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Workplace Bullying Experience Predicts Same-Day Affective Rumination but Not Next Morning Mood: Results from a Moderated Mediation Analysis Based on a One-Week Daily Diary Study

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Abstract: The link between workplace bullying and impaired employee psychological health is well established. Insights into the role of cognitive processes in reaction to stressful events, as well as personality traits in this relationship, remain scarce. In this study, we investigated moderated mediation models that link workplace bullying with employee well-being and mood. The study employs both cross-sectional and longitudinal methodologies within the same group of employees with workplace bullying experience (n = 59). Results from a cross-sectional survey show that affective rumination fully mediates the link between workplace bullying and employee well-being. Contrarily, findings from a daily diary study indicate that day-to-day variations in bullying experiences do not affect the subsequent morning mood. Thus, workplace bullying primarily acts through affective ruminative thinking rather than having a direct effect, especially on individuals low in neuroticism. These insights contribute to a more comprehensive understanding of the relevance of repetitive cognitive processes and personality traits as mechanisms that link workplace bullying with psychological well-being. Implications include the need for a better understanding of the accumulation processes of persistent ruminative thought and the relevance of stressor pile-up to explain spillover effects into the next day in order to understand long-term health impairment.

Keywords: ecological momentary assessment; harassment; mobbing; mood; neuroticism; work-related cognition

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1. Introduction

Prevalence rates of workplace harassment vary across Europe and internationally. Studies report up to 30% of employees have experienced harassment in the workplace [1–5]. Workplace bullying is a main source of distress in the workplace [6], and its experience is linked to a number of detrimental outcomes for individuals and businesses: victims of bullying report lower job satisfaction [7,8], lower life satisfaction [9,10] and lower well-being [6,7]. Bullying experiences translate into impaired sleep, physiological health complaints [11], and mental illness with symptoms of burnout or suicidal ideation [12]. Meta-analyses underscore the consistency of findings on the detrimental effects of bullying on employee mental health across studies [6,7,13]. As a result, employees report lower work performance and are more likely to call in sick, with economic consequences for companies like reduced productivity and absenteeism [7,14].

Researchers have sought to better understand the relationship between bullying experiences at work and mental health. In particular, occupational health psychology addressed the role of cognition about work-related stressors and identified stress-related rumination as one important link between bullying at work and employee mental health [11,15–17]. The assumption behind this is that perseverative cognitions, such as worry and rumination about work-related stressors, e.g., bullying experiences, keep the stressor cognitively

present even beyond the end of working hours and thus impair employees' ability to switch off and recover from work-related mental efforts [18–20]. With few exceptions [17,21,22], researchers predominantly utilized cross-sectional design to examine the proposed relationships [11,22–24]. In line with recent criticism of cross-sectional approaches to mediation analysis [25], in this study, we unravel the dynamics of workplace bullying and employee psychological health by examining the role of cognitive processes in reaction to bullying exposure (i.e., affective rumination) and personality traits (i.e., neuroticism) by investigating theoretical contributions from both cross-sectional and longitudinal models operationalized from the same group of study participants. In this way, we link assumptions about long-term psychological health outcomes, such as well-being, with short-term fluctuations in related theoretical constructs, such as mood.

1.1. Workplace Bullying and Its Impact on Employee Mood and Well-Being

Bullying can be described as an extreme form of interpersonal conflict with a potentially severe impact on self and outside perceptions [26]. Among adults, bullying most often occurs in verbal and indirect forms and is rarely physical in nature [27]. Such treatment in the work environment is significantly more devastating for victims than all other types of work-related stressors combined, as bullying exposes victims to undue forms of social stress in the workplace [28]. Workplace bullying is defined as situations where individuals persistently and over a period of time perceive themselves as the recipient of mistreatment by supervisors or colleagues in the workplace while struggling to defend themselves against these actions [29]. These critical situations involve behaviors that harass, offend, socially exclude, or detrimentally impact someone's work responsibilities [7] (Acknowledging the use of different terms for describing the same phenomenon, we refer to workplace bullying and mobbing interchangeably in this study).

Employees spend considerable time at work or in activities related to their occupation. Jurisdiction, therefore, mandates that the conditions and the content of work are aligned with maintaining and promoting the health and well-being of employees [30,31]. One of those conditions is the social relationships with co-workers and supervisors in the workplace. Social relationships with colleagues can serve as a resource that helps employees to maintain their well-being. For example, in a recent study on team-level effects on individual recovery, the collegial climate within workgroups was negatively associated with affective rumination about work-related issues [32]. However, if not well developed, social relations at work might as well act as personal stressors [33]. Wherever employees work in teams, in hierarchical relationships, or with colleagues, conflicts occur caused by real or perceived differences in procedures, policies, and interpretations of facts [34]. If these conflicts are not handled or are handled poorly, the flow of communication suffers, and as a result, individuals become hurt, and work performance decreases [35].

