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Development and Validation of a Questionnaire for Measuring Resources and Demands at Work (ReDema)

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Abstract: Stress and well-being research at work has significantly increased over the past century. In this paper, we develop and validate a questionnaire that enables companies and their employees to assess their demands and resources at work in a valid and parsimonious manner. Based on the JD-R theory, the questionnaire comprises 28 different job demands and resources that cover not only the broad range of demands and resources existing in the work stress literature but also the intensified technology use initiated by the COVID-19 pandemic. Three independent studies (total $N = 4,000$ participants) validated the questionnaire, revealing construct and criterion validity. Furthermore, the analyses provided predictive validity for job demands (emotional exhaustion, depression, negative affect, counterproductive work behavior, and rumination) and resources (sleep quality, work engagement, positive affect, motivation, job satisfaction, and life satisfaction), as well as incremental validity over existing measures. The ReDema Questionnaire offers a valid and comprehensive tool to identify resources and demands in the work context, while helping organizations to implement targeted interventions to promote psychological well-being in the workplace.

Keywords: ReDema, questionnaire validation, job demands and resources, psychological health

Entwicklung und Validierung eines Fragebogens zum Erfassen von Ressourcen und Anforderungen im Arbeitskontext (ReDema)

Zusammenfassung: Forschung zu Wohlbefinden am Arbeitsplatz hat im letzten Jahrhundert erheblich zugenommen. In diesem Artikel entwickeln und validieren wir einen Fragebogen, der es Unternehmen und ihren Mitarbeitenden ermöglicht, ihre Ressourcen und Anforderungen am Arbeitsplatz zu erfassen. Basierend auf der JD-R-Theorie umfasst der Fragebogen 28 verschiedene Arbeitsanforderungen und -ressourcen. Der Fragebogen wurde in drei unabhängigen Studien (gesamt $N = 4.000$ Teilnehmende) validiert. Neben Konstrukt- und Kriteriumsvalidität zeigten Analysen prädiktive Validität für Arbeitsanforderungen (emotionale Erschöpfung, Depression, negativer Affekt, kontraproduktives Arbeitsverhalten und Grübeln) und Ressourcen (Schlafqualität, Arbeitsengagement, positiver Affekt, Motivation, Arbeitszufriedenheit und Lebenszufriedenheit). Der ReDema Fragebogen bietet ein valides und umfassendes Instrument zur Identifikation von Anforderungen und Ressourcen im Arbeitskontext und hilft Unternehmen dadurch, psychische Gesundheit zu fördern.

Schlüsselwörter: ReDema, Fragebogenvalidierung, Arbeitsanforderungen und -ressourcen, psychische Gesundheit

Stress and well-being research has increased significantly over the past century (Bliese et al., 2017; Kelloway et al., 2023; Sonnentag et al., 2023), reflecting the rapid changes in the world of work. The so-called New Work calls for new ways of interacting and work design, e.g., using digital tools. Such changes in work characteristics, together with individual demands and resources, influence the well-being of individuals (Demerouti & Bakker, 2022).

In addition to the increased interest in stress and well-being research, psychological health interventions for psychological health prevention are becoming more common as well (Karabinski et al., 2021; Kelloway et al., 2023).

Before implementing such interventions, however, it is essential to capture the status of people's health and the well-being status at work. Therefore, we need short but comprehensive instruments to assess the work characteristics associated with the psychological health of employees. We acknowledge the high number and variety of existing questionnaires and conducted a literature review to identify questionnaires measuring psychological health in the work context over the past 20 years (starting in 2002). Furthermore, we adopted a mixed-methods approach and conducted semistructured interviews with leaders and employees to gain more insight into the resources and demands

people are confronted with. The present paper describes the development and validation of the ReDema Questionnaire (Resources and Demands at Work).

Our ReDema Questionnaire expands existing questionnaires on working conditions in at least three ways. First, we aimed to develop a comprehensive questionnaire that captures many demands and resources, as introduced in the Job Demands-Resources (JD-R) model (Bakker & Demerouti, 2007; Demerouti et al., 2001). Previous questionnaire development studies have proposed many different approaches: While the KFZA (Kurz-Fragebogen zur Arbeitsanalyse; engl.: Short Questionnaire for Work Analysis; Prümper et al., 1995) synthesizes items from multiple other instruments, the COPSOQIII (Copenhagen Psychosocial Questionnaire) combines dimensions from various theories but does not adhere to a singular theoretical framework (Burr et al., 2019; Kristensen et al., 2005; Lincke et al., 2021). The FGBU (Fragebogen zur Gefährdungsbeurteilung psychischer Belastungen; engl.: Questionnaire for Psychosocial Risk Assessment at Work; Dettmers & Krause, 2020) is rooted in practical guidelines and focuses predominantly on assessing risk factors at work. In contrast, the ReDema Questionnaire captures a holistic view by systematically addressing demands and resources as outlined in the JD-R model. The ReDema Questionnaire offers a more differentiated assessment of needs and resources than the KFZA. Additionally, it covers digitalization and organizational change – two increasingly relevant aspects of modern work environments – that are underrepresented in the COPSOQIII, the KFZA, and the FGBU. Second, we prioritized brevity to ensure practical applicability in organizational settings without compromising the breadth of content. The ReDema Questionnaire is shorter than the COPSOQIII, making it more feasible for practitioners to implement in organizational settings without overburdening respondents. This combination of efficiency and comprehensiveness makes the ReDema particularly attractive for workplace assessments where time constraints and diagnostic depth must be balanced. Third, we applied a robust methodology with three validation studies (Study 1: $N = 976$; Study 2: $N = 2,000$; Study 3: $N = 1,009$), examining construct validity, criterion validity, predictive validity, and incremental validity. Our findings indicate that the ReDema explains significantly more variance in relevant outcomes than existing instruments, such as the KFZA and the FGBU, offering a tool that is both scientifically validated and practically useful.

Theoretical Background

According to the JD-R model (Bakker & Demerouti, 2007; Demerouti et al., 2001), one can classify work character-

istics into job demands and job resources. Whereas the latter have motivational potential, leading to, for example, high work engagement and performance, the former have health-impairing effects. Furthermore, the interaction of job demands and resources also influences job strain and motivation. In the following, we present an excerpt of the most essential demands and resources identified in the literature. For an overview of the demands and resources considered, see Supplement 1 (ESM 1).

First, job demands and resources can arise directly from the work task. In terms of quantitative demands, both work intensity (Dettmers & Krause, 2020) and time pressure (e.g., Bakker & Demerouti, 2007; Schaufeli & Taris, 2014) contribute to the overall workload and may impact well-being. However, qualitative aspects may also harm psychological health and thus be perceived as demands. This includes the high complexity of work tasks and high cognitive involvement (e.g., Schaufeli, 2017; Schaufeli & Taris, 2014) as well as work interruptions (Baethge & Rigotti, 2013; Leroy et al., 2021). In contrast, other qualitative work characteristics such as those described in the Job Characteristics Model (Hackman & Oldham, 1976), namely, skill variety, task identity (experiencing the completeness of a task cycle), meaningfulness, autonomy, and feedback, can be considered resources, promoting internal motivation, satisfaction, and improved performance.

Beyond the task, how work is organized is also associated with psychological health. Problematic workflows, e.g., characterized by high repetitiveness, pose potential threats (Bakker et al., 2003; Häusser et al., 2014). Structural aspects of work organization may also interfere with family and social life (Arlinghaus et al., 2019; Boivin et al., 2022), contributing to work-life or life-work conflicts (Brogle et al., 2024; Schaufeli, 2017; Schaufeli & Taris, 2014), which in turn may impair psychological health.

Adding to these challenges, the dissolving boundaries (Brogle et al., 2024; Wepfer et al., 2018) between work and private life have emerged as a significant risk factor. The ongoing digitalization and rapid evolution of information and communication technology (ICT) only exacerbate these blurred boundaries. Those technological advancements themselves can be demanding by causing technical problems (Bakker et al., 2003; Bakker & Demerouti, 2007; Schaufeli & Taris, 2014). But, even more relevant, they introduce significant changes to the workplace (Rau & Hoppe, 2020): Employees must process complex and ambiguous information delivered through various ICT channels and face transformative changes in work processes. These changes can result in a feeling of being less involved or connected to the organization (digitalization – work context). Additionally, while digital tools may facilitate work, the work content of individual

tasks changes, and employees become dependent on digital tools for task completion. Therefore, estimating task durations becomes increasingly complex, which may lead to overtime and reduced flexibility, as technical processes begin to dictate how tasks are completed (digitalization – work content). Finally, work structures are being reorganized to enable remote work. However, virtual collaboration may disrupt workflows, for example, because of misunderstandings or lack of information (digitalization – work organization).

