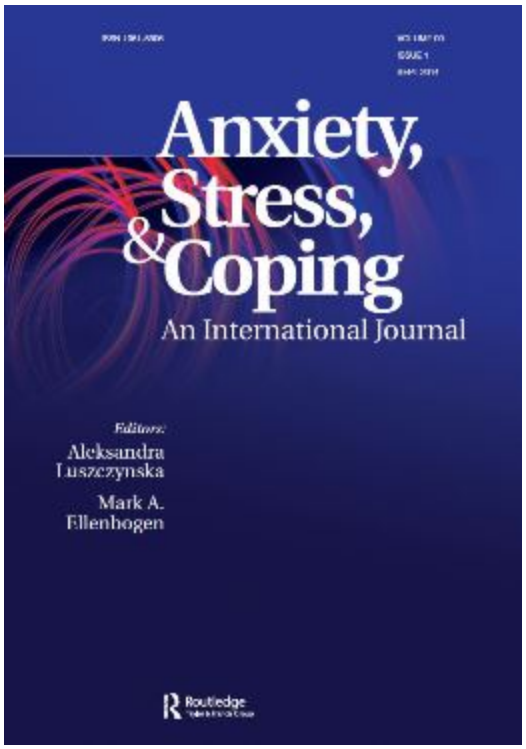
Anxiety, Stress, & Coping



Burnout, Work-Related Daily Negative Affect and Rumination: A Mediation Model Combining an Intensive and Longitudinal Design

Journal:	*Anxiety, Stress, & Coping*
Manuscript ID	GASC-2024-0398.R2
Manuscript Type:	Research Article
Keywords:	burnout, rumination, negative affect, diary study, random intercept cross-lagged panel model

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Abstract

Objective

The study aims to examine the relationship between daily negative affect and rumination in the context of work and to verify their mediating roles in the process of burnout.

Design

A classic longitudinal design with two measurement points for burnout was combined with 10 daily online assessments of negative affect and rumination among 235 civil servants.

Results

A random intercept cross-lagged panel model was implemented. Carryover, cross-lagged, and same-day relationships between work-related negative affect and rumination were analysed from a within-person perspective. The results did not confirm reproducible carryover and cross-lagged effects. The only significant positive associations were found for same-day relationships. At the between-person level, a mediation model of the random intercepts of negative affect and rumination between two burnout measurements was tested. Negative affect was positively related to rumination; however, only negative affect partially mediated the relationship between burnout levels over a four-month interval.

Conclusions

The study clarifies the role of rumination in the process of job burnout. First, after removing stable interpersonal differences, reciprocal effects between daily negative affect and daily rumination could not be confirmed. Second, work-related affect may longitudinally play a greater role in burnout exacerbation than ruminating on work.

Keywords: burnout, work-related rumination, job-related negative affect, diary study, random intercept cross-lagged panel model

Burnout, Work-Related Daily Negative Affect, and Rumination: A Mediation Model Combining an Intensive and a Longitudinal Design

Work is an essential part of adult life. On some days, it brings happiness and satisfaction to employees, but on other days, it causes stress and frustration. In general, work is related to more aversive affective reactions than non-work due to excessive job demands, including work overload, insufficient job control, and challenging interpersonal relationships (Aronsson et al., 2017; Biskup et al., 2019). Employees' efforts to meet job requirements, particularly when supplied with insufficient organisational resources, may lead to negative consequences for their personal well-being (Bakker et al., 2023), which translate into job dissatisfaction, exhaustion, and reluctance to work. This process of health impairment describes how employees may become burned out (Bakker & de Vries, 2021).

Burnout is a psychological syndrome that is characterised by exhaustion and disengagement (Demerouti et al., 2001). Feelings of energy depletion or exhaustion are defined as consequences of intense physical, affective, and cognitive strain. Disengagement is characterised as distancing oneself from one's work in general, one's work object, and one's work content (Demerouti et al., 2010). Job burnout is 'an enduring psychological condition of ill-being signalling that employees are no longer able and no longer willing to invest effort in their work' (Bakker & de Vries, 2021, p. 3). Prolonged exposure to high job demands that are accompanied by insufficient resources may lead to health impairment. This is a key assumption of job demands–resources (JD–R) theory, which describes how employees experience diminished well-being and health and, consequently, how organisations lose effectiveness and are faced with high labour costs (Bakker & Demerouti, 2014).

In our study, we aim to incorporate the theoretical and methodological innovations outlined in the 10-year anniversary review of JD–R theory (Bakker et al., 2023). In this review, the importance of adopting a person × situation approach is emphasised,

acknowledging that both work events and individual responses to these events can fluctuate, even daily.

In this context, the burnout process is shaped not only by aspects of the work environment but also by individual differences in work-related emotions (e.g., negative affect) and coping strategies (e.g., negative work-related thoughts; Frone, 2015, Jimenez et al., 2022). To advance this perspective, it is critical to distinguish between stable individual reaction patterns and short-term, situation-specific fluctuations. Specifically, stable patterns are likely to function as personal resources or vulnerabilities that either buffer against or exacerbate burnout development, independent of the work environment shared among employees.