In many studies on mental illnesses, workplace bullying provided a link to mood disorders like depression and anxiety [6,13,36,37]. Specifically, on days employees experienced workplace bullying, they reported higher levels of depressed mood [37]. This effect lasted among the victims of the negative acts for the next two days following the exposure [37]. Mood disorders appear to be common short-term strain responses to stressful situations, like workplace bullying. They often occur during the bullying behaviors or as an immediate reaction after the encounter [36]. In addition, short-term fluctuations in mood have been shown to predict psychological health and functioning [38,39], and weekly aggregates of mood measurements provide reliable measures of well-being [40]. Prolonged episodes of depressed mood, i.e., over the course of more than two weeks, characterize a symptom of a major depressive disorder [41]. Thus, workplace bullying experiences manifest long-term psychological health impairments via short-term emotional changes.

1.2. Perseverative Cognition as an Explanatory Mechanism

One theoretical pathway to explain the detrimental health effects of job stressors in work-related stress research is the perseverative cognition hypothesis [18]. Perseverative

cognition refers to repetitive, uncontrollable, and often intrusive thought patterns [18]. Rumination, as one example of perseverative cognition, is a conscious, persistent thought process about an issue even in the absence of a situational need for thoughtful consideration of that issue [42]. Within occupational health psychology, work-related rumination is considered a cognitive process of perseverative work-related re-thinking of problems and issues related to work [43]. The perseverative cognition hypothesis suggests that extended activation, such as through work-related rumination, hinders (psycho)physiological recovery of the individual and consequently poses a threat to the health of employees [18].

Work-related rumination encompasses various facets. Affective rumination, which involves negative, intrusive, pervasive, and recurrent thoughts, is discussed as the one facet of work-related rumination that poses the most detrimental effects on employee mental health [44]. Ruminative thinking is, therefore, a crucial mechanism in explaining the adverse impact of work-related stressors on health outcomes [45]. The negative association between work-related rumination, especially affective rumination, and health problems, such as low mood, is extensively researched [46,47]. On a within-person level, nighttime ruminative thinking was linked to increased negative affect the following morning [48]. Workplace bullying is a main source of distress in the workplace [6].

According to this theoretical pathway, rumination is not the immediate cause of poor health but becomes a threat when it prevents employees from detaching from work and thereby impairs the processes of recovery from work-related effort expenditure. Detaching from work describes the ability of individuals to switch off from work and the absence of work-related perseverative thoughts. When individuals keep ruminating about negative work-related events such as bullying experiences, they are likely to stay engaged in (psycho-)physiological processes that mimic their stress reactions when initially being bullied at work.

1.3. The Role of Neuroticism for Affective Rumination

Individual differences in personality traits are an important predictor for individuals' tendency to engage in perseverative thought, such as affective rumination. Neuroticism is one important trait that is described as a general tendency to experience negative affect [49] and to react with increased negative emotionality when facing stress [50]. Although the strength of the associations varies as a function of the survey design [51], individuals high in neuroticism tend to appraise events as more stressful, react with increased negative affect to even minor stressors, and lean towards maladaptive coping strategies such as worry and rumination [50]. Neuroticism specifically triggers affective components of rumination [52,53]. Likewise, individuals high in rumination are more likely to show neurotic symptoms, like anxiety, depression, and fatigue, compared to low ruminators [43]. Moreover, high levels of neuroticism lead to increased affective rumination and more negative affect, even when accounting for job-related stressors. Notably, Hamesch et al. [54] found that affective rumination mediated the impact of job demands on psychological health outcomes like depression only for individuals low in neuroticism. For studies investigating mediating pathways from workplace bullying to mental health, personality traits like neuroticism and their link to ruminative thinking are therefore crucial. Considering the previous discussion of theoretical pathways linking bullying experiences to ruminative thought and in line with findings on the relevance of personality traits, we, therefore, expect the following moderated association:

H1a: *Affective rumination is positively associated with workplace bullying experiences; this effect is moderated by neuroticism.*

Previous cross-sectional studies suggest that rumination plays a crucial mediating role in the relationship between work-related stressors and psychological health outcomes. Berset et al. [23] investigated the mediating role of perseverative cognition in the relationship between work stressors and impaired sleep. Their results highlight the crucial role

of carrying negative perseverative thoughts about work stressors into private life, which ultimately impede recovery in the evening [23]. I addition, it was shown that negative work rumination also mediated employee insomnia symptoms after experiencing workplace incivility [24]. This study sheds light on the spill-over dynamics of how negative workplace behaviors and rumination impair non-work outcomes, like recovery experiences. Similarly, Rosario-Hernandez et al. [11] found a mediating effect of rumination on the relationship between workplace bullying and sleep well-being. Their study conceptually aligns with the present study's focus on the impact of workplace bullying on employee well-being since they consider both the mediating role of rumination and outcomes of psychological health. In line with these findings, we assume that:

H1b: *Well-being is negatively associated with affective rumination, controlling for workplace bullying experiences.*

H1c: *Affective rumination is a mediator in the relationship between workplace bullying experiences and well-being.*

As an interim summary of the previous findings and hypotheses, we propose the theoretical model depicted in black in Figure 1:

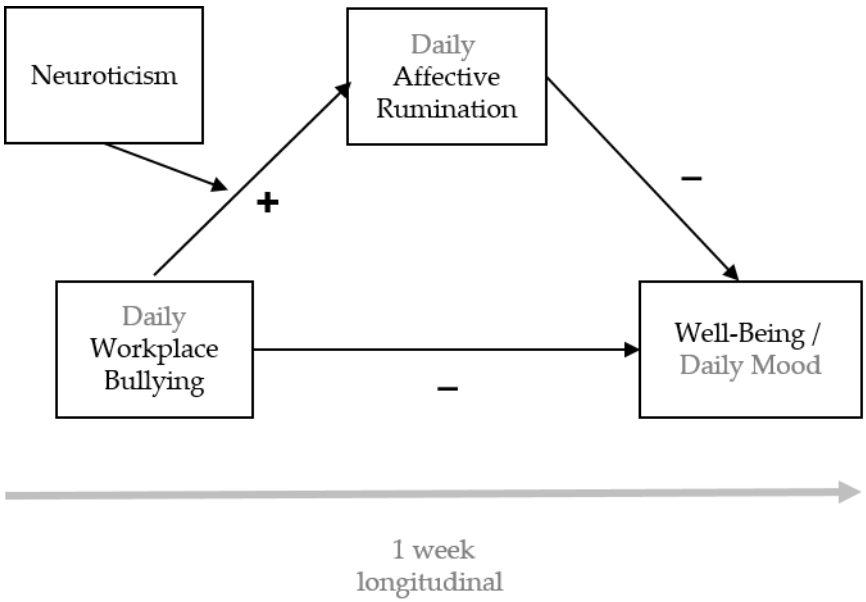


Figure 1. Hypothesized cross-sectional (black) and longitudinal (grey) moderated mediation model that considers neuroticism as a moderator and affective rumination as a mediator in the relationship between workplace bullying and well-being or daily mood, respectively.

So far, studies on the mediating role of rumination in the work stressor–outcome relationship [22,23], and specifically in relation to workplace bullying [11,24], predominantly utilized cross-sectional designs. Maxwell et al. [25] raised criticism towards cross-sectional approaches to mediation, as they can suggest substantial mediation effects in the actual absence of a true longitudinal mediation effect or equally problematic, indicate the absence of a mediational effect of a variable that, in fact, is a mediator of a process unfolding over time. Moreover, cross-sectional models simply postulated one variable as causal for the expression of another variable, whereby simultaneous measurement of both variables does not allow for any causal inference. Therefore, information about the temporal trajectories of the underlying processes is crucial to examining the causal pathways by which the effects of workplace mobbing on employee psychological recovery and, ultimately, health outcomes unfold [25]. In addition to the proposed cross-sectional moderated mediation analysis,

in this study, we want to extend research on the connection between workplace bullying and mental health in two ways: From a methodological perspective, we utilize experience sampling methodology (ESM) [55] to provide insights into the effects of daily changes in bullying experience and work-related rumination across a one-week daily diary assessment. From a theoretical perspective, we add to the understanding of within- and between-person mechanisms underlying the associations proposed in the conceptual model in Figure 1.

In doing so, we build on previous studies that have investigated different causal mechanisms between workplace incivilities, cognitive processes, and employee health outcomes in longitudinal designs. One study investigated the relationship between job strain and subjective sleep quality and did not provide support for the assumption of ruminative thinking as a mediator in this relationship [22]. Notably, this study was limited to only one overnight measurement. Still, according to meta-analytical results, repeated reflections of workplace bullying in employees' minds are likely to prolong and add on stress responses after the actual events [56]. In this regard, the finding that even small negative workplace incivility behaviors affect work-related rumination on daily within-person and weekly between-person levels is important [17].

Considering these findings, in the present study, we, therefore, utilize a one-week ESM to investigate whether affective rumination is a mediator in the relationship between daily workplace bullying experiences and the next morning's mood. In addition to the assumptions proposed in black in Figure 1, we model daily workplace mobbing experiences as a predictor of increased affective rumination in the evening, which has a negative impact on the next day's mood. The according hypotheses are:

H2a: *Affective rumination in the evening is associated with same-day workplace bullying experience at work. This effect is moderated by neuroticism.*

H2b: *The next morning's mood is negatively associated with affective rumination the evening before, controlling for workplace mobbing experience the day before.*

H2c: *Affective rumination is a mediator in the relationship between workplace bullying experiences and the next morning's mood.*

2. Materials and Methods

2.1. Participants and Procedure

Participants of the present study had to be currently employed and have experience with interpersonal conflict in the workplace. The sample was self-selective, and participation was voluntary at all times. Participants who were on leave, on long-term sick leave, or on night duty during the week of the surveys were excluded from participating in the study. Recruiting occurred via counseling centers and online self-help groups for victims of workplace bullying as well as via the occupational health management of a university in Germany. We specifically addressed employees who experienced workplace conflicts or bullying behavior by self-reports. Participants registered for the study by completing an online baseline questionnaire that covered demographics, information on employment, personality characteristics, as well as general well-being, rumination, and workplace bullying experiences. After completion, they were instructed to install an application on their mobile devices (m-Path; [57]) that could be used to repeatedly send short momentary surveys. We sent two brief surveys a day—one at 6 a.m., one at 8 p.m.—over the course of one week, starting Monday evening. To improve compliance, participants received reminders if they had not completed their assessments 150 min (in the morning) and 90 min (in the evening) after receiving the initial notifications. The average time to complete the baseline survey was 10 min. The daily surveys took around 6 min each, meaning participants spent a total of 40 min over the course of one week completing the surveys. Participation in all daily surveys was compensated with 10 euros.

