workplace", (c) "My workplace is characterized by suspicion, conflicts, misunderstandings, and rudeness", (d) "At our workplace, the atmosphere is good", and (e) "I feel safe at my workplace". Item d and e were reversed, so high scores on the HWC indicate a hostile work climate. The Cronbach's alpha for the HWC was .82 (wave 2). Rosander and Salin (2023) showed that the HWC is a distinct measure in relation to measures of bullying.

In the analysis, we used sex and age as covariates as both may have an effect on bullying (Zapf et al., 2020). We also tested managerial position as a covariate, but as it had no effect on the results it was not used in the further analyses. We adjusted for NAQ-R at wave 1, hence predicting increased exposure over time. All measures and their Cronbach's alphas are presented in Table 2.

3.3. Statistical Analysis

We used IBM SPSS 27 for Mac for the analyses. For the first hypothesis, we used linear regression with standardized effects ( $\beta$ ). To investigate the second and third hypotheses, we used the PROCESS macro 3.5 (Hayes, 2018) based on ordinary least squares regression analysis. A bootstrap method with 5 000 samples was used to create confidence intervals for all the included measures. Bootstrapping is a statistical procedure that allows estimates even when the underlying distribution is unknown (Hayes, 2018). Hence, bootstrapping is useful as an alternative to parametric estimates when the assumptions of those methods are violated.

3.4. Sensitivity analysis

We also conducted sensitivity analyses to test the robustness of the results. For the first analysis we excluded 17 participants that indicted that they were bullied by a supervisor at wave 2. We had no follow-up question of who the perpetrators were in connection to the NAQ-R as the scale is a measure of the overall exposure from many sources that may face the given respondent. However, in the work environment survey we also measured self-labelled bullying which had a follow-up question where the participants could indicate if they were bullied by a supervisor. Self-labelled bullying was measured using a definition of

**Table 1**  
Participants in the study.

Organization	Wave 1	Wave 2	Wave 3	<i>n</i>
Governmental institution	March 2015	Nov. 2016	Sep. – Oct. 2018	754
Municipality	June – Sep. 2016	March – April 2018	March – April 2020	205
Private company	April – May 2017	Oct. 2018	Nov. 2020	75
All three cohorts	Baseline	+ 18 to 22 months	+ 22 to 25 months	1034

Note. From baseline to Wave 3: 41 to 45 months.



**Table 2**

Means, standard deviations, intercorrelations, and Cronbach's alpha for measures in the study.

	$\alpha$	Mean	SD	1	2	3	4	5	6	7	8
1 Sex	–	–	–								
2 Age		45.70	9.58	.00							
3 NAQ-R (W1)	.83	25.36	4.66	-.05	-.05						
4 RIM (W1)	.91	2.93	1.33	-.04	-.06	.41 **					
5 HWC (W2)	.82	2.26	1.20	-.03	-.02	.35 **	.38 **				
6 PSL (W1)	.96	5.67	1.31	.01	-.06 *	-.44 **	-.56 **	-.34 **			
7 PSL (W2)	.97	5.70	1.37	-.01	-.06 *	-.30 **	-.36 **	-.50 **	.52 **		
8 AL (W2)	.93	5.41	1.48	.01	-.02	-.29 **	-.39 **	-.48 **	.46 **	.86 **	
9 NAQ-R (W3)	.88	25.42	5.44	-.07 *	-.07	.52 **	.29 **	.34 **	-.27 **	-.31 **	-.29 **

Note. NAQ-R = Negative Acts Questionnaire-Revised; RIM = Roles in the Organization; HWC = Hostile Work Climate; PSL = Perceived Supportive Leadership; AL = Active Leadership; W = Wave.

\*  $p < .05$ . \*\*  $p < .001$ .

workplace bullying and followed by a single-item question about exposure: "Have you been exposed to bullying during the past six months?", with the same 5-point response scale as the NAQ-R. The definition was:

Bullying occurs when a person, repeatedly and over time, is subjected to negative treatment from one or more people, in situations where the victim has difficulty defending oneself. It is not bullying if two equally strong people are in a conflict with each other.