Furthermore, the person × situation approach necessitates the inclusion of a temporal dimension to accurately capture patterns in fluctuating responses. Measurement intervals must account for the dynamic nature of these fluctuations (Hamaker & Wichers, 2017). In this framework, working days are nested within individuals, allowing for an examination of daily changes in well-being and offering insights into how employees who cope effectively on a day-to-day basis differ from those who do not. These changes may lead to an accumulation of burnout symptoms over time, which could even reach clinical level (van Dam, 2021).

Therefore, we focus on how individuals regulate their work-related negative affective states rather than on aspects of the work environment. Specifically, we investigate daily emotional regulation through work-related rumination and its potential effect on burnout over time. To achieve this, we employ a combination of methodological approaches: (1) an intensive longitudinal design to examine the daily relationship between negative affect and rumination and (2) a two-wave longitudinal design to determine whether stable individual differences in negative affect and rumination, derived from daily measures, predict changes in

job burnout. With this integrative approach, we aim to provide insights into the role of daily negative affect and rumination in the development of burnout.

Burnout and Work-Related Negative Affect

In line with the circumplex model of job-related affective well-being, job burnout is considered to be strongly related to negative affect, both at low (e.g., depressed) and high (e.g., angry) levels of arousal, while its relationship with reduced positive affect is comparatively weaker (Bakker & Oerlemans, 2011; Salanova et al., 2014). Consistent with the person × situation perspective, affective states emerge from dynamic interactions between individuals and their environment (Lazarus, 2006). Consequently, affective responses are often the earliest indicators of the detrimental effects of occupational stress on well-being and health.

Affect is dynamic in nature (Kuppens & Verduyn, 2017). Therefore, the findings of cross-sectional and classical longitudinal studies examining how employees regulate their affective responses are severely limited, providing an incomplete understanding of the mechanisms underlying job burnout. Moreover, affective reactions have been shown to carry over from one moment to the next (i.e., the carryover or autoregressive effect) and could impact other emotions and behaviours, either concurrently (i.e., as covariances) or in the future (i.e., as spillover or cross-lagged effects; Mulder & Hamaker, 2021). This cross-lagged effect is notable because it may represent a causal mechanism linking both phenomena (Hamaker et al., 2018). Thus, intensive longitudinal studies (e.g., experience sampling methods or diary studies; Horstmann, 2021) are more ecologically valid for examining how employees manage their experiences at work. Such designs are also more likely to uncover actual concurrent relationships between variables and their dynamic interplays over time (Hamaker et al., 2018).

Few studies have investigated the relationship between daily job-related affect and symptoms of burnout. Those few studies that have examined this have found that negative affect is positively correlated with burnout (Ferreira et al., 2019; Lavi & Eshet, 2018; Zhao et al., 2019) and may precede burnout, particularly exhaustion (Balducci et al., 2020; Porthogese et al., 2017). In general, the relationship with burnout is stronger for negative emotions than for a lack of positive emotions (Houben et al., 2015; Zhao et al., 2019). It is thus crucial to examine how employees regulate negative emotions, as this can add to the development of burnout incrementally.

Burnout and Work-Related Rumination

Emotional regulation has been conceptualised as the process by which individuals modify their emotions and elicit different emotions to respond appropriately to external demands (Aldao & Nolen-Hoeksema, 2010). Emotional regulation can be integrated into JD–R theory as a mediator in the health impairment process (Demerouti et al., 2019), meaning that the effects of job demands are related to how emotions are regulated, which, in turn, impacts burnout. Rumination is an emotion regulation strategy that involves self-focused attention, characterised by passive and repetitive thoughts about the negative causes and consequences of stressful events and one's negative internal states (Aldao et al., 2010; Lyubomirsky & Nolen-Hoeksema, 1993; Treynor et al., 2003). The relationship between negative affect and rumination is complex. Rumination is a response to negative affect, as it is meant to regulate negative affect and improve affective well-being (Nolen-Hoeksema et al., 2008). However, it is more often related to maladaptive outcomes, leading to the exacerbation of that emotional state (Moberly & Watkins, 2008), including depressive symptoms (Aldao et al., 2010; Nezlek & Kuppens, 2008).