Furthermore, especially in the remote-work context, loneliness and social isolation in the workplace pose a significant challenge for many employees (Wang et al., 2020). A lack of opportunities for social exchange and communication, e.g., through informal conversations with colleagues, can lead to feelings of loneliness, expressed as psychological pain over perceived relationship deficits in the workplace (Wright & Silard, 2021). Loneliness and social isolation are negatively associated with work performance and well-being among employees and managers because of a lack of perceived belonging in the workplace (Andel et al., 2021; Gabriel et al., 2021; Ozcelik & Barsade, 2018). Therefore, one cannot overstate the importance of social relationships in the workplace. The JD-R model predominantly views social relationships as resources, for example, in the form of social support from managers or peers (Bakker & Demerouti, 2007; Demerouti et al., 2001; Schaufeli & Taris, 2014), and rewards and appreciation for the work done (Demerouti et al., 2001; Schaufeli & Taris, 2014). However, social interaction per se can have detrimental effects on well-being, be it in the form of unclear role distribution, bullying, or stressful social interactions, both within the organization and with external stakeholders (Demerouti et al., 2001; Schaufeli, 2017; Schaufeli & Taris, 2014; Volmer, 2015). To interact effectively with customers or within the team, one may engage in emotional regulation, which involves intensifying, faking, or suppressing one's emotions (Grandey, 2000). While deep acting attempts to reconcile necessary and true feelings, surface acting involves changing the expression of emotions. The latter form of emotional work, particularly, is associated with substantial adverse health effects (Hülsheger & Schewe, 2011). Therefore, even though social relationships are mainly seen as a resource, we must also consider the potential downsides of social interaction.

It is also necessary to examine the demands placed on employees at the organizational level (Bakker & Demerouti, 2017), though few studies have considered organizational demands such as organizational change or job insecurity. While those are negatively associated with psychological health (Hughes et al., 2024; Schaufeli, 2017), other organizational aspects, such as fairness

(Lopez-Martin & Topa, 2019; Schaufeli, 2017) or participation in decision-making (Schaufeli, 2017), have a positive influence.

In certain professional groups and industries, the physical work environment poses the highest risk of work demands. For example, in the transportation industry, work environment demands, measured by climate, light, noise, workplace layout, or work materials, were the strongest predictor of burnout (Demerouti et al., 2001). Unpredictability caused by physical factors (e.g., accidents, storms) or when transporting dangerous goods seems more likely in these industries and can significantly impact employees' well-being. The importance of safety in the workplace was further examined through a meta-analysis (Nahrgang et al., 2011), showing that risks and hazards are the most consistent job demands in explaining variance in burnout, engagement, and safety outcomes.

Questionnaire Development and Validation

We aimed to develop a comprehensive but parsimonious questionnaire. Therefore, building on the job demands and resources (JDR) theory (Demerouti et al., 2001), we first conducted extensive literature research and qualitative interviews with 46 leaders and employees from diverse small and medium enterprises (SMEs) to identify demands and resources affecting psychological health at work. We conducted a deductive questionnaire development approach based on the dimensions obtained from the literature review and the expert interviews. Following the recommendation of Hinkin (1998), we developed a minimum of six items per dimension, resulting in 194 items and 28 dimensions. Items were phrased as simple and short, avoiding double-barreled items. Items should be answered on 5-point Likert scales (1 = *Strongly disagree*, 5 = *Strongly agree*).

To test for content validity, we conducted an item sort task. Five team members (one research associate, four student assistants, 60 % female) received definitions of the dimensions and assigned the respective dimension to each item presented in random order. The analyses showed that at least four of the five raters correctly assigned 158 of the 194 items; we investigated the remaining 36 items separately. Specifically, we kept 5 items, rephrased 16 items to improve their fit to the respective factor, excluded 6 items, and assigned 6 items to another dimension, identified by at least four out of five raters as the correct dimension. Raters were indecisive whether 3 items belonged to work-life conflict or boundary dissolution. Because both dimensions were very similar, we merged the two factors into one joint work-

life-conflict dimension. Additionally, we divided the digitalization dimension into three separate dimensions, focusing on work context, organization, and content, resulting in 29 with 180 items dimensions overall. For the merged work-life-conflict dimension, we retained all 12 items to allow for a factor-analytic examination in Study 1 to explore any potential content differences. For the other 28 dimensions, we reduced the number of items based on content considerations. In cases where the redistribution of items had resulted in more than six items per dimension, we adjusted the number to six per dimension.

In the next step, we conducted three independent studies to validate the construct validity, criterion validity, predictive validity, and incremental validity of the ReDema Questionnaire. We recruited the participants via a German online access panel provider that specializes in research purposes and is certified according to ISO 20252. The participants received an incentive of 1 € for participation in the 20-minute online survey.

Study 1

Our first study aimed to empirically test the factorial structure and reduce the number of items to three per factor. Ultimately, the model fit of the final item set was tested to evaluate construct validity.

Method

Sample

In total, 976 people participated in the first online panel study, 503 of whom reported being male (51.54%), 472 female (48.36%), and 1 person diverse. The participants ranged in age from 19 to 65 ($M = 44.65$, $SD = 11.02$). Almost one-third of the participants reported leadership responsibility (28.28%).

Measures

The participants completed the preliminary ReDema Questionnaire with its 180 items (29 dimensions) on 5-point Likert scales (1 = *Strongly disagree*, 5 = *Strongly agree*).

Statistical Analysis

We first conducted an exploratory factor analysis (EFA) and reduced the number of items on our questionnaire by rejecting items with too high or too low item difficulty, items with only low variance, and items that were too similar to other items to have 3 items per factor. Finally,

we tested the factors and items resulting from the previous analyses using confirmatory factor analysis (CFA) to test the construct validity of our final ReDema Questionnaire.

Results and Discussion

EFA and Psychometric Aspects

To identify the best-fitting factor structure for our questionnaire, we conducted an EFA. Initially, we used principal component analysis (PCA) without rotation to reduce the dimensionality of the data, revealing eigenvalues that suggested retaining 32 factors. We then validated the number of factors using parallel analysis. A preliminary Bartlett test ($p < 0.5$) and Kaiser-Meyer-Olkin measure of sampling adequacy ($KMO = 0.95$) confirmed the suitability of the data for factor analysis. Using parallel analysis with Promax rotation, we extracted factors with eigenvalues > 1 . The parallel analysis suggested 21 factors, whereas 32 had eigenvalues > 1 . As the models with more factors explained substantially more variance than the model with 21 factors (21 factors, 63%; 28 factors, 69%; 29 factors, 69%; 30 factors, 70%; 31 factors, 70%; 32 factors, 71%), and because of contentual considerations, we agreed on the 30-factor model. Compared to the 29-factor model, this model combined the effort-reward-imbalance and appreciation dimensions into one Effort-reward imbalance factor, added a second Work-life conflict factor, and introduced a second Digitalization-work content factor. To obtain 3 items per factor, we based item selection on item difficulty, variance, means, standard deviations, and Cronbach's α . As a result of this process, the two newly added factors (the second Work-life conflict factor and the second Digitalization-work content factor) were excluded because of low internal consistency ($\alpha = .36$; $\alpha = .68$). The reliability of the remaining 28 factors ranged from $\alpha = .70$ to $\alpha = .94$.

Confirmatory Factor Analyses (CFA)

We conducted CFA to evaluate the model fit of the final ReDema Questionnaire. The questionnaire showed the best fit for the 28-factor model ($\chi^2 = 5161.77$, $df = 3024$, $CFI = .958$, $TLI = .951$, $RMSEA = .027$, $SRMR = .036$) compared to a single-factor ($\chi^2 = 39605.73$, $df = 3402$, $CFI = .287$, $TLI = .269$, $RMSEA = .105$, $SRMR = .128$) or two-factor model (i.e., resources and demands) ($\chi^2 = 34421.18$, $df = 3401$, $CFI = .389$, $TLI = .374$, $RMSEA = 0.097$, $SRMR = .118$) (for fit indices, see Table 1). The factor loadings of the 28-factor model ranged from .566 to .928.