The reason for this exclusion was that perceived bullying from a supervisor may influence the hypothesised buffering effect of supportive leadership on bullying, that is, employees bullied by their supervisors would most likely rate the supportive leadership very low possibly inflating the effects found. By excluding such potential cases, the robustness of the findings could be analysed.

In a second sensitivity analysis, we controlled for active leadership at wave 2 using an inverted measure of laissez-faire leadership called Active Leadership (AL). The reason for using the AL as a control was that a passive, avoidant, and absent leadership has been described as a predictor of workplace bullying (Skogstad et al., 2007) and has been shown to act as a moderator in prospective studies of the relationship between interpersonal conflicts and later victimization from workplace bullying (Ågotnes et al., 2018). Being active and present is not the same as being supportive as there are also forms of leadership that are active destructive (e.g., Aasland et al., 2009; Lundmark et al., 2021). To pinpoint the supportive leadership dimension, we therefore adjusted for the active-passive leadership dimension. The AL is based on four items covering leadership activity. The questions concern to what extent a supervisor is good at making decisions, responds quickly, grasps what is important, and if the supervisor is available (the first four items in the scale Active and Constructive Leadership; ACL; Rosander & Blomberg, 2018). Cronbach's alpha for the AL was .93.

In a third sensitivity analysis we combined the first two analyses. We excluded the 17 participants that had indicated that they were bullied by a supervisor at wave 2 and also adjusted for active leadership at wave 2.

#### 4. Results

In Table 2 descriptive statistics, intercorrelations, and Cronbach's alphas for all measures used in the study are presented. Sex (59% women) is a categorical variable.

Role ambiguity at wave 1 was associated with bullying behaviours at wave 3 ( $r = .29, p < .001$ ) as well as with a hostile work climate at wave 2 ( $r = .38, p < .001$ ). A hostile work climate at wave 2 was associated with exposure to bullying behaviours at wave 3 ( $r = .34, p < .001$ ) and supportive leadership was negatively associated with exposure to bullying behaviours at wave 3 (wave 1:  $r = -.27, p < .001$ ; wave 2:  $r = -.31, p < .001$ ) as well as with a hostile work climate at wave 2 (wave 1:  $r = -.34, p < .001$ ; wave 2:  $r = -.50, p < .001$ ).

To test the first hypothesis, that role ambiguity is a predictor of

exposure to bullying behaviours 41–45 months later, a linear regression analysis was conducted. Adjusting for sex, age, and exposure to bullying behaviours at wave 1 the results showed that role ambiguity at wave 1 was a significant predictor of exposure to bullying behaviours at wave 3,  $\beta = 0.09, p = .002$  (see Table 3). Hypothesis 1 was supported.

To test Hypothesis 2, that the effect of role ambiguity on bullying is mediated by a perceived hostile work climate, we used a mediation model (model 4 in the PROCESS macro, Hayes, 2018). The result showed that the association between role ambiguity at wave 1 and exposure to bullying behaviours at wave 3 was mediated by a hostile work climate,  $\beta = 0.05, 95\% \text{ CI } [0.02, 0.08]$ , while the direct effect was non-significant,  $\beta = 0.04, p = .145$  (see Fig. 1). The explained variance of bullying behaviours at wave 3 was 28%. Hypothesis 2 was supported.