Work-related rumination can be defined as repetitive negative thoughts about work-related problems and feelings (Frone, 2015). In general, context-specific rumination has been

examined less extensively to date, and it has been examined primarily in cross-sectional studies. However, over the last 10 years, the number of studies on the broader construct of thoughts about work has increased significantly (Jimenez et al., 2021). When these thoughts are negative and persistent, they fall within the scope of the definition of rumination (Lyubomirsky & Nolen-Hoeksema, 1993). The results have also confirmed a negative association between work-related rumination and occupational well-being (Bianchi & Schonfeld, 2016; Cropley et al., 2016; Geisler et al., 2019; Gossmann et al., 2023; Noja et al., 2023; Weigelt et al., 2019). For instance, rumination is related to lower job satisfaction, reduced work engagement, and enhanced turnover intentions (Mullen et al., 2020). The energy component, exhaustion, is particularly affected (Geisler et al., 2019; Weigelt et al., 2019). Additionally, high levels of work-related rumination have been linked to more cognitive failures, such as difficulties with executive functioning, which, in turn, impair the regulation of goal-directed behaviours at work (Cropley et al., 2016). This suggests that rumination may deplete personal resources, particularly cognitive and energetic resources (Andel et al., 2022; Eggli et al., 2021; Melo et al., 2022; Kinnunen et al., 2019; Perko et al., 2017). Therefore, a lack of affective and energetic recovery after work daily may play a crucial role in the development of job burnout.

Findings from several daily diary studies have supported this hypothesis. For instance, the occurrence of work-related repetitive thoughts before sleep, especially those that involve worrying about next-day issues, has been associated with impaired objective and subjective sleep indicators among school teachers (Melo et al., 2021). When facing more severe stress, daily work-related rumination intensifies the impairment of well-being and acts as a trigger for emotional exhaustion (Andel et al., 2022; Rodríguez-Muñoz et al., 2020). In addition, daily social stressors at work (e.g., interpersonal conflicts) promote ruminative thoughts,

which together contribute to ongoing psychological distress and psychosomatic complaints (Eggli et al., 2021).

However, as Jimenez et al. (2022) noted in their meta-analysis of off-job positive and negative work-related thoughts, many studies have failed to distinguish between reflection and rumination. This represents a dual research gap. First, these processes should be analysed separately, with a clear distinction between them and between each of them and negative affect. Second, more longitudinal and intensive longitudinal studies are needed to identify their short- and long-term outcomes.

Overview of the Current Study: Burnout, Negative Affect, and Rumination

Our current understanding of burnout, negative affect, and rumination indicates potential links between negative affect and job burnout, as well as between rumination and job burnout. In this context, it is striking that very few studies have analysed these three variables concurrently. In a cross-sectional study of news media workers, it was found that rumination partially mediates the association between negative affective states (e.g., stress, depression, anxiety) and job burnout, such that employees who feel more negative affect are more likely to use rumination and, in turn, experience a higher level of job burnout (Liu et al., 2021). In another cross-sectional study conducted during COVID-19, Vilte et al. (2022) found a positive association between emotional exhaustion, negative affect, and rumination among healthcare workers. However, only bilateral relations were analysed.

Considering these gaps in the research, we aim to test a theoretical model assuming that in the short-term, previous burnout is a significant predictor of subsequent burnout, with work-related negative affect and work-related rumination mediating this relationship. The novelty of this study lies in combining a longitudinal approach to burnout with an intensive longitudinal assessment of negative affect and rumination. Using day-by-day observations allows for capturing the dynamics of these processes and identifying their stable (i.e., trait-

like) and changeable (i.e., state-like) components. For instance, individuals who generally report high levels of negative affect may still experience fluctuations in affect, with better and worse days (states) that vary around their usual reference point (trait).

Therefore, our first objective is to examine the relationship between the fluctuating daily components of work-related negative affect and rumination. In experience sampling studies (Blanke et al., 2022), reciprocal within-person effects between negative affect and rumination emerged when controlling for their autoregressive effects. Specifically, similar reciprocal effects were observed in two samples of students (Belgian and German), whose negative affect and rumination were assessed multiple times a day over a minimum of seven consecutive days. Additionally, individuals with higher levels of rumination tend to experience more persistent rumination from day to day. In a one-week study, Moberly and Watkins (2008) assessed negative affect (i.e., sadness, anxiety, and irritation) and ruminative self-focus eight times per day. Momentary rumination was positively associated with negative affect, and cross-lagged reciprocal relationships were revealed, with rumination predicting negative affect and negative affect predicting rumination on the subsequent occasion. Based on these studies, we hypothesize that autoregressive, and cross-lagged effects will also be observed in a work-related context, all exhibiting a positive association.

H1. There are significant positive carryover and cross-lagged effects in the within-person relationships between end-of-work negative affect and rumination. The cross-lagged effects are reciprocal.

Next, we aim to assess the stable components of negative affect and rumination. In other studies we mentioned these have been assessed using self-reported questionnaires to measure how often a person feels and thinks in this way. The biases related to such global operationalisation have been discussed in the literature (Bolger & Laurenceau, 2013) and may be especially strong in the evaluation of highly dynamic experiences. In our model, the

between-person differences in negative affect and rumination for a given period can be derived directly from their daily measures. Based on existing knowledge, we assume that these stable components are positively related; that is, a higher tendency to report work-related negative affect will be associated with a higher tendency to ruminate on work.

H2. There are significant between-person differences in negative affect and rumination. These variables are also positively correlated, so higher negative affect in general, is related to higher rumination.