Our results support using the ReDema subdimensions as 28 dimensions with excellent fit indices. Therefore, our final ReDema Questionnaire consists of 28 dimensions,

Table 1. Model fit statistics of the established 28-factor model and the compared 2-factor and 1-factor models

Model	df	TLI	CFI	RMSEA	95 % CI	SRMR	AIC
28-factor ^a	3,024	.951	.958	.027	[.026, .028]	.036	193,697.668
2-factor ^b	3,401	.374	.389	.097	[.096, .098]	.118	222,203.078
1-factor ^c	3,402	.269	.287	.105	[.104, .106]	.128	227,385.634

Note. *N* = 972; TLI = Tucker-Lewis index; CFI = comparative fit index; RMSEA = root mean square error of approximation; AIC = Akaike's information criterion. ^aFactors regarding the final ReDema Questionnaire. ^bFactors: Resources and demands represent separate factors. ^cItems load onto a single factor.

represented by 3 items each (see Appendix “ReDema Items English” for the complete ReDema Questionnaire and its key characteristics; see Supplement 2 [ESM 1] “ReDema Items German” for the German item list).

Study 2

In Study 2, we tested the construct and criterion validity of our newly developed ReDema Questionnaire. To assess the construct validity, we first compared the ReDema Questionnaire with three well-established questionnaires that are widely used to evaluate (psychological) health at the workplace, namely, the COPSOQIII (Burr et al., 2019; Lincke et al., 2021), the KFZA (Prümper et al., 1995), and the FGBU (Dettmers & Krause, 2020). Following the job-demands-job-resources structure, we hypothesize the following:

Hypothesis 1 (H1): The ReDema demands dimensions are positively related to the COPSOQIII, the KFZA, and the FGBU demands dimensions.

Hypothesis 2 (H2): The ReDema resources dimensions are positively related to the COPSOQIII, the KFZA, and the FGBU resources dimensions.

Beyond the comparison with established questionnaires, we conducted further analyses to assess the criterion validity of the ReDema Questionnaire by examining its relationship with health-related constructs in the work context, such as depression and job anxiety. One of the most prevalent conditions impairing mental health is depression (Bianchi et al., 2024; Bianchi & Schonfeld, 2020; Everaert et al., 2022; Ots et al., 2023). People suffering from depression report lowered mood, lack of energy, and decreased activity (American Psychiatric Association, 2013), which detrimentally affect their daily functioning and cause suffering. Even though the above-mentioned symptoms may be similar to those resulting from high demands in the work context, depression and demands are not interchangeable. It is instead the case

that demands are a risk factor for depression and, as such, precipitate depression (Rösler et al., 2008).

Another factor reducing mental health is anxiety, which includes symptoms, e.g., fatigue, problems with concentration, or sleep disturbance (American Psychiatric Association, 2013). Besides the general form, there is also a specific work-related form: job anxiety (Muschalla et al., 2010), which is characterized predominantly by tension and apprehension in the workplace (Foulk & Lanaj, 2022; Muschalla et al., 2010). Demands and anxiety are linked, as the research suggests that, even if responding to job demands produces positive outcomes, perceived job demands are likely to increase employees' daily anxiety (Chen et al., 2017; Foulk & Lanaj, 2022).

Two concepts closely intertwined with job resources are job satisfaction and resilience. Job satisfaction is a positive evaluation of one's job or job situation and may entail cognitive and emotional aspects (Judge et al., 2017; Xu et al., 2023). While job resources are positively associated with job satisfaction by offering physical, cognitive, social, or organizational benefits (Miao et al., 2017), they are distinct from job satisfaction (Solomon et al., 2022). Resilience is the ability to rebound from adverse emotional experiences and adapt dynamically to evolving challenges arising from stressful experiences (Hu et al., 2015). It is positively related to positive indicators of psychological health and, as such, an essential contributor to well-being (Hu et al., 2015; Liu et al., 2020), e.g., by enabling individuals to cope with adverse events.

As depression and job anxiety share similar symptoms with an overload of high demands in the work context, while job satisfaction and resilience are associated with psychological well-being, we hypothesize the following relationships between the ReDema demands and resources with the above-mentioned constructs:

Hypothesis 3 (H3): The ReDema demands (resources) correlate positively (negatively) with depression and job anxiety.

Hypothesis 4 (H4): The ReDema resources (demands) dimensions correlate positively (negatively) with job satisfaction and resilience.

Method

Sample

We drew upon two independent samples with $N = 1,000$ respondents each (gender equally distributed). In Sample 1, used to compare the ReDema Questionnaire with other questionnaires, 273 participants held leadership positions (27.30 %) to assess construct validity; in Sample 2, used for the comparison with other health-related constructs in the workplace, 315 participants held supervisory positions (31.50 %) to test criterion validity. Both samples ranged in age from 20 to 65 (Sample 1: $M = 44.82$ years, $SD = 11.39$; Sample 2: $M = 45.80$ years, $SD = 11.33$).

Measures

Sample 1 assessed the ReDema Questionnaire. We used the version resulting from Study 1, which identified 28 dimensions (19 demands, 9 resources) with 3 items each. The answers were given on 5-point Likert scales (1 = *Strongly disagree*, 5 = *Strongly agree*). Additionally, we assessed the COPSOQIII (Burr et al., 2019; Lincke et al., 2021) consisting of 84 items, covering 31 dimensions, e.g., role conflicts, job insecurity, support, and meaningfulness. The multitude of items and dimensions makes the COPSOQIII the most comprehensive questionnaire. Furthermore, we applied the Short Questionnaire for Work Analysis (KFZA; Prümper et al., 1995). The participants rated 26 items on a 5-point scale based on how much the respective item applied to their work (1 = *Very little*, 2 = *A little*, 3 = *Average*, 4 = *A lot*, 5 = *Very much*). The KFZA comprises 11 dimensions, e.g., work disruptions, quantitative work demands, autonomy, and completeness. We used the Questionnaire for Psychosocial Risk Assessment at Work (FGBU; Dettmers & Krause, 2020) to assess various demands and resources in the work context. It consists of 67 items, covering 20 demands and resources dimensions, e.g., emotional dissonance, work intensity, autonomy, and social support. The participants indicated their agreement with the items on a 4-point scale (1 = *Does not apply at all*, 2 = *Applies somewhat*, 3 = *Mostly applies*, 4 = *Applies strongly*).

Sample 2 assessed the ReDema Questionnaire as described above. We employed the Beck-Depression Inventory (BDI-II; Beck et al., 2006) and the Occupational Depression Inventory (ODI; Bianchi et al., 2024; Bianchi & Schonfeld, 2020) as depression measures. The BDI-II consists of 22 items with a unique response format per item. The first 9 ODI items cover how often their work had impacted the participants during the past 2 weeks on a 4-point scale (0 = *Never or rarely*; 1 = *A few days only*, 2 = *More than half the days*, 3 = *Nearly every day*). We measured job anxiety using the Job-Anxiety Scale (JAS; Linden et al., 2008) on a 5-point scale ranging from 1 =

Does not apply at all to 5 = *Applies strongly*. We measured job satisfaction using the Brief Index of Affective Job Satisfaction (BIAJS; Thompson & Phua, 2012), answered on a 5-point scale (1 = *Strongly disagree*, 2 = *Disagree*, 3 = *Neutral*, 4 = *Agree*, 5 = *Strongly agree*).

We measured resilient behavior in the workplace with the short version of the Resilient Work Scale (Soucek et al., 2015), with answers provided on a scale from 1 = *Does not apply at all* to 7 = *Applies strongly*.

Statistical Analysis

In Sample 1, we correlated the demands and resources dimensions of the ReDema Questionnaire with those of the COPSOQIII, the KFZA, and the FGBU. We expected positive correlations between the ReDema dimensions and the corresponding dimensions of the comparison questionnaires.

In Sample 2, we compared the ReDema dimensions with constructs related but not identical to workplace health, specifically depression, job anxiety, job satisfaction, and resilience. We expected positive correlations for ReDema demands with depression and job anxiety but negative correlations of these constructs with the ReDema resources. For job satisfaction, we expected the opposite pattern, with positive correlations with the ReDema resources and negative correlations with the ReDema demands.

Results and Discussion

Table 2 presents an overview of ReDema subdimension means, standard deviations, reliabilities, and their inter-correlations.

