

# Downsizing and surviving employees' engagement and strain: The role of job resources and job demands

Katja Dlouhy  | Anne Casper

University of Mannheim, Mannheim, Germany

## Correspondence

Katja Dlouhy, University of Mannheim,  
Mannheim, Germany.  
Email: katja.dlouhy@bwl.uni-mannheim.de

## Abstract

Downsizing is widely assumed to detrimentally affect surviving employees' engagement and health through increased demands and decreased resources. Building on job demands–resources theory, we assess whether these effects occur and whether job demands and resources moderate the detrimental effects of downsizing on employee health and engagement. We conceptualize downsizing as a stressor event, and we explain its relationship with employee health through the job demands work overload and job insecurity are (two) job demands, as well as its relationship with employee engagement through the job resources supervisor support and opportunities for development are job resources. Using data from two large representative samples of German employees, we show that job demands mediate the negative relationship between downsizing and employees' psychological and physical health and that job resources mediate the negative relationship between downsizing and engagement. We find little support for the assumption that job resources alleviate the indirect effects of downsizing on surviving employees' health, or that job demands strengthen the indirect effects of downsizing on surviving employees' engagement. We discuss how these findings expand our understanding of downsizing and outline practical implications for human resource practitioners.

## KEYWORDS

downsizing, employee engagement, physical health, psychological health

## 1 | INTRODUCTION

Workforce downsizing is one of the most significant topics in the area of human resource management. Organizations usually justify downsizing with expectations of higher organizational performance (Datta & Basuil, 2015); however, these expectations often are not met due to negative reactions of employees who remain in the organization (Datta, Guthrie, Basuil, & Pandey, 2010). Research on reactions of these employees, who are termed “downsizing survivors,” has shown that downsizing negatively affects their attitudes (Allen, Freeman, Russell, Reizenstein, & Rentz, 2001; Luthans & Sommer, 1999;

Travaglione & Cross, 2006) and health (Grunberg, Moore, & Greenberg, 2001; Kivimäki et al., 2001; Snorraddóttir, Vilhjálmsson, Rafnsdóttir, & Tómasson, 2013).

Previous studies that focused on surviving employees mostly examined downsizing under the tenets of various social exchange theories (e.g., Arshad & Sparrow, 2010; Iverson & Zatzick, 2011; Kalimo, Taris, & Schaufeli, 2003) and justice theories (e.g., Brockner et al., 2004; Brockner, Grover, O'Malley, Reed, & Glynn, 1993; Spreitzer & Mishra, 2002). Some studies have taken a stress perspective toward downsizing, showing that this organizational event increases surviving employees' job demands and negatively affects their health (Devine,

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Reay, Stainton, & Collins-Nakai, 2003; Harney, Fu, & Freaney, 2018; Moore, Grunberg, & Greenberg, 2004). However, motivational reactions of surviving employees have not received attention in the literature that conceptualizes downsizing as a stressor. Furthermore, it is typically assumed that changes in surviving employees' motivation and health after downsizing are due to changes in job demands and job resources, but in most cases, these relationships have not been explicitly tested. Thus, little consideration has been given to mediators of the relationship between downsizing and survivors' health (Grunberg et al., 2001; Harney et al., 2018; Kivimäki et al., 2001), and mediators of the relationship between downsizing and survivors' engagement have been completely disregarded. Furthermore, an overall lack of focus on job resources remains, despite the fact that their importance in the downsizing process has been emphasized (Harney et al., 2018; Mishra & Spreitzer, 1998) and that they might buffer adverse effects of downsizing on strain. Moreover, few studies have tested the effect of a downsizing event in representative samples that include survivors and a comparison group.

We report two studies that address these gaps in the literature, building on job demands–resources (JD-R) theory (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). Downsizing is an organizational event that may lead to changes in the working conditions of surviving employees (Sonnentag & Frese, 2003). JD-R theory aids in understanding the mechanisms through which this organizational event leads to changes in surviving employees' engagement and strain through changes in job demands and job resources. Applying this theoretical perspective allows for new insights on the effect of downsizing on surviving employees' engagement, as other studies that have applied a stress perspective to downsizing only focused on employees' strain reactions (e.g., Devine et al., 2003; Harney et al., 2018; Moore et al., 2004). Furthermore, JD-R theory can aid in understanding how the effects of downsizing on strain through increased job demands might be diminished, as we expect the effects to be less pronounced when downsizing survivors have more job resources. We focus on how downsizing affects the job resources of supervisor support and opportunities for development, which we consider as mediators of the negative relationship between downsizing and engagement, and on how downsizing affects the job demands of work overload and job insecurity, which we consider as mediators of the negative relationship between downsizing and health. Furthermore, we position job resources as moderators of the relationship between downsizing and health that is mediated by job demands, and job demands as moderators of the relationship between downsizing and engagement that is mediated by job resources.