Finally, we aim to verify the potential mechanism that, from a longitudinal perspective, describes burnout as a process in which individual tendencies to experience negative affect and ruminate partially mediate the relationship between burnout levels reported at two time points. Therefore, higher levels of burnout will lead to both higher negative affect and more work-related rumination, which result in higher levels of burnout.

H3. The stable between-person differences in negative affect and rumination are significant parallel mediators between two burnout measurements.

Method

Participants and Procedure

Our participants were white-collar employees from public administration agencies. During recruitment, four inclusion criteria were established: Participants had to (1) have permanent and full-time employment, (2) be in service to citizens as their main professional task, (3) and have at least six months of continuous professional experience in their current position. Of the 238 employees approached by a professional research agency, 235 agreed to participate and provided their written informed consent. They were mostly women (75%, n = 175), aged between 21 and 68 years (M = 38 years, SD = 9.7), had an average of 15 ± 10 years of job tenure, and had served in their current post for 7.5 ± 6.3 years. Fifteen percent

held managerial positions. Most participants (81%) had a university degree; the remaining participants (19%) had a college degree.

The study protocol was approved by the institutional ethics committee. This study is part of a larger project on burnout dynamics and their determinants. It consists of three stages and combines classical and intensive longitudinal measurements. In the current study, burnout levels were assessed on two occasions (T1 and T2), separated by an interval of four months. Between these two measurement points, for 10 consecutive working days (Monday to Friday for two weeks), the participants' end-of-work negative affect and work-related rumination were evaluated. All assessments were conducted online, and participants were sent a personalised link to their password-protected e-mail inboxes. The link was only active for a given period, and their answers were time-stamped. For daily assessments, a link was made available only immediately after official work hours ended to minimise the impact of non-work activities. After completion of the study, each participant received 30 euros and a letter of gratitude. The only dropout was noted at the T2 burnout measurement: Four participants (1.7% of the initial sample) did not complete the questionnaire. According to current recommendations (Hamaker et al., 2018), in statistical analysis all available data were analysed following the maximum likelihood estimation under the missing completely at random assumption.

Tools

Longitudinal Assessment

Burnout was measured twice using the eight-item Oldenburg Burnout Inventory (OLBI, Demerouti et al., 2010) and only negatively worded items, four for exhaustion (e.g., *During my work, I often feel emotionally drained*) and four for disengagement (e.g., *Sometimes I feel sickened by my work tasks*). Each item was rated on a five-point scale that ranged from 1 (*completely disagree*) to 5 (*completely agree*). General scores were obtained by

averaging the answers. Therefore, higher scores indicated higher levels of burnout. The reliability levels expressed by Cronbach's alpha coefficients were .90 and .89 for T1 and T2, respectively. The basic socio-demographic characteristics of the participants and job-related variables were collected at T1.

Intensive Longitudinal Assessment

In 10 daily assessments, participants chose the most central issue that they had faced at work that day (i.e., work demands or conditions, relationships with others, work–life imbalance), and in this context, they evaluated their negative affect and rumination. Negative affect was assessed with the relevant subscale of the Job-Related Affective Well-being Scale (van Katvyk et al., 2000). This scale consists of four items, covering high (*angry, anxious*) and low (*fatigued, discouraged*) arousal. Each day, participants were instructed to indicate how they felt about their work as soon as possible after office hours ended. They provided answers on a five-point Likert-like scale ranging from 1 (*never*) to 5 (*extremely often*). Answers for each day were averaged; higher values indicated more negative affect at the end of a given working day.

Rumination was evaluated with three items from the Ruminative Response Styles scale (Treynor et al., 2003; Whitmer & Gotlib, 2011), rephrased to fit the context of the study (e.g., *I couldn't stop thinking about this event).* Participants reported their use of rumination on a scale ranging from 1 (*completely disagree*) to 5 (*completely agree*). The average responses were daily indicators; higher values indicated more work-related rumination on a given day.

Statistical Analysis

We adopted the random intercept cross-lagged panel model (RI-CLPM) proposed by Hamaker et al. (2015), together with its extensions for person-level predictors and outcomes (Mulder & Hamaker, 2021). The observed scores for daily measures of negative affect and