Construct validity in Relation to the COPSOQIII, the KFZA, and the FGBU

We expected the ReDema demands dimensions to correlate highly with the demands dimensions of the COPSOQIII, the KFZA, and the FGBU (all correlations of the ReDema and the comparison questionnaire dimensions can be obtained from the supplemental material: COPSOQIII (Supplement 3, ESM 1), KFZA (Supplement 4, ESM 1), and FGBU (Supplement 5, ESM 1)). The individual dimensions of the ReDema demands correlated highly with the demands dimensions of the COPSOQIII ($.31 < r < .64$), the KFZA ($.50 < r < .65$), and the FGBU ($.30 < r < .65$). However, there were a few exceptions, where dimensions correlated negatively with the separate ReDema demands. For example, being underchallenged (FGBU) and cognitive demands (ReDema) correlated negatively ($r = -.24$, $p < .001$). The negative correlation is comprehensible because facing challenging cognitive de-

Table 2. Reliabilities and intercorrelations of the ReDema dimensions

	M	SD	WI	ERI	WE	CD	REP	EL	INTER	WLC	TECH	TP	PHYS	CHANGE	SS	RS	BULLY	INSEC	Dig Context	Dig Org	Dig Content
ReDema	2.89	0.37																			
Demands	2.63	0.55	.94																		
WI	3.22	1.00	.89																		
ERI	3.14	1.09	.35	.84																	
WE	2.06	0.96	.30	.44	.80																
CD	3.84	0.84	.39	.06	-.01	.85															
REP	3.69	0.88	.05	.22	.19	-.11	.89														
EL	2.53	1.09	.29	.38	.31	.14	.08	.87													
INTER	2.90	1.07	.46	.32	.27	.27	.07	.44	.91												
WLC	2.37	1.26	.22	.07	.10	.10	-.07	.17	.16	.88											
TECH	2.35	1.00	.30	.39	.44	.11	.09	.42	.46	.13	.84										
TP	3.14	0.91	.53	.26	.19	.39	-.03	.36	.42	.32	.30	.77									
PHYS	1.91	1.09	.28	.28	.43	-.09	.17	.25	.09	.24	.24	.26	.91								
CHANGE	2.66	1.00	.37	.20	.22	.29	-.11	.35	.33	.24	.28	.52	.23	.82							
SS	2.41	0.98	.32	.42	.34	.12	.02	.50	.40	.18	.45	.33	.25	.32	.86						
RS	2.04	0.97	.18	.38	.33	.02	-.07	.40	.34	.13	.40	.24	.18	.32	.50	.83					
BULLY	1.71	0.88	.23	.40	.37	-.00	.03	.47	.29	.16	.38	.24	.30	.25	.65	.54	.91				
INSEC	2.06	1.00	.17	.29	.25	-.04	-.01	.27	.17	.15	.25	.16	.20	.23	.24	.34	.30	.84			
Dig Context	2.49	0.91	.24	.18	.14	.17	-.08	.30	.28	.11	.29	.29	.07	.35	.28	.34	.26	.24	.70		
Dig Org	2.19	0.95	.24	.25	.23	.09	-.02	.34	.30	.20	.38	.27	.19	.32	.35	.39	.35	.29	.59	.85	
Dig Content	2.10	0.84	.25	.27	.34	.04	-.01	.37	.28	.20	.40	.27	.26	.27	.33	.38	.36	.30	.43	.46	.76
Resources	3.23	0.49																			
AUT	3.78	0.89	-.06	-.17	-.20	.12	-.01	-.17	-.09	.12	-.17	.01	-.14	.02	-.15	-.17	-.22	-.18	-.06	-.08	-.18
COMP	3.67	0.87	.13	-.08	-.09	.27	.05	-.08	.03	.16	-.08	.13	.01	.12	-.10	-.19	-.15	-.17	-.05	-.05	-.09
VAR	3.78	0.88	.21	-.15	-.15	.45	-.21	-.08	.05	.19	-.11	.24	.00	.24	-.07	-.19	-.17	-.17	.06	-.02	-.08
LSup	3.60	1.13	-.13	-.50	-.28	.09	-.09	-.30	-.19	.07	-.24	-.03	-.10	-.05	-.36	-.30	-.37	-.24	-.07	-.09	-.12
Meaning	3.87	0.91	.02	-.15	-.11	.22	.05	-.10	-.11	.09	-.08	.04	.04	-.03	-.11	-.33	-.16	-.25	-.07	-.11	-.09
FB	3.43	0.93	.01	-.32	-.21	.24	-.09	-.13	-.11	.14	-.17	.10	-.03	-.07	-.22	-.27	-.23	-.18	-.01	-.07	-.05
SocSup	3.75	0.92	-.11	-.38	-.23	.12	-.03	-.31	-.17	.00	-.19	-.07	-.13	-.06	-.41	-.34	-.46	-.25	-.09	-.19	-.22
PART	2.99	1.11	.04	-.30	-.16	.17	-.18	-.12	-.03	.26	-.12	-.01	-.01	.10	-.12	-.12	-.13	-.13	.02	-.04	.01
FAIR	3.17	1.02	-.10	-.40	-.22	.10	-.07	-.19	-.19	.11	-.22	.01	-.05	.02	-.28	-.29	-.24	-.16	-.02	-.10	-.07

Table 2. Reliabilities and intercorrelations of the ReDema dimensions (continued)

	AUT	COMP	VAR	LSup	Meaning	FB	SocSup	PART	FAIR
Resources	.92								
AUT	.83								
COMP	.49	.82							
VAR	.39	.47	.87						
LSup	.24	.26	.33	.93					
Meaning	.23	.27	.42	.31	.79				
FB	.25	.34	.43	.59	.39	.84			
SocSup	.28	.27	.31	.57	.32	.43	.92		
PART	.36	.33	.37	.45	.33	.44	.39	.94	
FAIR	.24	.25	.30	.54	.34	.50	.46	.56	.90

Note. $n = 952 - 1000$. Bold values on the diagonal indicate Cronbach's α . WI = work intensity, ERI = effort-reward imbalance, WE = work environment, CD = cognitive demands, REP = repetitiveness, EL = emotional labor, INTER = work interruptions, WLC = work-life conflict, TECH = technical problems, TP = time pressure, PHYS = physical demands, CHANGE = (organizational) change, SS = social stressors, RS = role stress, BULLY = bullying, INSEC = work(place) insecurity, Dig Context = digitalization – work context, Dig Org = digitalization – work organisation, Dig Content = digitalization – work content, AUT = autonomy, COMP = completeness, VAR = variety, LSup = leader support, Meaning = meaningfulness, FB = feedback, SocSup = social support, PART = participation, FAIR = fairness.

mands contradicts being underchallenged. Nevertheless, both are demands and thus do not compromise construct validity. Apart from such explicable negative correlations, the most significant correlations between the ReDema demands dimensions and the respective demands dimensions of the COPSOQIII ($-.08 < r < .70$), the KFZA ($.09 < r < .68$), and the FGBU ($-.24 < r < .69$) were positive and can be considered high (Cohen, 1988). Therefore, the overall picture shows that the ReDema demands dimensions correlate highly with the COPSOQIII, the KFZA, and the FGBU demands dimensions, supporting H1.

We expected the ReDema resources dimensions to correlate highly with the resources dimensions of the FGBU, the KFZA, and the COPSOQIII. Overall, the aggregated ReDema resources dimensions correlated positively with the resources dimensions of the FGBU ($.43 < r < .63$), the KFZA ($.47 < r < .65$), and the COPSOQIII ($.21 < r < .58$). When we analyzed the ReDema resources separately, the positive pattern persisted: We found only positive correlations, ranging from small to high (COPSOQIII ($.10 < r < .75$), KFZA ($.18 < r < .68$), FGBU ($.15 < r < .80$)), supporting H2.

Criterion Validity in Relation to Health-Related Constructs

We assumed we would find positive (negative) correlations between the ReDema demands (resources) and negative health indicators; see Table 3 for an overview of all correlations. In line with our expectations, the ReDema demands as an overall construct showed medium-sized correlations with depression (BDI-II: $r = .42$, ODI: $r = .50$) and job anxiety ($r = .48$). Also, the individual ReDema demand dimensions showed up to medium-sized correla-

tions with depression (BDI-II $-.02 < r < .37$; ODI $.02 < r < .39$) and job anxiety ($.05 < r < .37$). H3 is further supported by the negative correlations of the ReDema resources as an overall construct (BDI-II: $r = -.23$, ODI: $r = -.14$, job anxiety: $r = -.22$) as well as the specific dimensions with depression (BDI-II $-.26 < r < -.17$; ODI $-.25 < r < -.11$) and job anxiety ($-.30 < r < -.06$).