Of the 108 individuals who completed the baseline survey, 77 registered for the mobile app to participate in the one-week ambulatory assessment. At the end of the week, one participant indicated that we should not use their data for the analysis and was therefore removed from the data set. Participants were instructed to create a six-digit identification code that allowed merging the baseline survey with the daily ambulatory assessments. However, only 59 participants followed these instructions, whereas the other participants used different identification codes to register for the baseline survey and the daily assessments. Table 1, therefore, summarizes the sample characteristics of those 59 participants with complete data.

Table 1. Sample characteristics.

	n	%	M (SD)
Age in years			32 (10.11)
Gender			
Female	47	79.7	
Male	12	20.3	
Education			
High school or lower	16	27.1	
University degree	43	72.9	
Work hours per week			
Less than 20 h	12	20.3	
More than 20 h	47	79.7	
Occupational sector			
Public	26	44.1	
Private	29	49.2	
Non-profit	4	6.8	

Note: Self-reported demographic data of participants (*n* = absolute number of participants, % = percentage of participants, M = mean value, SD = standard deviation).

All study participants provided their written informed consent to participate in the study. All procedures involving human participants were reviewed and approved by the Ethics Committee at the RWTH Aachen Faculty of Medicine (EK 1347/21).

2.2. Measures

To operationalize both cross-sectional relationships with data from the baseline survey as well as longitudinal relationships with data from repeated daily measurements, we used validated rating scales that we partially adapted to the purpose of the present study. Reported estimates for Cronbach's α and McDonald's ω refer to the reliability of the scales in the present study.

Workplace Bullying. The Luxembourg Workplace Mobbing Scale (LWMS, [58]) is a five-item measure to asses participants' experiences of workplace mobbing. We used the German version of the scale to assess participants' experiences with workplace mobbing on a 5-point scale ranging from 1 (=never) to 5 (=almost at all times) in the baseline survey. We calculated the mean across items as an index for workplace mobbing ($\alpha = 0.78$, $\omega = 0.78$) ranging from 0 to 1, with higher scores indicating more daily mobbing experiences. A sample item is "How often is your work being criticized by your colleagues or your superior?". For the daily measurements (longitudinal survey), we modified the original LWMS to reduce response efforts for participants in daily ambulatory assessments by using a dichotomous 0 = no/1 = yes response format and item wordings related to the same day. "Was your work criticized today by your colleagues or your superior?". The index for daily workplace mobbing experiences ranged from 0 to 1.

Neuroticism. We used five items ($\alpha = 0.17$, $\omega = 0.55$) from the German short version of the Big Five Inventory (BFI-K, [59]) to assess neuroticism in participants at baseline. Participants indicated on a five-point rating scale ("disagree strongly" to "agree strongly") the extent to which statements applied to them. A sample statement for neuroticism is "I see myself as someone who gets nervous easily".

Affective Rumination. The respective subscale from the Work-Related Rumination Questionnaire (WRRQ, [44]) measures affective rumination with five items (α = 0.84, ω = 0.84) on a five-point scale (1 = "rarely or never", 5 = "very often or always"). A sample item for affective rumination is "Do you become tense when you think about work-related issues during your free time?". For the daily measurements, we modified the German version of the WRRQ [52] to suit daily ambulatory assessments by using a dichotomous 0 = no/1 = yes response format and item wordings related to the same day. A sample item is "Were you tense when you thought about work-related issues during your free time today?". Scores were calculated as the mean across items, ranging from 0 to 1, with higher scores indicating more affective rumination.

Well-being. We used the WHO-5 Well-Being Index to assess participants' well-being over the past 14 days at baseline. The index represents a unidimensional measurement of well-being using five items (α = 0.86, ω = 0.87) rated on a five-point frequency scale ranging from "at no time" to "all the time". An example item is "In the past 2 weeks, I have been happy and in a good mood". WHO-5 measurements are language invariant [60] and have been shown to provide reliable and valid measures of well-being [61].

Mood. We used a six-item scale (α = 0.88, ω = 0.88) designed for momentary assessments [40] to assess participants' moods in the morning. The scale measures three basic dimensions of current mood with two items on each dimension. Participants responded to the statement "At this moment I feel" by moving sliders between six bipolar items (e.g., tired–awake). Slider positions were coded from 0 to 100 in a way that higher scores indicate a higher positive mood. We computed mean indices for daily mood across all items.