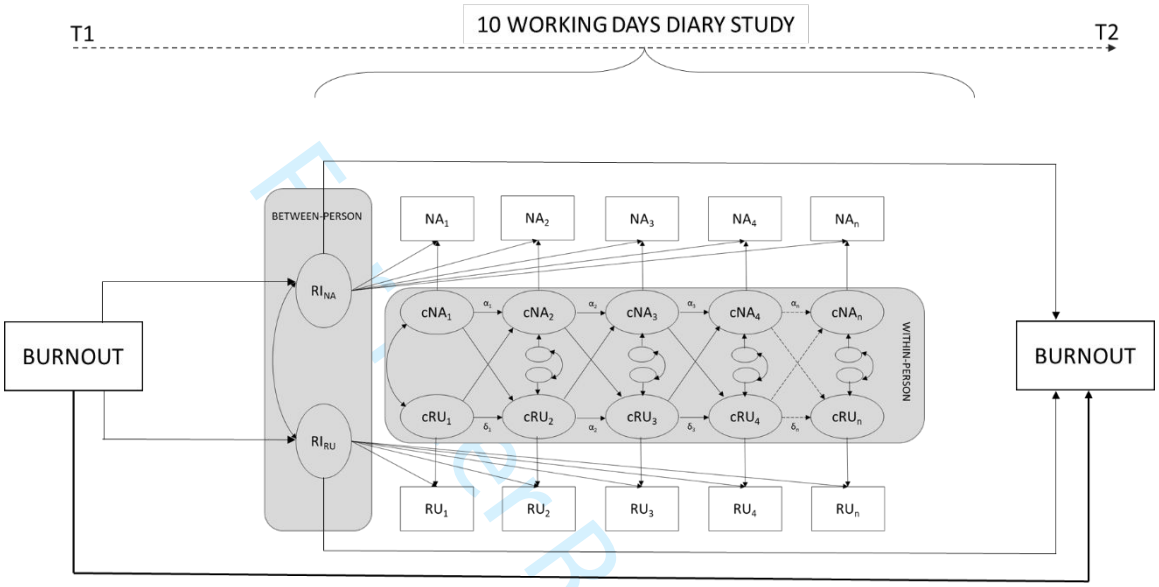
rumination were decomposed into between-person stable characteristics and within-person changes (see Figure 1). Accordingly, the first part of the model comprised two random intercepts; the second part included cross-lagged (spillover) relationships between negative affect and rumination, autoregressive (carryover) relationships within each variable, and same-day relations. For the first day, the same-day relation represented an association between the deviations from person-specific means in negative affect and rumination. For the following days, however, such relations were interpreted as a correlated change, that is, the extent to which a within-person change in negative affect was associated with a within-person change in rumination. We did not apply any time constraints, as not all the measurement intervals were equal due to objective reasons. Specifically, the lag from Friday to the following Monday was three times longer than the lag between two consecutive working days. For additional technical details, see Hamaker et al. (2015).

In the next step, we tested whether burnout measured at T1 was a time-invariant predictor and burnout measured at T2 was an outcome of the between-person part of the model. Therefore, a mediation model containing the direct effect of T1 burnout on T2 burnout and the indirect effect thereof through the random intercepts of negative affect and rumination was examined.

To test the models, we used the most frequently reported goodness-of-fit indexes: chi-squared (a nonsignificant result ($p > .05$) indicating a good fit; however, due to its well-known limitations, this index is generally considered inconclusive); the Tucker–Lewis index (TLI) and comparative fit index (CFI; for both, cut-off values of at least 0.95 indicate a good fit); the root mean squared error of approximation (RMSEA; values of up to 0.08 indicate a good fit; see Kline, 2011). Notably, since the basic and extended models were non-nested, they could not be directly compared. All analyses were conducted with Mplus version 8.2 (Muthén & Muthén, 2017).

Figure 1

The RI-CLPM of the Daily Relationship between Work-Related Negative Affect and Rumination, with the Extension of Burnout as a Predictor (T1) and the Outcomes of Random Intercepts (T2): A Mediation Model.



Note. $NA_{1\ to\ n}$: daily negative affect, $RU_{1\ to\ n}$: daily rumination, RI_{NA}: the random intercept of negative affect, RI_{RU}: the random intercept of rumination, $cNA_{1\ to\ n}$: within-person latent factors for negative affect, $cRU_{1\ to\ n}$: within-person latent factors for rumination, $\alpha_{1\ to\ n}$: the autoregressive (carryover) effect for negative affect, $\delta_{1\ to\ n}$: the autoregressive (carryover) effect for rumination. The figure was simplified to only the most crucial model parameters. For full parametrisation, see Mulder and Hamaker (2021).

Results

Descriptive Statistics

Table 1 presents the descriptive statistics and a correlation matrix for all the observed variables. The association between two measures of burnout, separated by four months, equalled .60 ($p < .001$). No significant deviations from the normal distribution were observed.

Model Testing

Within- and Between-Person Effects in Daily Negative Affect and Rumination

The basic model for negative affect and rumination fit the data very well, $\chi^2 = 160.14$, $df = 141$, $p = .129$; CFI = 0.989; TLI = 0.985; RMSEA = .024, 90% CI [0; .04]. However, most effects for the within-person part of the model were insignificant. Specifically, all but one of the cross-lagged effects were close to zero: Negative affect on Friday had a positive effect on rumination on Monday, $\beta_5 = .19$, SE = .08, $p < .05$. Three out of the nine autoregressive effects were significant for negative affect, $\alpha_4 = .29$, SE = .07; $\alpha_5 = .22$, SE = .08; $\alpha_9 = .24$, SE = .08; all $p < .05$, and the same result was found for rumination, $\delta_1 = .29$, SE = .07; $\delta_6 = .19$, SE = .08; $\delta_9 = .27$, SE = .07; all $p < .05$. However, from a weekly working-day perspective, the effects were not replicated from Thursday to Friday for negative affect and from Monday to Tuesday for rumination. Therefore, Hypothesis 1 was not supported.