To investigate Hypothesis 3, that perceived supportive leadership moderates the indirect effect of role ambiguity through a hostile work climate on exposure to bullying behaviours, we tested two models. First, a model in which supportive leadership at wave 1 was added as a moderator for the association between role ambiguity and a hostile work climate, and at wave 2 as moderator for the association between a hostile work climate and subsequent exposure to bullying behaviours (model 21 in the PROCESS macro, Hayes, 2018), that is, a moderated mediation analysis with two moderators. Controlling for sex, age, and exposure to bullying behaviours at wave 1, the result showed that the interaction between a hostile work climate and supportive leadership at wave 2 was significant,  $b = 0.34, p < .001$ , but not the interaction between role ambiguity and supportive leadership at wave 1,  $b = 0.01, p = .499$ . Thus, in a second analysis testing Hypothesis 3, supportive leadership as a moderator for the association between role ambiguity and a hostile work climate was omitted. We used model 14 in the PROCESS macro (Hayes, 2018) testing a moderated mediation with supportive leadership as a moderator only of the association between a hostile work climate and subsequent exposure to bullying behaviours. The result showed a full mediation of the effect between role ambiguity and bullying, and that the association between a hostile work climate and bullying was dependent on the level of supportive leadership (see Table 4 and Fig. 2). The index of moderated mediation for the whole model was significant,  $b = -0.09, 95\% \text{ CI } [-0.17, -0.02]$ , that is, there was a conditional indirect effect of role ambiguity at wave 1 through a

**Table 3**

Linear regression with ambiguous roles at wave 1 predicting exposure to bullying behaviours at wave 3, adjusting for sex, age, and workplace bullying at wave 1.

	B	95% CI	SE B	$\beta$	p
RIM (Wave 1)	0.37	0.14; 0.60	0.12	0.09	$p = .002$
Sex	-0.44	-1.02; 0.14	0.29	-0.04	$p = .137$
Age	-0.02	-0.05; 0.00	0.02	-0.04	$p = .104$
NAQ-R (Wave 1)	0.55	0.49; 0.62	0.03	0.47	$p < .001$

Note. RIM = Roles in the Organization; NAQ-R = Negative Acts Questionnaire-Revised.

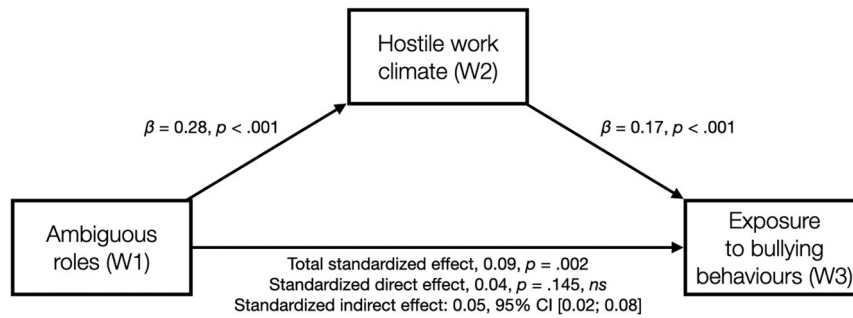


Fig. 1. A mediation model of perceived hostile work climate mediating the association between role ambiguity and exposure to bullying behaviours.

Table 4

A moderated mediation model of the moderating effect by perceived supportive leadership at wave 2 on the effect of ambiguous roles at wave 1, mediated by a hostile work climate at wave 2, on exposure to bullying behaviours at wave 3, adjusted for sex, age, and exposure to bullying behaviours at wave 1.

	<i>B</i>	<i>b</i> [95% CI]	<i>SE B</i>	<i>p</i>
RIM (Wave 1)	0.12	-0.12; 0.36	0.12	$p = .343, ns$
HWC (Wave 2)	0.36	0.07; 0.65	0.15	$p = .014$
PSL (Wave 2)	-0.25	-0.50; 0.01	0.13	$p = .057, ns$
HWC*PSL	-0.34	-0.47; -0.21	0.07	$p < .001$
Sex	-0.47	-1.03; 0.08	0.28	$p = .096, ns$
Age	-0.03	-0.06; -0.00	0.01	$p = .030$
NAQ-R (Wave 1)	0.49	0.43; 0.56	0.03	$p < .001$

Note. RIM = Roles in the Organization; HWC = Hostile Work Climate, PSL = Perceived Supportive Leadership, NAQ-R = Negative Acts Questionnaire-Revised. The HWC and the PSL were mean centred prior to analysis. ns = not significant.