In support of H4, the ReDema resources as an overall construct showed medium-sized correlations with both outcomes, job satisfaction ($r = .55$) and resilience ($.31 < r < .44$). Also, the specific ReDema resources dimensions showed medium-sized correlations with job satisfaction ($.32 < r < .49$) and resilience ($.20 < r < .39$). Additionally, our analyses revealed negative correlations of the demands dimensions as an overall construct with job satisfaction: ($r = -.33$) and resilience ($-.11 < r < -.28$). Also, the correlations of the specific demands dimensions had small- or medium-sized positive correlations of the demands dimensions with job satisfaction ($-.38 < r < .17$) and resilience ($-.35 < r < .25$). Individual outliers can explain the unexpected positive correlations. For example, the correlation of $r = .25$ ($p < .001$) results from the comparison of the ReDema cognitive demands dimensions with the resilience dimension “comprehensive planning.” Comprehensive planning involves cognitive processes. Therefore, people who engage in cognitive planning are likely to also face cognitive demands that may impact their health negatively if they are too prevalent.

Overall, we confirmed the construct and criterion validity of the ReDema Questionnaire. Specifically, the ReDema demands dimensions correlate highly with demands dimensions from the COPSOQIII, the KFZA, and the FGBU (resources, respectively), supporting construct

Table 3. Correlations between ReDema dimensions and work outcomes

ReDema	Work outcomes							
	BDI	ODI	Anxiety	Resilience emo- tional coping	Resilience compr. planning	Resilience positive reframing	Resilience fo- cused action	Job satis- faction
<i>Demands</i>								
Demands total	.42	.50	.48	-.28	-.11	-.21	-.24	-.33
Work intensity	.20	.31	.25	-.13	.03	-.04	-.06	-.12
Effort-reward imbalance	.29	.33	.35	-.26	-.17	-.25	-.20	-.38
Work environment	.26	.36	.29	-.23	-.19	-.23	-.23	-.29
Cognitive demands	-.02	.05	.05	.10	.25	.16	.15	.13
Repetitiveness	.05	.02	.06	-.06	-.08	-.07	.00	-.11
Emotional labor	.37	.33	.37	-.19	-.13	-.21	-.23	-.29
Work interruptions	.25	.34	.34	-.16	-.03	-.11	-.13	-.23
Work-life conflict	.11	.13	.05	.02	.10	.11	.01	.17
Technical problems	.26	.30	.26	-.22	-.16	-.20	-.21	-.28
Time pressure	.17	.28	.23	-.04	.11	.02	.04	-.06
Physical demands	.14	.26	.23	-.11	-.05	-.04	-.05	-.08
(Organizational) change	.14	.22	.19	-.07	.06	-.02	-.05	-.07
Social stressors	.32	.33	.37	-.25	-.14	-.19	-.23	-.31
Role stress	.31	.39	.31	-.27	-.22	-.26	-.35	-.36
Bullying	.33	.34	.36	-.25	-.19	-.24	-.25	-.29
Workplace insecurity	.32	.24	.36	-.24	-.16	-.21	-.21	-.28
Digitalization – work context	.14	.20	.14	-.09	-.06	-.10	-.12	-.16
Digitalization – work organization	.19	.26	.18	-.15	-.12	-.14	-.21	-.19
Digitalization – work content	.15	.25	.16	-.18	-.14	-.15	-.24	-.13
<i>Resources</i>								
Resources total	-.23	-.14	-.22	.31	.39	.44	.33	.55
Autonomy	-.17	-.14	-.19	.20	.25	.26	.25	.34
Completeness	-.18	-.13	-.06	.22	.34	.35	.33	.32
Variety	-.21	-.13	-.14	.25	.37	.37	.35	.48
Leader support	-.26	-.25	-.30	.29	.29	.36	.29	.46
Meaningfulness	-.22	-.15	-.12	.24	.25	.29	.30	.47
Feedback	-.19	-.18	-.20	.26	.32	.39	.29	.49
Social support	-.23	-.21	-.28	.29	.27	.33	.25	.40
Participation	-.17	-.11	-.20	.23	.30	.34	.24	.43
Fairness	-.21	-.20	-.25	.26	.27	.34	.26	.41

Note. n = 952 – 1000. BDI = Burnout Depression Inventory, ODI = Occupational Depression Inventory. Values in bold show significant correlations. Demands/ resources total: Demands/resources as an overall construct; p < .05.

validity. Furthermore, the ReDema demands dimensions showed positive correlations with depression and anxiety but negative correlations with resilience and job satisfaction, whereas the ReDema resources dimensions were

positively correlated with job satisfaction and resilience but negatively correlated with depression and anxiety. This consistent pattern provides strong support for the criterion validity of the ReDema Questionnaire.

Study 3

In our third panel study, we examined the incremental and predictive validity. First, we examined the incremental validity that the ReDema Questionnaire accounts for in work-related outcomes (emotional exhaustion, depression, sleep quality, irritation, work engagement, energy, affect (positive/negative), counterproductive work behavior, job satisfaction, life satisfaction, rumination, psychological detachment, occupational self-efficacy). Second, we investigated the predictive validity the ReDema Questionnaire holds for these work-related outcomes 3 months later.

Hypothesis 5 (H5): The ReDema Questionnaire explains variance in work-related outcomes (emotional exhaustion, depression, sleep quality, irritation, work engagement, energy, affect (positive/negative), counterproductive work behavior, job satisfaction, life satisfaction, rumination, psychological detachment, occupational self-efficacy, and motivation at work) beyond the KFZA and the FGBU.

Hypothesis 6 (H6): The ReDema demand dimension is positively related to emotional exhaustion, depression, irritation, negative affect, counterproductive work behavior, and rumination 3 months later.

Hypothesis 7 (H7): The ReDema resource dimension is positively related to sleep quality, work engagement, energy, positive affect, motivation at work, job satisfaction, life satisfaction, and psychological detachment 3 months later.

Method

Sample

For Study 3, we collected data at two time points, assessed 3 months apart. At Time 1, there were 1,009 participants (542 male, 467 female) aged between 19 and 65 ($M = 44.37$, $SD = 11.74$), with 287 of them holding leadership responsibility. At Time 2, 3 months later, we contacted the same participants again, resulting in a sample of $n = 712$, which corresponds to a response rate of 70.56 %¹.

Measures

The participants completed the ReDema Questionnaire at both time points. At Time 2, the participants additionally completed the FGBU (Dettmers & Krause, 2020), the KFZA (Prümper et al., 1995), and the health-related

outcomes of interest: We measured emotional exhaustion with the emotional exhaustion subscale from the Oldenburg Burnout Inventory (OLBI, Demerouti et al., 2001, 2003), consisting of 8 items rated on a 4-point scale (1 = *Totally disagree* to 4 = *Totally agree*). We assessed occupational depression using the ODI (Bianchi & Schonfeld, 2020), with 10 items asking participants how often they experienced specific problems at work over the past 2 weeks on a 4-point scale (0 = *Never or rarely*, 1 = *A few days only*, 2 = *More than half the days*, 3 = *Nearly every day*). We assessed sleep with the Pittsburgh Sleep Quality Index (Buysse et al., 1989) with 4 items: Question 1 (overall sleep quality) was rated on a 5-point scale ranging from 1 = *Very poor* to 5 = *Very good*, questions 2 and 3 (daytime disfunction and sleep disturbances) on a scale from 1 = *Never* to 5 = *Very often*, and question 4 (satisfaction with sleep) on a scale from 1 = *Very dissatisfied* to 5 = *Very satisfied*. We measured irritation with an 8-item scale (Irritation Scale, Mohr et al., 2005), with answers provided on a 7-point scale ranging from 1 = *Does not apply at all* to 7 = *Applies almost completely*. We assessed work engagement using the short version of the Utrecht Work Engagement Scale (UWES-9; Schaufeli et al., 2006), comprising 9 items rated on a 7-point scale (1 = *Never* to 7 = *Always*). We measured energy by the high-arousal affect facet from Kessler and Staudinger (2009), using a 5-point scale ranging from 1 = *Not at all* to 5 = *Extremely*. We assessed positive and negative affect with the Positive and Negative Affect Schedule (PANAS; Watson et al., 1988), comprising 20 items rated on a 5-point scale (1 = *Very slightly or not at all* to 5 = *Extremely*). We measured counterproductive work behavior with the 10-item Counterproductive Work Behavior Checklist (CWB-C; Spector et al., 2010), with responses provided on a 5-point scale (1 = *Never*, 2 = *One or two times*, 3 = *Once or twice a month*, 4 = *Once or twice a week*, 5 = *Every day*). We assessed job satisfaction using the BIAJS (Thompson & Phua, 2012), with 4 items rated on a 5-point scale (1 = *Strongly disagree* to 5 = *Strongly agree*). We measured life satisfaction using 5 items from the Satisfaction with Life Scale (Diener et al., 1985), rated on a 5-point scale (1 = *Does not apply at all* to 5 = *Applies completely*). We measured rumination with 10 items (5 affective rumination items, 5 problem-solving rumination items; Cropley et al., 2012) and assessed psychological detachment using a 4-item psychological detachment scale (Recovery Experience Questionnaire; Sonnentag & Fritz, 2007); the answers for both measures were provided on a 5-point scale (1 = *Strongly disagree* to 5 = *Strongly agree*). We assessed occupational self-efficacy