Table 1

*Correlation Matrix (Upper Panel) and Descriptive Statistics (Lower Panel) of All the Observed Variables in the Study (*N = *235)*

Variable	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10
1. BURNOUT.T1	1																					
2. BURNOUT.T2	.60	1																				
3. NA.1	.42	.34	1																			
4. NA.2	.39	.43	.38	1																		
5. NA.3	.33	.34	.40	.45	1																	
6. NA.4	.34	.33	.33	.37	.44	1																
7. NA.5	.32	.37	.31	.43	.37	.55	1															
8. NA.6	.40	.35	.45	.46	.44	.52	.55	1														
9. NA.7	.40	.42	.36	.38	.43	.44	.46	.56	1													
10. NA.8	.29	.35	.35	.35	.44	.38	.40	.48	.48	1												
11. NA.9	.41	.34	.41	.40	.47	.33	.36	.53	.51	.51	1											
12. NA.10	.40	.40	.37	.39	.42	.31	.36	.47	.45	.47	.58	1										
1. RU.1	.20	.18	.32	.21	.08	.20	.26	.24	.25	.16	.15	.21	1									
2. RU.2	.19	.15	.19	.28	.18	.21	.23	.22	.22	.18	.10	.24	.47	1								
3. RU.3	.15	.22	.22	.23	.41	.26	.22	.23	.19	.19	.14	.24	.33	.35	1							
4. RU.4	.19	.16	.16	.19	.20	.45	.30	.26	.26	.26	.08	.12	.32	.38	.37	1						

5.	RU.5	.17	.27	.13	.18	.16	.21	.39	.23	.23	.23	.05	.22	.37	.39	.40	.42	1					
6.	RU.6	.22	.20	.18	.25	.23	.23	.34	.41	.32	.27	.12	.20	.42	.42	.31	.45	.50	1				
7.	RU.7	.28	.29	.15	.25	.26	.14	.22	.25	.38	.18	.15	.25	.25	.33	.31	.37	.46	.52	1			
8.	RU.8	.12	.23	.13	.10	.14	.14	.20	.21	.16	.33	.14	.21	.19	.25	.22	.35	.41	.40	.36	1		
9.	RU.9	.25	.27	.16	.22	.19	.11	.18	.22	.24	.24	.38	.28	.20	.25	.26	.26	.42	.34	.40	.40	1	
10.	RU.10	.18	.21	.17	.11	.07	.09	.12	.18	.15	.17	.17	.27	.21	.27	.20	.27	.33	.36	.33	.42	.49	1
	M	2.90	2.88	2.21	2.14	2.22	2.13	2.07	2.07	2.12	2.16	2.17	2.19	2.77	2.60	2.64	2.66	2.60	2.53	2.69	2.53	2.64	2.66
	SD	0.91	0.87	0.83	0.79	0.80	0.84	0.84	0.79	0.81	0.78	0.79	0.83	1.01	0.93	0.92	0.95	0.98	0.97	0.96	0.95	0.97	1.00
	Kurtosis	-0.68	-0.27	-0.28	1.00	0.31	-0.22	0.43	0.62	-0.71	-0.06	-0.02	0.39	-0.58	-0.58	0.00	-0.58	-0.47	-0.69	-0.30	-0.10	-0.05	-0.37
	Skewness	0.05	0.15	0.48	0.81	0.73	0.60	0.82	0.79	0.44	0.50	0.60	0.61	0.20	-0.12	0.24	0.01	0.11	-0.04	-0.13	0.20	0.24	0.12

Note. All the correlations higher than the absolute value of .13 are significant at $p < .05$. BURNOUT.T1 and T2: Burnout measured twice, separated by a four-month interval; NA.1 to .10: negative affect, RU.1 to .10: rumination, measured on 10 consecutive working days, each day denoted by the relevant number; *M*: mean, *SD*: standard deviation.

The only notable pattern was observed for same-day covariances, as all were positive and significant. This suggests that deviations from the mean at day 1 and changes in both variables not explained by the relevant autoregressive and cross-lagged relationships were associated in the same direction on any given day. For the between-person section of the model, both random intercepts had significant variance, which suggests that trait-like differences in negative affect, .27, SE = .03, $p < .001$, and rumination, .32, SE = .04, $p < .001$, existed in our sample. Additionally, the positive correlation between random intercepts, .49, $p < .001$, suggested that, as assumed in Hypothesis 2, individuals with generally higher negative affect also report more rumination.