hostile work climate at wave 2 on exposure to bullying behaviours at wave 3. The indirect effect was dependent on the level of perceived supportive leadership at wave 2. At the 16th percentile of perceived supportive leadership, the indirect effect was significant,  $b = 0.20$ , CI [0.08, 0.35]. A Johnson-Neyman test of significant regions (Hayes, 2018) showed that for a hostile work climate, the association with exposure to bullying behaviours was significant below the 42nd percentile. For values above that, the association was not significant meaning that supportive leadership buffered the effect. The interaction between hostile work climate and supportive leadership,  $b = -0.34$ ,  $p < .001$ , is shown in Fig. 3. The explained variance of exposure to bullying behaviours at wave 3 was 33% and the interaction increased the explained variance with 2%,  $F(1, 1022) = 26.26$ ,  $p < .001$ . Hypothesis 3 was supported.

#### 4.1. Sensitivity Analyses

We conducted three sensitivity analyses. First, we investigated if removing cases where the supervisor may have been the bully would change the outcome. Second, we controlled for the active-passive dimension of leadership to see if the results remained the same. Finally, we tested both together. In the first analysis we used the same moderated mediation model that was used for Hypothesis 3 (model 14 in the PROCESS macro, Hayes, 2018). The results were replicated but were a little weaker which was expected as we had excluded 17 bullied employees in this analysis. In the second analysis we used Active Leadership (AL) as a control at wave 2 still using the same model as above. There was a very strong correlation between supportive leadership and active leadership ( $r = .86$ ). A strong correlation was expected as a highly supportive leadership may be perceived as active, and vice versa. But the correlation was somewhat stronger than expected leaving only about 26% variance when using active leadership as control. To test for potential error variance inflation a multicollinearity test showed that VIF was 4.07 for the PSL and 3.97 for the AL indicating that multicollinearity was not a specific problem in the sensitivity analysis (James et al., 2021). The results were replicated. Neither active leadership nor supportive leadership had any direct effect on bullying behaviours. Finally, we combined the two sensitivity analyses. The analysis turned out the same. All significant findings were replicated.

For details of the results of the sensitivity analyses, contact the first author.

#### 5. Discussion

The present study focused on the long-term risk of role ambiguity as an antecedent for later exposure to bullying behaviours at work and a mechanism of *when* and *how* this risk may be present, that is, a mediation via a hostile work climate and a moderation by perceived supportive leadership. We tested three hypotheses, all receiving support. First, role

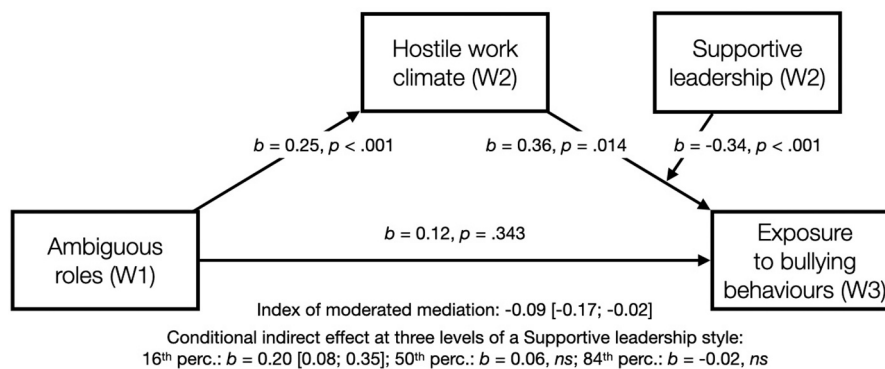


Fig. 2. A moderated mediation model of supportive leadership moderating the indirect association between role ambiguity and exposure to bullying behaviours, through hostile work climate.