¹ However, no information was available from the panel provider on the overall response rate, i.e., the proportion of individuals contacted who actually participated in the study.

using 6 items (Rigotti et al., 2008), with measures ranging from 1 = *Not at all true* to 5 = *Completely true*. We evaluated motivation at work using the Motivation at Work Scale (MAWS; Gagné et al., 2010), consisting of 12 items rated on a 7-point scale (1 = *Not at all* to 7 = *Exactly*).

Statistical Analysis

For incremental validity, we used the data from Time 2 to conduct regression analyses. Prior to analysis, we computed the mean scores for the ReDema Questionnaire, the KFZA, and the FGBU. For this purpose, we reverse-coded all items reflecting demands so that higher values indicate fewer demands. In the first step of the regression models, we examined how the KFZA (and the FGBU, respectively) alone predicted the respective health outcomes. In the second step, we added the ReDema Questionnaire to the regression models to assess whether it explained additional variance in these outcomes. To evaluate the improvement in explained variance, we conducted ANOVA comparisons between the two models, determining whether the addition of the ReDema Questionnaire significantly enhanced the power of the first model (which included only the KFZA or the FGBU). For predictive validity, we conducted regression analyses using the ReDema Questionnaire from Time 1 to predict health outcomes assessed 3 months later, at Time 2.

Results and Discussion

Incremental Validity

Table 4 shows the results of the comparison of the regression models of the KFZA or FGBU on the health outcomes to those regression models including the ReDema Questionnaire as an overall construct. As hypothesized, the ReDema Questionnaire provided additional explained variance² for emotional exhaustion ($\Delta R^2_{adj} = .28$; $\Delta R^2_{adj} = .39$), occupational depression ($\Delta R^2_{adj} = .21$; $\Delta R^2_{adj} = .24$), irritation ($\Delta R^2_{adj} = .28$; $\Delta R^2_{adj} = .28$), engagement ($\Delta R^2_{adj} = .06$; $\Delta R^2_{adj} = .22$), energy ($\Delta R^2_{adj} = .04$; $\Delta R^2_{adj} = .11$), positive affect ($\Delta R^2_{adj} = .06$; $\Delta R^2_{adj} = .15$), negative affect ($\Delta R^2_{adj} = .11$; $\Delta R^2_{adj} = .11$), counterproductive work behavior ($\Delta R^2_{adj} = .06$; $\Delta R^2_{adj} = .03$), job satisfaction ($\Delta R^2_{adj} = .12$; $\Delta R^2_{adj} = .31$), life satisfaction ($\Delta R^2_{adj} = .05$; $\Delta R^2_{adj} = .17$), rumination ($\Delta R^2_{adj} = .23$; $\Delta R^2_{adj} = .21$), psychological detachment ($\Delta R^2_{adj} = .15$; $\Delta R^2_{adj} = .14$), occupational self-efficacy ($\Delta R^2_{adj} = .05$; $\Delta R^2_{adj} = .16$) and motivation at work ($\Delta R^2_{adj} = .02$; $\Delta R^2_{adj} = .08$). While the ReDema Questionnaire did not explain additional variance on sleep

beyond the KFZA, it did so compared to the FGBU ($\Delta R^2_{adj} = .17$). Thus, H5 was largely supported. Especially when it comes to emotional exhaustion, rumination, depression, or irritation, one should consider the ReDema Questionnaire, as it explains a large amount of additional variance.

Predictive Validity

Using regression models, we tested whether the individual ReDema demands and resources are a reliable predictor of health-related outcomes within a 3-month interval, controlling for age and gender (for an overview of the results, see Supplement 6, ESM 1). Indeed, the separate ReDema demand dimension was significantly related with emotional exhaustion ($\beta = .55$; $p < .001$), occupational depression ($\beta = .49$; $p < .001$), irritation ($\beta = .55$; $p < .001$), negative affect ($\beta = .30$; $p < .001$), counterproductive work behavior ($\beta = .24$; $p < .001$), and rumination ($\beta = .47$; $p < .001$), thus showing full support for H6. Tests of the predictive validity of the separate ReDema resource dimension yielded similar results as the dimension was significantly related with sleep quality ($\beta = .26$; $p < .001$), work engagement ($\beta = .52$; $p < .001$), energy ($\beta = .41$; $p < .001$), positive affect ($\beta = .39$; $p < .001$), motivation at work ($\beta = .32$; $p < .001$), job satisfaction ($\beta = .48$; $p < .001$), and life satisfaction ($\beta = .36$; $p < .001$). Because psychological detachment could not be significantly predicted, H7 is partially supported.

Following these results, we suggest that the ReDema Questionnaire with resources and demands as two dimensions is a valuable instrument for assessing demands and resources in the work context and hints at important work-related constructs 3 months later.

General Discussion

This study developed a questionnaire that encompasses a broad range of resources and demands in the work context while still being parsimonious. Furthermore, we extended previous measures by including dimensions concerning digitalization and organizational change. In three panel studies, we provided substantial support for its construct, criterion, incremental, and predictive validity.

² In order to maintain brevity and clarity, we first report the additional variance the ReDema Questionnaire explains beyond the KFZA, followed by the incremental validity the ReDema Questionnaire offers beyond the FGBU.