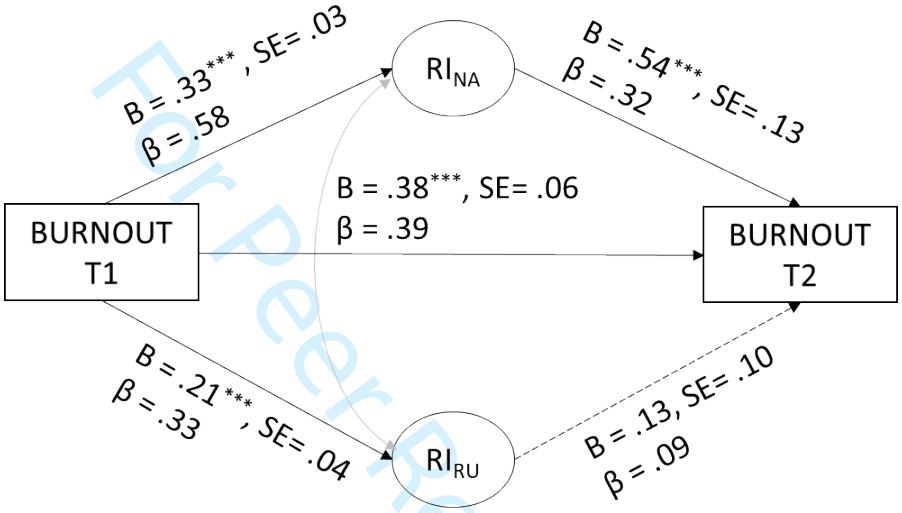
Burnout as a Predictor and Outcome of Negative Affect and Rumination Random Intercepts: A Mediation Model

In the next step, we tested the final model with two burnout assessments, one as a time-invariant predictor and one as an outcome. The model fit the data very well, $\chi^2 = 201.85$, $df = 177$, $p = .10$; CFI = 0.987; TLI = 0.983; RMSEA = .024, 90% CI [0; .04]. The general pattern of relationships in the within-person part of the model remained unchanged. The resultant mediation for the between-person part of the model is presented in Figure 2. As can be seen, only an indirect effect through the random intercept of negative affect was significant, .18, SE = .05, $p < .001$, suggesting that higher levels of burnout at T1 were related to higher general trait-like negative affect (derived from daily measures on 10 consecutive working days), which, in turn, was associated with the burnout level reported at T2. Such a partial mediation was, however, not observed for individual differences in rumination for the same period, .03, SE = .02, $p = .20$. The total explained variance of T2 burnout was 46.1%,

with the direct effect of T1 burnout accounting for 62.2% of this value. Hypothesis 3 was thus partially supported for negative affect only.

Figure 2

A Mediation Model of the Random Intercepts of Negative Affect (RI_{NA}) and Rumination (RI_{RU}) as Mediators between T1 and T2 Burnout



Note. B: unstandardised value; SE: standard error; β: standardised value. The dotted line depicts an insignificant path; *** $p < .001$.

Discussion

In our study, we combined a classical longitudinal design with an intensive longitudinal design to verify the relationship between daily work-related negative affect and rumination with changes in burnout levels across four months in a relatively stable working environment. These two measurements of burnout, despite the short time interval, were only moderately correlated (36% of the shared variance). The pooled stability coefficient also showed a similar size for the two burnout measurements in the meta-analytic structural

equation modelling of 74 longitudinal studies (Lesener et al., 2019). This suggests that burnout is a dynamic process rather than a time-invariant personal characteristic.

From a within-person perspective, none of the assumptions of Hypothesis 1, based on existing empirical findings for crossover and spillover effects, were supported by the data from our sample. Rumination is defined as maladaptive emotion-focused coping (Aldao & Nolen-Hoeksema, 2010), and its relationship with negative affect appears to be well-established (Kirkegaard Thomsen, 2006). However, most research has examined this relationship by referring to stable individual differences based on retrospective recall. A crucial next step proposed in our study was to examine what was left of this relationship in day-by-day dynamics when such trait-like components were removed. Notably, we found that neither autoregressive nor cross-lagged effects were replicated. Therefore, the carryover from one day to the next for both negative affect and rumination cannot be assumed inevitable, and the clinically well-recognised maladaptive cycle between rumination and negative affect still needs to be confirmed for states rather than traits (Cano-López et al., 2022; Clayton et al., 2023; Kirkegaard Thomsen, 2006).

It is unclear whether this null finding was a sample- or method-specific artefact. We examined work-related phenomena in a very specific and well-defined work context of civil servants. It may thus be possible that emotional reactions and the related use of rumination were not intense enough to produce carryover or cross-lagged effects. This may also be attributed to participants' fast recovery, in which inertia and the upward negative spiral are not strong enough to carry over to the next day. De Longis et al. (2021) found that individuals with low emotional inertia recover easily from negative affect. This may explain why the findings from a momentary ecological assessment (Blanke et al., 2022) differed, suggesting sensitivity to the interval length during which such an impact can be more easily identified. This was also evident in the results of the meta-analysis by Boemo et al. (2022), which

revealed a large effect size in the contemporaneous relationship between negative affect and rumination but no significant prospective relationships in daily diary studies. However, the prospective effect was significant in studies that used experience sampling methods.