2.3. Analytic Strategy

To test hypotheses H1a to H1c, we examined a moderated mediation model using the cross-sectional data from the baseline survey. We used a stepwise approach to test the path coefficients in a series of linear regression models. In Model 1, affective rumination was regressed on workplace mobbing experience and neuroticism before including the interaction effect of workplace mobbing experience and neuroticism in Model 2. These two models examine the effect of workplace bullying experience on affective rumination and how neuroticism alters this relationship, i.e., whether neuroticism is a moderator of the relationship between workplace mobbing experience and affective rumination. In Model 3, well-being was regressed on the same predictors as included in Model 1 before adding affective rumination in Model 4. These two models examine the link between workplace bullying experience and well-being as well as between affective rumination and well-being. We used the bootstrapping approach provided with the *mediation* package version 4.5.0 [62] in *R* version 4.2.3 [63] to test whether affective rumination acts as a mediator of the relationship between workplace mobbing experience and well-being.

To test hypotheses H2a to H2c, we built a multilevel moderated mediation model using the longitudinal data from the daily diary survey. Intraclass correlation coefficients (ICC) indicated that substantial variance in the study variables was due to clustering: ICC1 for the outcome mood was 0.35. ICC1 for bullying was 0.25. ICC1 for affective rumination was 0.40. Our study variables show substantial variation across different measurement time points within one week to be accounted for by multilevel modeling. To account for the hierarchical structure of the data, i.e., repeated measurements clustered in individuals, we performed linear mixed effects modeling using the *lme4* package version 1.1.32 [64]. To remove between-person variance from the predictors, all level 1 variables were centered at their respective person-means [65], so that level 1 variable estimates indicate deviations from a variable average level over multiple days for each person. To examine between-person differences, level 2 variables were centered at their respective grand mean [66]. To disentangle within- from between-person effects, we also entered the person means of these predictors at level 2 of the analysis. The day of the assessment was entered as a level 1 predictor to account for the ordering of observations. We used a similar stepwise approach to test the path coefficients of the final moderated mediation model in a series

of multilevel linear regression models. Affective rumination in the evening was regressed on workplace mobbing experience during the same day and neuroticism in Model 1. In Model 2, we added a fixed interaction term of workplace mobbing experience and neuroticism while estimating a random slope for workplace mobbing experience [67]. This model examined if between-person differences in neuroticism alter the within-person effect of workplace mobbing experience on same-day affective rumination. Model 3 regressed the next morning's mood on the same predictors as in Model 1 before entering evening affective rumination as a mediator in the relationship between workplace mobbing experience and the next morning's mood in Model 4. Confidence intervals for the mediation effect were calculated following the Monte Carlo approach for assessing mediation within multilevel frameworks [67,68].

3. Results

Table 2 shows the results from the cross-sectional analyses modeling affective rumination as a mediator in the relationship between workplace mobbing experience and well-being, including the moderation effect of neuroticism on the relationship between workplace mobbing experience and affective rumination.

Table 2. Linear regression models predicting affective rumination and well-being.

	Affective Rumination						**Well-Being**					
	Model 1			**Model 2**			**Model 3**			**Model 4**		
Variable	**EST**	**SE**	***t***	**EST**	**SE**	***t***	**EST**	**SE**	***t***	**EST**	**SE**	***t***
Intercept	0.85	0.52	1.62	2.01	1.47	1.37	87.87	35.39	2.48 *	109.16	32.61	3.35 **
Bullying Experience	0.49	0.17	2.91 **	−0.06	0.67	−0.01	−5.77	16.28	−0.36	−6.40	14.76	−0.43
Neuroticism	0.32	0.17	1.95 .	−0.08	0.50	−0.16	−5.40	12.14	−0.45	−6.25	11.01	−0.57
Bullying Experience * Neuroticism				0.19	0.22	0.85	−0.72	5.38	−0.13	1.28	4.91	0.26
Affective Rumination										−10.6	2.92	−3.63 ***
Adjusted R^2		0.20			0.20			0.10			0.26	

EST = unstandardized parameter estimate, SD = standard error. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, . $p < 0.10$.

According to Model 1, workplace mobbing experience was positively associated with affective rumination (b = 0.49, $p = 0.01$), whereas the positive direct effect of neuroticism on affective rumination is significant only at a more liberal α-level (b = 0.59, $p > 0.10$). Workplace mobbing experience and neuroticism did not interact to alter affective rumination. Hypothesis H1a was, therefore, only partially accepted. There was no direct effect of workplace mobbing experience on well-being in Model 3, but participants high in affective rumination reported significantly less well-being (b = −10.6, $p = 0.00$), even after controlling for workplace mobbing experience (Model 4). Hypothesis H1b was therefore accepted. These results show that higher workplace mobbing experiences were associated with increased affective rumination, which in turn was related to decreased well-being. Bootstrapping for this full mediation path revealed a significant average causal mediated effect (ACME = −5.32, 95% CI [−10.90, −1.29]), leading to the acceptance of Hypothesis H1c.

Table 3 shows the results from multilevel moderated mediation analyses to examine the mediation effect of affective rumination in the evening in the relationship between daily workplace mobbing experience and the next morning's mood, including the moderating role of neuroticism in the relationship between daily workplace mobbing experience and affective rumination in the evening.

Table 3. Multilevel moderated mediation models predicting affective rumination and mood.