Table 4. Incremental validity of the ReDema Questionnaire over KFZA and FGBU

Scale	Step	KFZA						FGBU					
		<i>B</i>	β	<i>SE</i>	R^2_{adj}	ΔR^2_{adj}		<i>B</i>	β	<i>SE</i>	R^2_{adj}	ΔR^2_{adj}	
Emotional exhaustion	1	KFZA	−0.28***	−.36	0.03	0.13		FGBU	0.15***	.14	.04	0.02	
	2	KFZA	−0.05*	−.07	0.03			FGBU	0.03	.03	0.03		
		ReDema	−1.13***	−.61	0.06	0.41	0.28***	ReDema	−1.19***	−.63	0.06	0.41	0.39***
Occupational depression	1	KFZA	−0.19***	−.24	0.03	0.06		FGBU	0.26***	.25	0.04	0.06	
	2	KFZA	0.01	.01	0.03			FGBU	0.18***	.16	0.03		
		ReDema	−0.99***	−.53	0.07	0.27	0.21***	ReDema	−0.93***	−.50	0.06	0.30	0.24***
Sleep	1	KFZA	0.37***	.30	0.04	0.09		FGBU	−0.11	−.06	0.06	0.00	
	2	KFZA	0.17***	.14	0.05			FGBU	0.01	.01	0.06		
		ReDema	1.03***	.35	0.11	0.19	0.01***	ReDema	1.22**	.42	0.10	0.17	0.17***
Irritation	1	KFZA	−0.35***	−.18	0.07	0.03		FGBU	0.48***	.18	0.10	0.03	
	2	KFZA	0.20**	.10	0.07			FGBU	0.24**	.09	0.08	0.31	
		ReDema	−2.77***	−.60	0.16	0.31	0.28***	ReDema	−2.48***	−0.54	0.14		0.28***
Engagement	1	KFZA	0.76***	.48	0.05	0.23		FGBU	0.25**	.12	0.08	0.01	
	2	KFZA	0.56***	.36	0.06			FGBU	0.42***	.19	0.07		
		ReDema	1.02***	.27	0.14	0.29	0.06***	ReDema	1.77***	.47	0.13	0.23	0.22***
Energy	1	KFZA	0.47***	.37	0.04	0.13		FGBU	0.17*	.10	0.07	0.01	
	2	KFZA	0.36***	.28	0.05			FGBU	0.27***	.15	0.06		
		ReDema	0.56***	.18	0.12	0.16	0.04***	ReDema	1.04***	.34	0.11	0.12	0.11***
Positive affect	1	KFZA	0.40***	.33	0.04	0.11		FGBU	0.09	.06	0.06	0.00	
	2	KFZA	0.24***	.20	0.05			FGBU	0.20***	.12	0.06		
		ReDema	0.78***	.27	0.11	0.17	0.06***	ReDema	1.12***	.39	0.10	0.15	0.15***
Negative affect	1	KFZA	−0.17***	−.16	0.04	0.02		FGBU	0.19***	.13	0.05	0.02	
	2	KFZA	0.02	.02	0.04			FGBU	0.11*	.07	0.05		
		ReDema	−0.93***	−.37	0.10	0.13	0.11***	ReDema	−0.87***	−.35	0.09	0.13	0.11***
CWB	1	KFZA	0.01	.01	0.03	0.00		FGBU	0.24***	.24	.04	0.06	
	2	KFZA	0.10***	.14	0.03			FGBU	0.22***	.22	0.04		
		ReDema	−0.49***	−.28	0.07	0.06	0.06***	ReDema	−0.31***	−.18	0.06	0.09	0.03***
Job satisfaction	1	KFZA	0.55***	.51	0.04	0.25		FGBU	0.07	.05	0.06	0.00	
	2	KFZA	0.35***	.32	0.04			FGBU	0.21***	.14	0.05		
		ReDema	1.02***	.39	0.09	0.37	0.12***	ReDema	1.48***	.56	0.08	0.31	0.31***
Life satisfaction	1	KFZA	0.49***	.40	0.04	0.16		FGBU	0.10	.06	0.06	0.00	
	2	KFZA	0.34***	.28	0.05			FGBU	0.21***	.13	0.06		
		ReDema	0.75***	.26	0.11	0.21	0.05***	ReDema	1.20***	.42	0.10	0.17	0.17***
Rumination	1	KFZA	−0.21***	−.15	0.05	0.02		FGBU	0.45***	.23	0.07	0.05	
	2	KFZA	0.16**	.11	0.05			FGBU	0.30***	.15	0.06		
		ReDema	−1.87***	−.55	0.13	0.25	0.23***	ReDema	−1.60***	−.47	0.11	0.26	0.21***
Psychological detachment	1	KFZA	0.17***	.13	0.05	0.01		FGBU	−0.15*	−.08	0.07	0.01	
	2	KFZA	−0.11*	−.08	0.05			FGBU	−0.03	−.02	0.06		
		ReDema	1.39***	.43	0.13	0.16	0.15***	ReDema	1.26***	.39	0.11	0.15	0.14***
Occupational self-efficacy	1	KFZA	0.36***	.36	0.04	0.13		FGBU	0.09	.06	0.05	0.00	
	2	KFZA	0.23***	.23	0.04			FGBU	0.18***	.13	0.05		
		ReDema	0.65***	.27	0.09	0.18	0.05***	ReDema	0.97***	.40	0.08	0.16	0.16***

Table 4. Incremental validity of the ReDema Questionnaire over KFZA and FGBU (Continued)

Scale			KFZA					FGBU				
			<i>B</i>	β	<i>SE</i>	R^2_{adj}	ΔR^2_{adj}	<i>B</i>	β	<i>SE</i>	R^2_{adj}	ΔR^2_{adj}
Motivation at work	1	KFZA	0.35***	.28	0.05	0.08		FGBU	0.08	.04	0.06	0.00
	2	KFZA	0.25***	.20	0.05			FGBU	0.16*	.09	0.06	
		ReDema	0.51***	.17	0.12	0.10	0.02***	ReDema	0.84***	.28	0.11	0.08
											0.08***	

Note. *N* = 1,009. CWB = counterproductive work behavior. ReDema, KFZA, and FGBU scale scores represent the mean of all resource items and recoded demand items within each scale. **p* < .05, ***p* < .01, ****p* < .001.

Theoretical Implications

With its several demands and resources dimensions, our ReDema Questionnaire follows the Job Demands-Resources (JD-R) theory. It is a robust yet concise tool for evaluating workplace elements that can support or hinder psychological health. The extensive validation process, supported by data from three large-scale panel studies, underscores the questionnaire’s reliability and validity. The ReDema Questionnaire’s strong construct, criterion, incremental, and predictive validity make it highly applicable for research focusing on psychological health in the workplace. It can be utilized to assess psychosocial risks, identify opportunities to improve resources, evaluate interventions, and explore the impact of different work-related factors on mental health.

While the ReDema Questionnaire shares important subdimensions such as work intensity and social support with other established measures, it incorporates contemporary developments in the work environment. Unlike previous questionnaires, the ReDema Questionnaire encompasses scale dimensions on organizational change as well as three separate scale dimensions related to digitalization, focusing on the work context, work content, and work organization, reflecting the rapid transformations experienced by New Work. Furthermore, the ReDema Questionnaire has proved to be an important measure of job characteristics related to psychological health beyond existing measures, as it provides significant incremental validity (up to $\Delta R^2_{adj} = .39$).

Overall, the ReDema Questionnaire meets the initial objectives for its development. It successfully incorporates new dimensions of the evolving workplace, such as digitalization and organizational change. By addressing these shifts, it provides a framework that also aligns with JD-R theory and captures the nuances of the contemporary work environment. Including these new dimensions ensures that the ReDema Questionnaire remains relevant as work contexts continue to transform, making it a valuable tool for current and future studies on workplace characteristics.

Practical Implications

Besides creating a comprehensive tool to assess psychological health in the workplace, our goal was to create an economic questionnaire. Because adequate internal consistencies can already be achieved with 3 items per dimension, while additional items may only have progressively less impact on reliability (Hinkin, 1998), we followed this recommendation by assessing all dimensions with 3 items each. Thus, although the ReDema Questionnaire covers 19 demands and 9 resources, the questionnaire can still be completed within 15 minutes.

The ReDema Questionnaire enables the selection and implementation of targeted health-promotion programs. By leveraging the insights gained from the questionnaire, organizations can design interventions specifically tailored to address their employees’ unique psychological health needs, thereby enhancing the effectiveness of the companies’ health promotion initiatives. Another opportunity would be to implement the questionnaire in online training. We encourage practitioners to use technical innovations as e-mental health interventions, which offer low-threshold access to psychological health training (Seiferth et al., 2023). Thereby, a large body of training materials can be made available to an unlimited number of people in the company. To ensure that people work on those materials that are most beneficial to them, the availability of the materials could be automatically linked with the results from the ReDema Questionnaire. The first attempt at this approach has already been made by the PsyGesA Project (Volmer & Hebel, 2022). In this project, participants start by completing the ReDema Questionnaire and immediately receive feedback on their scores. They are provided with information about their absolute values regarding job characteristics and are informed whether action is needed, visualized through a traffic-light system based on standard deviation scores. Additionally, participants have the option to sign up for an online training program, where, based on their scores, specific training modules are recommended to address their specific needs.

Limitations and Future Research

Some limitations should be noted. First, the data were collected using an online access panel provider, which may have affected data quality, e.g., participants being inattentive or “professional survey-takers” providing answers that are not genuine or reflective of the general population (Peer et al., 2022). However, using such panels also offers notable advantages, including access to a large and diverse participant pool (Colquitt et al., 2019; Peer et al., 2022). This choice enabled us to select participants representative of the German population based on criteria such as employment status, age, and gender distribution. To minimize potential drawbacks, we collaborated with a certified provider specializing in research purposes, which ensured that the data collection process adhered to high scientific standards.

Second, the current research was conducted exclusively in a German setting. Although the questionnaire has been translated into English by a certified translator, to report it in this paper, further studies would have to validate the questionnaire with different samples from different countries. Additionally, translating the questionnaire into multiple languages and conducting validations in various countries would contribute to our understanding of its generalizability. Perceived workplace demands and resources may differ between countries (Gordon et al., 2015), and future studies should address this by extending the validation process to a broader demographic. This expansion would also enable researchers to use it in international studies.

Conclusion

The ReDema Questionnaire, with its comprehensive but parsimonious design and methodological robustness, emerges as a theoretical and practical asset for organizations seeking to navigate the evolving landscape of work. Its application extends beyond mere measurement, offering actionable insights for developing and implementing health promotion programs, thereby contributing to the well-being of individuals in contemporary work environments.