Nonetheless, we obtained significant associations for same-day innovations (instability), that is, for values of negative affect and rumination that were not explained by the relevant autoregressive and cross-lagged values from the previous day. Therefore, we observed an effect of innovation rather than inertia and parallel rather than bi-directional processes. These associations may have been determined by similar underlying factors, but based on our study, we cannot determine whether they had personality or situational origins (Jongerling et al., 2015). Overall, we observed a pattern in which, when civil servants reported a surge in negative affect at the end of the working day (not explained by the values of negative affect and rumination reported the previous day), it was accompanied by increased rumination (not explained by the values of rumination and negative affect reported the previous day).

Hypothesis 2 was supported by the data. As expected, a positive correlation was found between the trait-like components of negative affect and rumination. The strength of this relationship was moderate yet likely strong enough to account for the removal of autoregressive effects. Findings from intensive longitudinal research have shown that individuals exhibit considerable variations in their behaviour over time, regardless of the domain examined (Fleeson & Gallagher, 2009; Moskowitz & Zuroff, 2004; Wright & Simms, 2016). Additionally, shifts in one's situation tend to reliably predict shifts in one's behaviour (Sherman et al., 2015), suggesting that at least some of the within-person behavioural fluctuations could be explained by transitions between situations. This confounds temporal dynamics in the context of personality: Despite daily fluctuations, individuals maintain a consistent sense of personal identity.

Moreover, concerning Hypothesis 3, among the stable components, negative affect was the only significant mediator between the two levels of burnout, even though both negative affect and rumination were positively related to the initial measurement of burnout. That is, burnout predicted a tendency to report negative affect and rumination, but only negative affect later translated into an increase in burnout levels. This result is consistent with some existing findings. For instance, Slavish et al. (2018) revealed that daily negative affect can be more dangerous for health than daily rumination, while Brose et al. (2015) found that the daily inertia of negative affect is more strongly and uniquely related to depressive symptoms among young adults. Specifically, after controlling for rumination, negative affect predicted depressive symptoms. Furthermore, chronic exhaustion due to negative affect may impede an individual's functional capacity to regulate their emotional states (De Longis et al., 2021). Although this manifests mainly in clinical and relatively high levels of burnout (Bianchi & Schonfeld, 2016), Roczniewska and Bakker (2021) observed maladaptive patterns of self-regulation in nurses who had even mild burnout symptoms. Furthermore, the persistent presence of negative affect is considered a proximate indicator of occupational burnout, serving as an early sign of the adverse effects of occupational stress (Bakker & Oerlemans, 2011). Therefore, it is possible that reporting higher levels of negative affect, even over a period as brief as 10 working days, can be sufficient to indicate the early stages of burnout development.

Limitations

Our study had several limitations. The first was related to the time frame. Ten consecutive working days is a reasonable period and longer than what was used in previous studies (most of which took place over one week, i.e., five days). However, recognising more consistent patterns of emotional regulation may require longer observation. Moreover, the measurement points covered different intervals, which were interrupted by the weekend.

Burnout was also evaluated only twice and separated by a relatively short interval, so changes were only short-term or accidental. Nevertheless, only a moderate correlation between these values indicates alterations in self-reported burnout, suggesting that its dynamics should be further researched in various temporal settings. A second limitation was the diary design. The measurements process may have been experienced as an intervention, encouraging participants to reflect on emotional regulation more often and manage their emotions more consciously. A third limitation pertained to the lack of controlling for depression, particularly in the context of examining processes related to the regulation of negative emotions, as its potential overlap with burnout remains a subject of debate (Bianchi & Schonfeld, 2016). A final limitation was the sample's specificity. Even though the homogeneity in the sample allowed us to reduce the interference caused by other sources of variance, such as social desirability, diversified work conditions, and role demands, it was primarily composed of women in stable working conditions. This could reduce the generalisability of our findings.

Conclusions

The results of our study reveal significant same-day, within-person relationships between negative affect and work-related rumination, with no significant carryover or spillover effects. Additionally, a significant association was found between stable between-person differences, indicating that higher overall negative affect is related to more rumination. Moreover, only general negative affect – rather than work-related rumination – served as a mediator between the two burnout measurements, which were separated by four months. Theoretically, considering both the between-person and the within-person levels of negative affect and rumination, our findings clarify the process of job burnout. First, after removing stable interpersonal differences, reciprocal cross-lagged effects between daily negative affect and daily rumination could not be confirmed. Second, work-related affect may longitudinally play a stronger role in burnout exacerbation than ruminating on work. Practically, this

suggests that interventions should focus on promoting daily emotional recovery from work rather than solely targeting rumination as a maladaptive regulation strategy, especially when itfunctions primarily as a situational response.

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