	Affective Rumination						Mood					
	Model 1			Model 2			Model 3			Model 4		
Variable	**EST**	**SE**	***t***	**EST**	**SE**	***t***	**EST**	**SE**	***t***	**EST**	**SE**	***t***
Between-person (Level 2)												
Intercept	0.05	0.03	1.70 .	0.04	0.03	1.60	51.36	2.29	22.39 ***	51.32	2.30	22.32 ***
Person mean bullying experience	−0.02	0.13	−0.19	−0.03	0.01	−0.25	−0.68	13.96	−0.05	−0.63	13.95	−0.05
Neuroticism	−0.00	0.02	−0.13	−0.00	0.02	−0.01	−5.40	2.65	−2.04 *	−5.39	2.65	−2.04 *
Within-person (Level 1)												
Time	−0.02	0.01	−2.00 *	−0.02	0.01	−1.89 .	2.23	0.64	3.47 ***	2.25	0.65	3.48 ***
Daily bullying experience	0.37	0.10	3.67 ***	0.49	0.01	4.20 ***	−3.84	7.15	−0.54	−4.37	7.38	−0.59
Daily affective rumination										1.09	3.76	0.29
Daily bullying experience * Neuroticism				−0.31	0.02	−2.00 *	−11.02	9.62	−1.15	−10.76	9.69	−1.11
Deviance		−18–8			−22.8			2065.8			2065.7	
AIC		−4.8			−2.8			2085.8			2087.7	
BIC		19.8			32.4			2120.9			2126.3	

EST = unstandardized parameter estimate, SD = standard error, deviance = −2 residual log-likelihood, BIC = Bayesian information criterion, AIC = Akaike information criterion. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, . $p < 0.10$.

In a first linear mixed effects model with random intercepts for each participant (Model 1), within-person variations in workplace mobbing experience were positively associated with affective rumination after work (b = 0.37, $p = 0.00$). In other words, participants reported more affective rumination after work on days with more mobbing experiences at work. Taking into account the fluctuations in mobbing experiences across one week, between-person differences were unrelated to affective rumination after work (b = −0.02, n.s.). However, Model 2 revealed a cross-level interaction effect of neuroticism and workplace bullying experience on evening affective rumination, i.e., between-person differences in neuroticism altered the way fluctuations in daily mobbing experiences impact on evening affective rumination. Figure 2 shows the plot of the interaction: daily bullying experiences elevate affective rumination after work only for individuals low in neuroticism.

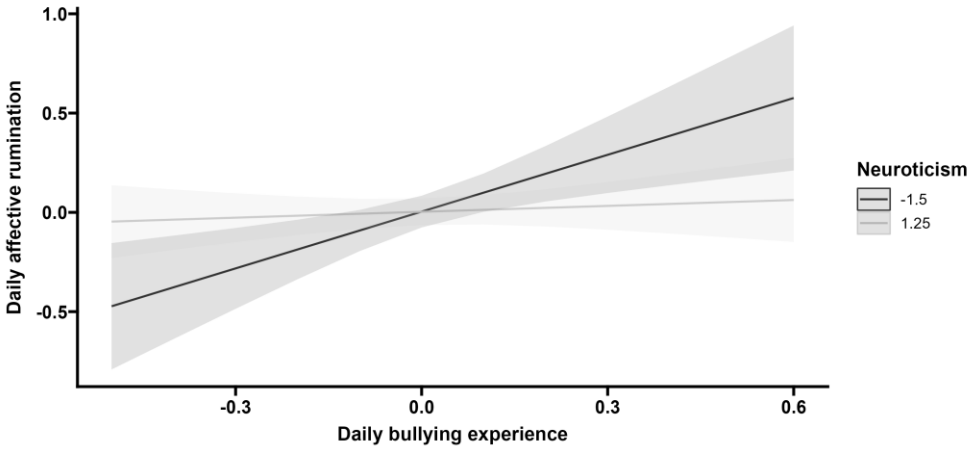


Figure 2. Plot of the moderating effect of neuroticism on the relationship between daily bullying experience and daily affective rumination.

The results from Models 1 and 2 thus lead to accepting Hypothesis H2a. According to Model 3, the next morning's mood, on the other hand, was unrelated to both between-person differences as well as daily fluctuations in mobbing experiences at work. In this model, the next morning's mood was only predicted by interpersonal differences in neuroticism, indicating that individuals high in neuroticism report lower levels of the next morning's mood (b = −5.40, $p = 0.05$). This pattern did not change after adding affective rumination in the evening to the model: similar to Model 3, in Model 4, only interpersonal differences in neuroticism predicted the next morning's mood (b = −5.39, $p = 0.05$), whereas neither interpersonal differences nor daily fluctuations in mobbing experiences or affective rumination significantly predicted the next morning's mood. Unsurprisingly, daily fluctuations in affective rumination after work did not mediate the effects of daily fluctuations

in mobbing experiences with the next morning's mood. Hypotheses H2b and H2c were therefore rejected.