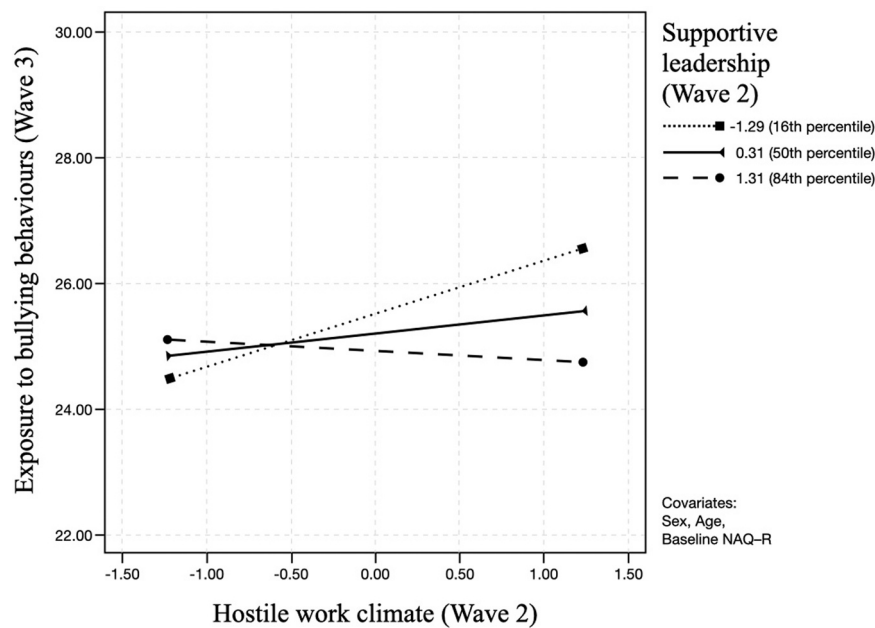


Fig. 3. The interaction between a hostile work environment and supportive leadership.

ambiguity predicted exposure to bullying behaviours 41–45 months later (Hypothesis 1). The effect of role ambiguity on exposure to bullying was mediated by a perceived hostile work climate (Hypothesis 2). The observed mediation effect was however moderated by supportive leadership showing that supportive leadership could buffer the effect of role ambiguity on bullying, through a hostile work climate (Hypothesis 3), in which the relationship between hostile climate and later exposure to bullying was dependent on the level of supportive leadership. These are novel findings with important applied as well as theoretical implications. Neither the long-term effect of role ambiguity, the mechanism of a hostile work climate, nor the conditional effect of a supportive leadership have, to our knowledge, been documented before.

Previous research has, however, indicated a causal link between work stressors, such as role ambiguity, and exposure to workplace bullying (e.g., Reknes et al., 2014; Salin & Hoel, 2020; Van den Brande et al., 2016). However, few studies have been longitudinal, and no study has had a longer time lag than two years. The present study had a time lag of 41 to 45 months, indicating that the negative effect of role ambiguity lingers for several years, that is, role ambiguity seems to have a long-term negative effect on the working environment. So, even if the negative effect in our study is not particularly strong, it is still significant after almost four years. A possible explanation of why the negative effect of role ambiguity is significant after such a long time may be that role ambiguity could be an ongoing organizational condition that tends to become stable unless it is actively resolved (Lewin, 1947). In that way, role ambiguity would be a continuous structural risk factor in the organisation with, for example, negative influences on the social life in the organization. Furthermore, our study also shows that the long term relationship is due to a mediation process via hostile work climate which, according to Rosander and Salin (2023), also may lead to a vicious circle between hostile work climate and workplace bullying.

Regardless of why there is such a long-term association between role ambiguity and exposure to bullying behaviours, the result underscores the importance of clear information and expectations in regard of work-related roles in the organization (Beehr, 1995; Boalt Boëthius, 2019; Kahn et al., 1964). The result also give further support for the work environment hypothesis (Einarsen et al., 1994; Leymann, 1996) that states that bullying is associated with different kinds of deficiencies in the organization, and earlier work focusing on role stressors in this respect (Einarsen et al., 1994; Hauge et al., 2007; Nielsen & Einarsen,

2018). The result is also in line with the recent findings of Ågotnes et al. (2023) that role ambiguity is a fundamental and distal part of the different kinds of role stress.