Electronic Supplementary Material

The electronic supplementary material is available with the online version of the article at <https://doi.org/10.1026/0932-4089/a000452>

ESM 1. Supplement 1–6: The Electronic Supplemental Materials contain an overview of job demands and resources considered during the questionnaire development (Supplement 1), the German version of the ReDema Questionnaire (Supplement 2), correlations of the ReDema with the COPSOQIII (Supplement 3), the KFZA (Supplement 4), and the FGBU (Supplement 5) as well as the predictive value of the ReDema with well-being (Supplement 6).

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Publication Ethics

The study was approved by the Ethics Committee at the University of Bamberg (Dossier number 2021 – 12/56).

Authorship

Vera Hebel contributed by writing the original draft, editing, and collecting data. Elena Röder was responsible for data analysis. Judith Volmer was the project leader; she initiated the conceptualization of the validation study, wrote in the review and editing process, initiated data collection, and secured funding for the project.

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Appendix

Table A1. ReDema Items English

Dimensions	Items	M	SD	Item difficulty
<i>Demands</i>				
Work intensity	I often have to work quickly to complete my tasks.	3.33	1.14	0.582
	To get my work done, I have to attend to many things at the same time.	3.35	1.12	0.588
	I have to work swiftly in my job, as otherwise I would not get my work done.	3.31	1.11	0.577
Effort-reward imbalance	In my job, I invest a lot and get little in return.	2.66	1.21	0.414
	I would like to get more recognition for my work.	3.17	1.26	0.524
	The rewards (e. g., salary, bonus payments, recognition) for my work are scant.	3.05	1.31	0.512
Work environment	It is often cold at my workplace.	1.95	1.11	0.239
	The lighting conditions at my workplace are often poor.	1.88	1.05	0.221
	The conditions at my workplace are often unfavourable (e. g., noise, heat).	2.06	1.14	0.264
Cognitive demands	I need to be very focused to carry out my work successfully.	3.96	0.92	0.260
	The tasks in my job are very complex.	3.73	1.03	0.317
	In my job, there are several things I have to think about thoroughly	4.04	0.91	0.239
Repetitiveness	There are many similar processes in my job.	3.56	0.94	0.640
	Many things that I carry out at work are repetitive.	3.54	0.99	0.634

Table A1. ReDema Items English (Continued)

Dimensions	Items	<i>M</i>	<i>SD</i>	Item difficulty
Emotional labor	In my job, I frequently repeat the same activities.	3.41	1.05	0.602
	In my job, I have to suppress my true feelings.	2.67	1.18	0.417
	My job requires me to display emotions different from what I feel.	2.77	1.25	0.441
Work interruptions	I have to hide my true feelings from others (colleagues, clients, superiors).	2.61	1.17	0.402
	I am frequently interrupted in my job.	2.97	1.11	0.493
	I often have to interrupt my work because of disruptions (e.g., incoming calls).	3.05	1.17	0.512
Work-life conflict	Because of disruptions, it is often difficult for me to work in a focused manner.	2.86	1.16	0.466
	I can also be reached on weekends.	2.34	1.36	0.334
	I can also be reached after hours.	2.66	1.38	0.415
Technical problems	I work on work-related tasks and can be reached by phone even outside my working hours.	2.29	1.26	0.324
	Technical issues keep me from working on my tasks.	2.55	1.19	0.387
	I do not have the appropriate technical equipment.	2.08	1.12	0.270
Time pressure	Technical issues regularly slow me down in completing my tasks.	2.38	1.08	0.344
	I need to accommodate unexpected spontaneous appointments into my schedule arise quite frequently.	3.15	1.16	0.537
	New tasks often have a tight deadline.	3.04	1.10	0.511
Physical demands	When there is a new task, it has to be dealt with right away.	3.06	0.98	0.514
	My work is physically demanding.	2.08	1.24	0.269
	My job involves physically strenuous work.	1.82	1.16	0.205
(Organizational) Changes	I am pushed to my physical limits by my work.	1.91	1.10	0.226
	My working conditions are constantly changing.	2.33	1.14	0.332
	My organization is constantly changing.	2.68	1.15	0.419
Social stressors	In my job, I regularly have to adapt to changing working conditions.	2.53	1.23	0.382
	At my workplace, there are conflicts between people (e.g., colleagues).	2.47	1.20	0.367
	At work, I experience conflicts with other people.	2.44	1.16	0.360
Role stress	There are disagreements with regard to the work processes between me and other people.	2.29	1.15	0.323
	I am often unsure what is expected of me in terms of successful task accomplishment.	2.17	1.13	0.293
	The requirements for my work are unclear (for example, with regard to time and costs).	2.20	1.15	0.301
Bullying	It is unclear how tasks are to be completed in the best way.	2.26	1.16	0.316
	At work, I am treated badly by others.	1.57	0.94	0.143
	I am personally attacked by other people at work.	1.56	0.94	0.140
Work(place) insecurity	Other people at work speak ill about me.	1.71	1.01	0.177
	I am afraid that I will not be able to keep my job permanently.	1.83	1.08	0.207
	I am afraid of losing my job.	1.81	1.09	0.203
Digitalization – work context	My job is safe.	1.86	0.97	0.216
	As a result of digitalization, I no longer feel as involved in the organization.	2.00	1.04	0.251
	I often receive very complex and ambiguous information via digital means of communication.	2.43	1.14	0.357
Digitalization – work organization	Digitization is profoundly transforming work processes in my organization.	2.84	1.18	0.459
	Digital communication often leads to misunderstandings.	2.27	1.07	0.317
	Because of virtual collaboration, I do not have all the information that is important for my work task.	2.17	1.10	0.291
Digitalization – work content	Virtual collaboration is stressful for me.	1.97	1.04	0.243
	It is difficult for me to assess how long tasks, in which I am supported by digital tools, will take.	2.30	1.04	0.324
	Since I underestimate the workload of tasks that I carry out supported by digital tools, I have to work overtime.	2.10	1.09	0.276
Resources	Since many of my working hours are dictated by technical processes, I am inflexible when it comes to organising my work.	2.11	1.09	0.276
Autonomy	I can determine the order of my activities on my own.	3.81	0.99	0.298

Table A1. ReDema Items English (Continued)

Dimensions	Items	<i>M</i>	<i>SD</i>	Item difficulty
Completeness	I can determine the steps to successfully complete tasks on my own.	3.76	0.93	0.311
	I can determine the individual steps of my work on my own.	3.79	0.96	0.303
	In my job, I organise the work for all of the different steps involved.	3.62	1.07	0.345
Variety	I handle all steps involved in my tasks, i.e., preparation, organisation, execution, and monitoring.	3.71	1.06	0.322
	In my job, I am involved in all the individual steps of a task.	3.69	1.06	0.328
	In my job, I am able to apply a variety of skills.	4.01	0.92	0.247
Leader support	My work challenges me in many different ways.	3.89	1.00	0.277
	My work offers a lot of variety.	3.85	1.01	0.286
	My manager supports me.	3.69	1.10	0.327
Meaningfulness	My manager has my back when difficulties arise.	3.70	1.09	0.325
	My manager cares about my needs.	3.49	1.15	0.377
	My responsibilities serve an important purpose.	4.09	0.95	0.226
Feedback	My work is socially significant.	3.48	1.19	0.380
	My work is meaningful.	4.20	0.91	0.199
	I regularly receive feedback on my work results.	3.33	1.11	0.418
Social support	The feedback from others helps me to assess the quality of my work.	3.72	0.99	0.321
	As a result of regular feedback, I am aware of my strengths and weaknesses.	3.45	1.09	0.387
	My colleagues support me.	3.89	0.94	0.278
Participation	My colleagues have my back when difficulties arise.	3.74	0.99	0.315
	When problems arise, I can rely on the support of my colleagues.	3.91	0.95	0.273
	I can influence decisions in my organization.	3.01	1.18	0.498
Fairness	I can contribute to decision-making processes.	3.23	1.16	0.443
	My organization involves me in the decision-making process.	3.09	1.20	0.477
	Decision-making processes are communicated transparently in my organization.	3.19	1.11	0.453
	My organization provides transparent information about current decisions.	3.30	1.11	0.424
	There are clearly communicated criteria on the basis of which decisions are made in my organisation.	3.32	1.07	0.420

Note. The response scale ranges from 1 = *Strongly disagree* to 5 = *Strongly agree*.