4. Discussion

Employees spend considerable amounts of their days at work or in activities related to their occupation. It is, therefore, mandatory that the conditions and the content of work are aligned with maintaining and promoting the health and well-being of employees [30,31]. This study provides insights into the mechanisms by which workplace bullying affects employee well-being and mood via affective rumination. Previous studies linked workplace bullying to short-term changes in emotional states [36], which in the long run lead to impaired psychological well-being and mood disorders [38,41]. Therefore, we investigated both employee well-being and daily fluctuations in mood as outcomes of workplace bullying experiences. Well-being is one important facet of employee health, as poor well-being is associated with lower job satisfaction and performance [69,70]. In this study, we addressed how experiences of workplace bullying during the workday spill over into the next morning and affect mood. In addition, we investigated whether neuroticism alters the effect of workplace bullying experience on affective rumination and examined whether the effects of workplace bullying on mood are translated via affective rumination.

4.1. Theoretical Implications

Drawing on cross-sectional data, we replicated findings from prior research that examined affective rumination as a mediator in the relationship between workplace bullying and well-being [11,24]. In contrast to previous findings [11,24], workplace bullying experience was fully mediated by affective rumination in our study. In other words, workplace bullying experience showed no direct link to well-being but became apparent only after taking into account employee affective rumination after work. This implies that the negative health consequences of bullying experience mainly manifest via affective rumination. In other words, the bullying experience itself does not necessarily impair employee well-being; it is rather the prolonged cognitive representation of bullying experiences on employees' minds that inhibits recovery from these stressors, which ultimately leads to poor well-being. Other than expected, the assumed moderation effect of neuroticism on the relationship between workplace bullying and ruminative thinking was not supported in the cross-sectional data.

The longitudinal model showed that daily experiences of workplace bullying are not immediately apparent in decreased next-morning mood but—initially—manifested in increased daily affective rumination over the course of the evening. On days with increased workplace bullying, individuals reported more affective rumination in the evening. This is in line with the longitudinal study findings from Vahle-Hinz [17], who found a similar increase in evening affective rumination after experiencing more negative workplace behavior. Contrary to our approach, affective rumination was measured as an outcome of workplace incivility and not as a mediator variable. Still, our findings replicated findings from Cropley et al. [22] and showed that, after experiencing higher job strain, employees engaged in more ruminative thinking in the early evening until they gradually relaxed. Other than expected, the affective emotional thoughts about work triggered by more bullying experience did not spill over into the next morning in our study: the next morning's mood was neither affected by workplace bullying experience nor affective rumination the day before. Considering detachment mechanisms, employees start their nonwork time with increased ruminative thinking but eventually switch off and start to relax, so the effect does not spill over into the next morning's mood. We assume that both the extent of bullying experiences and the amount of work-related thought did not provide sufficient irritation in employees to keep them mentally switched on in a way that hinders successful recovery.

While the assumed moderation effect via neuroticism was not supported in the cross-sectional model, neuroticism emerged as a moderator in the relationship between daily workplace bullying experiences and subsequent daily affective rumination in the evening. This cross-level interaction effect indicated that this is especially true for individuals low

in neuroticism. On days when individuals experience increased bullying at work, only those low in neuroticism report increased affective rumination after work. On the other hand, individuals high in neuroticism reported persistent affective rumination about work-related issues irrespective of bullying experiences at work. This finding corresponds to the results reported by Hamesch et al. [54] and is in line with Barnhofer and Chittka's [50] interpretation that emotionally unstable individuals apply maladaptive coping strategies as a habitual reaction to even minor stressful events. Our interpretation of these findings is that individuals high in neuroticism are more susceptible to affective rumination per se, whereas daily fluctuations in bullying experiences affect an individual's capability to mentally switch off from work, especially when they are comparably emotionally stable. Notably, we were able to replicate the findings of Hamesch et al. [54], but in a completely different sample in terms of occupation and age. This is remarkable considering that research suggested differential susceptibility to rumination [52] across age [71] and occupational groups [47,72].

In line with criticism of biased estimates resulting from cross-sectional mediation analyses indicating substantial effects in the actual absence of true mediational processes unfolding over time [25], we showed that the finding of a full mediation effect from our cross-sectional baseline model could not be reproduced in a longitudinal model over the course of one week. Nevertheless, we do not assume that this contradiction between cross-sectional and longitudinal findings disproves the assumptions of the perseverative cognition hypothesis. On the contrary, we believe that findings repeated across different study populations and different operationalizations showing a mediating effect of affective rumination on the relationship between work-related stress (such as bullying experiences) and psychological health outcomes are substantial. Assuming that (a) well-being measured in our cross-sectional model is a consequence of longer-lasting changes in mood and, assuming (b) that rumination reported at baseline is a manifestation of daily changes in affective thoughts about work, our study highlights an important missing link for our understanding of how workplace bullying experiences translate to impaired employee health via rumination. It calls for a deeper understanding of the "dose–response" relationship between repetitive affective work-related thoughts and impaired mood when one evening of affective rumination about workplace bullying experience that day does not spill over into the next morning. Following the stressor-accumulation hypothesis, however, stressor pile-up over a prolonged period of time may lead to repeated maladaptive coping in the form of accumulated rumination, which ultimately increases employees' vulnerability towards health impairments.