To understand the mechanism of how role ambiguity may lead to subsequent exposure to bullying via a perceived hostile work climate, social learning theory (Bandura, 1977) and the theory of social information processing (Salancik & Pfeffer, 1978) provided important input which led to Hypothesis 2. A work environment where employees do not know what is expected of them, where there is a lack of, or contradictory, information about responsibilities, obligations, and mandates, may give rise to a social environment full of events and behavioural cues characterized by disappointments, irritations, frustrations, tensions, and aggressive outlets (Baillien et al., 2009; Bandura, 1977; De Rivera, 1992; Jones and Lawrence, 1979). Such a social environment may shape individual behaviours and perceptions through an attentional process (Salancik & Pfeffer, 1978) where the negative behavioural cues are interpreted as expected individual behaviours (Bandura, 1977). This may result in increased role stress in form of role conflicts (Ågotnes et al., 2023) but also in a real or perceived general hostile work climate characterized by consistent acrimonious, antagonistic, and suspicious feelings within the work group (Mawritz et al., 2014; Mawritz et al., 2012), especially if deviant and aggressive behaviours are repeated with no punishing or unrewarding effects (Bandura, 1977). In such a social work environment there may be a lack of inhibiting norms (Salancik & Pfeffer, 1978) in association with frustration and aggressiveness making exposure to bullying behaviours more likely (Baillien et al., 2009). It has also been shown that antisocial behaviours at work may be shaped by co-workers (Robinson & O'Leary-Kelly, 1998) in line with social learning theory (Bandura, 1977) and underscoring the potential of a hostile work climate turning into bullying. Finally, in such a climate there may be a lack of awareness of when actions are “over the line” as bystanders and perpetrators already are customized and desensitised to negative interpersonal behaviours in the immediate working environment.

Finally, our results showed that perceived supportive leadership acted as a buffer for the negative effect of role ambiguity through a hostile work climate on exposure of bullying behaviours. The negative effect was only present when the supportive leadership was low. When the level of supportive leadership was moderate or high, the risk of bullying disappeared altogether. Firstly, this may theoretically be

understood using the concept of role models from the social learning theory (Bandura, 1977). A leader is important in defining what values and behaviours that are legitimate (Shamir, House, & Arthur, 1993). How a leader acts and behaves serves as salient cues to which employees attend (Salancik & Pfeffer, 1978) which means that the way leadership is performed inform and model appropriate actions that group members may learn from (Bandura, 1977). A supportive leadership style of one's immediate supervisor may in this way be interpreted as expectations and inspirations of civil and ethical behaviours (Hattke & Hattke, 2019) which also would make it a part of the meta-category of ethical or moral-oriented leadership and not only of relationship-oriented leadership (Cao et al., 2023). If the level of supportive leadership instead is low and characterized by no listening, emotional distance, and mistrust, that may itself model and inform the employees that aggressive, deviant, and unethical behaviours are legitimate (Bandura, 1977; Salancik & Pfeffer, 1978).

However, in terms of exposure to bullying behaviours, the moderating effect of supportive leadership was interacting with a hostile work climate as a predictor of exposure to bullying behaviours, and not with role ambiguity as a predictor of a hostile work climate. Thus, it seems that the moderating effect mainly is of a social and not of a structural character. That is, the way supportive leadership moderates the mediated association between role ambiguity and exposure to bullying behaviours is not in compensating for flaws in the organizational structure (role ambiguity) but rather by influencing the risk of a hostile climate of working groups escalating into more severe cases of bullying. This implicates that the effect of supportive leadership may be of more than just a role model by leader actions and interventions that hinder a hostile work climate to escalate. Such interventions could be providing a safe environment of trust (Baumeister & Leary, 1995), understanding (Avolio & Bass, 1999), and constructive conflict management (Einarsen et al., 2016) that makes it possible for employees to voice their frustrations and concerns and thus lower the interpersonal tensions (Tse et al., 2008). This may also increase the employees' coping resources when facing frustrating work conditions (Lazarus & Folkman, 1984). Such leader interventions may also serve as behavioural learning cues and enhance the function of the supportive leader as a role model (Bandura, 1977). The interventions may also make clear that unethical behaviours at work are not legitimate (Bandura, 1977; Salancik & Pfeffer, 1978). Last but not least, having a supportive leader in an otherwise hostile work climate may create a basic sense of safety and security in which the behaviour of others may be perceived as less hostile and threatening. Yet, it is noteworthy that it is not necessarily highly supportive leaders that may have this effect, as the relationship between a hostile climate and exposure to bullying only existed for low levels of supportive leadership. Hence, a given superior do need not to be highly supportive. Being reasonably supportive and an average leader in this respect seems to suffice.