The stressor-accumulation hypothesis [73,74] describes how multiple stressors, when exposed over time, may have a cumulative and potentially detrimental impact on an individual's well-being and mental health. Both stressor pile-up and ongoing stressor occurrence predict greater emotional reactivity and interact as an increase in the negative affect [73]. Following the stressor-accumulation hypothesis, we interpret the results from our study in the way that daily workplace bullying experiences will eventually result in cumulative affective rumination and, therefore, negatively affect mood and well-being in the long term.

4.2. Practical Implications

Our findings provide unique insights into individuals' emotional responses to workplace bullying. Notably, there is a distinction between occasional instances and daily, persistent bullying, highlighting a crucial difference in emotional impact. While single incidents may not significantly affect individuals' moods, experiencing them on a daily basis leads to persistent dwelling on negative thoughts and emotions in work-related experiences. This insight underscores the idea that the cumulative effect of enduring daily workplace bullying extends beyond mere annoyance or frustration into becoming a persistent burden that affects the general mood toward work. This is especially relevant in the context of detachment and recovery from work. Considering cumulative mechanisms, frequent affec-

tive rumination in the evening and, therefore, the absence of detachment impedes recovery. Lack of recovery will eventually result in detrimental health consequences and impair the well-being of employees [24,43].

In practical terms, our study findings underscore the importance of addressing workplace bullying and other stressors or negative workplace behaviors immediately since they have a direct effect on ruminative thoughts that, in general, are known to reduce employee well-being. This can be achieved by conducting systematic psychosocial risk assessments, which explicitly include social relationships with supervisors and colleagues at work (e.g., [75]). This could be enhanced by fostering more clarification for legal requirements from policymakers, as recently suggested by Leka and Jain [76]. As an add-on, also from the company level, occupational psychologists could implement measures to directly promote employee mental health, like detachment from work [77].

4.3. Limitations and Future Research

In the pursuit of understanding the complex dynamics of workplace bullying, affective rumination, and well-being, this study aimed to shed light on moderation and mediation pathways. While the study has provided valuable insights, it is imperative to acknowledge certain limitations that may impact the generalizability and depth of our findings.

First, statistical analyses were limited to a rather small sample due to suffering from dropouts after the pre-survey due to self-reported difficulties in the technical requirements of the app installation procedure. Especially individuals who reported frequent workplace bullying experiences dropped out after responding to our pre-survey by not using the anonymous codes to connect the pre-survey with the app. This might be due to fear of reporting critical events and therefore resulting in a selection bias. Still, within-person designs for mediation analysis have a clear advantage over between-person designs because they require about half the sample size [78]. We therefore follow the common practice to study mediation models in daily diary studies with smaller sample sizes, applying hierarchical linear modeling [17,79] instead of structural equation modeling (SEM) in order to avoid consequential model convergence issues [80].

Second, our sample showed limited self-reported workplace bullying experience and overall relatively high levels of mood and well-being. Many participants had minimal or no exposure to bullying, leading to range restrictions in the data, which may have limited our ability to explore the full spectrum of the effects of workplace bullying experience and its impact on mood and well-being. The current sample was predominantly female. Women are more likely to identify as victims of bullying compared to men when assessed with self-labeling items, although this tendency is reduced when assessing actual acts of workplace bullying [81] as in the current study. Moreover, there are limited to mixed research findings on gender-specific mechanisms in response to bullying behavior [82]. Despite the low representation of male respondents in the current study, analyses of gender-specific mechanisms were beyond the scope of the present study. However, our study offers new insights into unraveling temporal mechanisms of affective rumination and the effects on well-being and mood in the work context.

Third, another limitation pertains to the short duration of one-week data collection. There is much variance in study designs using ESM or daily diary study approaches [36,37,79], and a common practice is using one report a day for one to four weeks [55]. Following the workplace bullying definition [29], an individual must experience negative actions over a longer period, but not necessarily every day. Workplace bullying often happens on a regular basis, but it is possible that it did not occur in our data collection period. Therefore, our findings highlight the need for prolonged longitudinal studies when investigating the impact of workplace bullying (or stressors in general) on employee well-being to capture the dynamic and cumulative nature of effects over time comprehensively.

Fourth, our interpretation of the one-week diary study is that the underlying mechanisms regarding temporal trajectories of workplace bullying experience remain unclear, and therefore, we still have to examine the temporal trajectory in which accumulated affective

rumination spills over into next-morning mood. Future research requires investigating how long or intensive workplace bullying experiences need to persist in order to exert short-term effects on an individual's mood so that negative consequences occur in the individual's long-term health and well-being.

5. Conclusions

In summary, this study suggests that affective rumination plays a crucial role in explaining how workplace bullying affects well-being. The mediating effect of affective rumination implies that interventions aimed at improving the well-being of individuals experiencing workplace bullying might benefit from targeting detachment and reducing affective rumination. Additionally, the moderation effect of neuroticism underscores the importance of considering individual differences in personality for understanding the impact of experiencing workplace bullying daily. Our findings contribute to a more nuanced understanding of the complex relationship between workplace bullying, affective rumination, personality traits, and well-being.

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