The argument that there is need of interventions and actions by a supportive leader to counteract the negative effect by a hostile work climate may lead to the question if a supportive leadership style is the opposite of a passive laissez-faire leadership style. However, in the sensitivity analyses we adjusted for the active-passive dimension of leadership and the results were still significant. This means that the perceived supportive leadership was a distinct leadership dimension and not just the opposite of having a passive and laissez-faire leader (Skogstad et al., 2007; Ågotnes et al., 2018).

The present study adds to an increasing knowledge of the importance of supportive leadership in mitigating workplace bullying. For example, Nielsen, Christensen, et al. (2020) examined supportive leadership, together with co-worker and non-work-related social support, and found moderating effects on workplace bullying, mental distress, and sickness absence. In a study by Gardner et al. (2013), leadership support predicted reduced workplace bullying and reduced mental strain, while Clausen et al. (2019) reported that leadership support buffered the association between workplace bullying and disability pensioning.

Supportive leadership has also been reported to buffer the risk of ill health leading to subsequent bullying behaviours (Blomberg & Rosander, 2022).

The findings as well as the discussion are illustrated in Fig. 4.

## 6. Strengths and limitations

The longitudinal design with a time lag of 41–45 months with three waves, is a notable strength of the present study, casting some light on possible causal links, which is important when studying interrelating constructs such as role stress, leadership, bullying, and work climate, and especially so when focusing on mediating effects. Having a rather large and heterogeneous sample including different sectors of working life is also a strength. However, it is not a representative sample, and it is only performed in a Swedish context. Another strength is the performed sensitivity analysis where 17 participants that indicated that they were bullied by their supervisor were excluded. In that analysis all findings were still significant which indicate robust finds.

There are however also some further limitations that must be addressed. First, we did not assess a hostile work climate on an aggregated group level. Conceptually, work climates are usually described as group phenomena as they are about shared perceptions of the actual work climate (Kuenzi & Schminke, 2009). In the present study, however, we could not aggregate the individual answers to a group level as the administrative codes we had access to did not provide information on actual work groups in all cases. On the other hand, treating climate as a mediator between individual level role ambiguity and individual reports of exposure to bullying, implies of course an individual level mediator, in our case the perceived hostile climate. Therefore, all data were analysed on an individual level. This is not, however, unusual when investigating work climates (Kuenzi & Schminke, 2009) but means that, in the present study, the investigated hostile work climate is of an individual psychological character rather than an aggregated group phenomenon.

Common method bias (Donaldson & Grant-Vallone, 2002) is a risk in studies employing data from self-report questionnaires. This has, however, been argued being less of a problem than has often been assumed (Spector, 2006). In the present study, the respondents answered the questionnaires in a familiar context of recurring work environment assessments in their workplace. The situational pressure to submit socially desirable answers were therefore low (Donaldson & Grant-Vallone, 2002). Furthermore, we used a longitudinal design with three data collection points over an almost four-year period which may alleviate somewhat the risk of common method variance (Podsakoff et al., 2003).

Finally, the correlation between a hostile work climate and supportive leadership was  $-.50$ . It has been argued (e.g., Iacobucci et al., 2016) that the moderator and the predictor should be uncorrelated as high correlations may cause problems with multicollinearity and high variance inflation factor. However, this view has been strongly refuted with arguments that multicollinearity is completely irrelevant for tests of moderator variables (McClelland et al., 2017).

## 7. Conclusions and practical implications

In the present longitudinal three-wave study, we showed that role ambiguity is an indirect long-term risk factor for subsequent exposure to bullying behaviours, working through a perceived hostile work climate. As such our finding provides support for the work environment hypothesis. The negative effect is, however, only present when the perceived level of supportive leadership is low, again a finding in support of the important role of leadership put forward by the work environment hypothesis. These findings clarify both the mechanism of *when* and *how* role ambiguity may be a risk factor of exposure to bullying behaviours. Hence, the results underscore the importance of clear expectations and demands as role ambiguity may create social stress with tensions and frustrations as outcome. Such social stress can theoretically



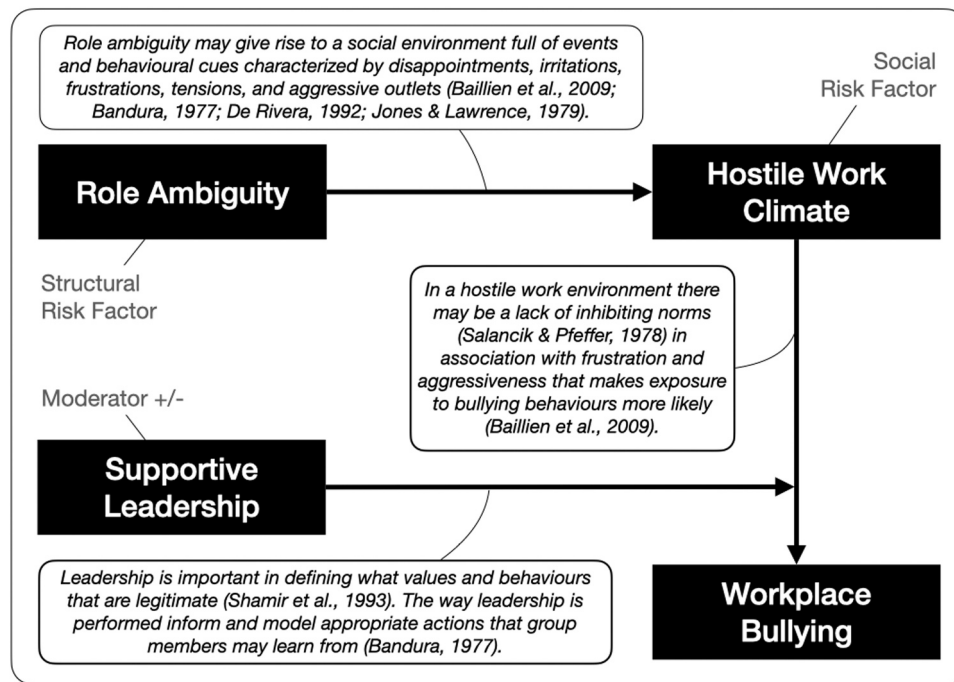


Fig. 4. An illustration of the findings and the discussion.

give rise to aggressive and untrusting behavioural cues in the work group that legitimise a hostile work climate which in turn may escalate into bullying. However, the study also showed the importance of supportive leadership as a buffer against the risk of a hostile work climate in relation to any subsequent exposure to workplace bullying. Thus, the importance of supportive leadership is underscored as it may both serve as a role model for ethical behaviours at work and providing interventions and support in ways that hinder a hostile work climate to escalate into bullying. The effect of supportive leadership seems primarily to be social, not to compensate for organizational flaws, that is, role ambiguity. Yet, an average level of supportive leadership seems to make the trick. In practical terms, this means that to really counter the risks of role ambiguity evolving into a hostile work climate and subsequent exposure to bullying behaviours, an organization needs *both* to clarify its work-related roles, manage the risks of a hostile work climate, and foster a supportive leadership style in the organization.

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### CRediT authorship contribution statement

**Stefan Blomberg:** Conceptualization, Methodology, Investigation, Formal analysis, Writing – original draft. **Michael Rosander:** Conceptualization, Investigation, Writing – review & editing, Supervision, Project administration, Funding acquisition. **Ståle Valvatne Einarsen:** Conceptualization, Writing – review & editing.

### Declaration of Competing interest

The authors do not have any financial or other interest in the direct application of the research.

### Data Availability

The data that has been used is confidential.

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