We open with an account of the pathways through which downsizing may affect downsizing survivors' engagement and health. We then test our proposed moderated-mediation model, which is depicted in Figure 1, in two studies. In Study 1, we use cross-sectional data of 3,865 employees, and we replicate and extend the findings in Study 2 with data from another sample of 3,290 employees over two measurement points.

Our research makes three main contributions that address several gaps in past research. First, we develop a set of hypotheses regarding

mediators of the relationships between downsizing and both employee engagement and strain, which are important determinants of organizational performance (Bakker & Demerouti, 2017). Datta et al. (2010) identified a need to study mediating mechanisms that link downsizing to employee outcomes. Our examination of mediating processes will help human resource researchers and practitioners to understand the reasons why downsizing may have negative consequences for surviving employees' engagement and health, and thus open up avenues to counter these consequences.

Second, by examining how downsizing affects supervisor support and opportunities for development, we correct the imbalance in the extant literature in which the emphasis is on demands rather than resources. This is important because job resources enable employees to achieve work goals and stimulate personal growth (Bakker & Demerouti, 2017). Furthermore, by positioning these resources as moderators of the indirect relationships between downsizing and employee strain, we answer the call to examine boundary conditions of downsizing effects (Datta et al., 2010). Addressing the question of when adverse downsizing consequences might be less pronounced is important for organizations that want to avoid employee strain after downsizing.

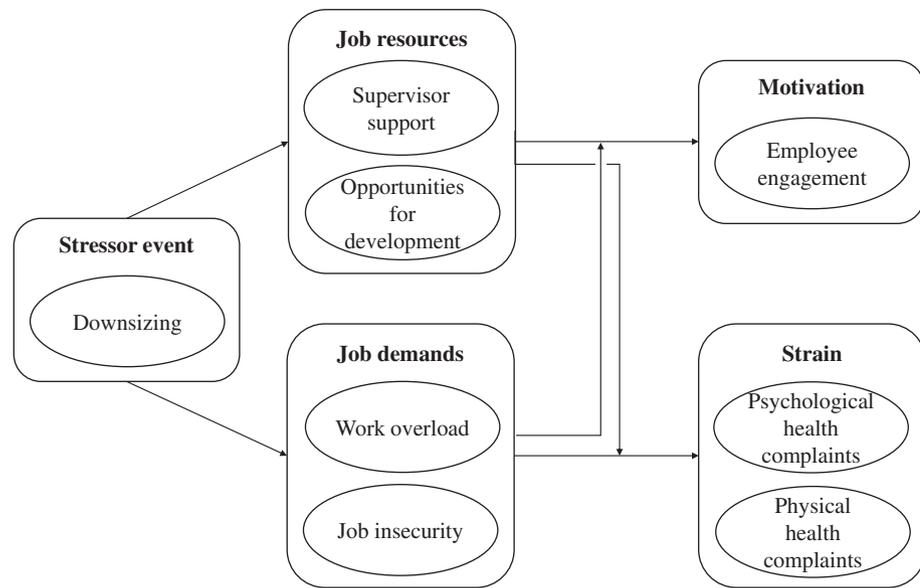
Third, we use two samples that cover a broad range of occupations and organizations across the German economy and that include a comparison group that did not experience downsizing. We also test the actual effect of a downsizing event by controlling for previous levels of job demands, job resources, engagement, and strain in Study 2. This, along with our large representative samples, strengthens inference for our tests beyond that of previous studies. Thus, our studies make a significant contribution to the evidence base on negative employee reactions that may counteract organizations' aim of higher profitability (Datta & Basuil, 2015).

## 2 | CONCEPTUAL BACKGROUND AND HYPOTHESES

### 2.1 | Downsizing consequences

Workforce downsizing is an organizational change event that entails personnel reductions in the organizational context (Cascio, 1993). We focus on downsizing consequences for those employees who remain in the organization (i.e., downsizing survivors). Downsizing is regarded as a stressor by surviving employees (Devine et al., 2003; Sonnentag & Frese, 2003) and has been positioned in the context of recessions in previous studies (Snorraddóttir et al., 2013; Wood, Michaelides, & Ogbonnaya, 2020). However, it is not necessarily a consequence of decreased demand for organizations' products or services, as "proactive" downsizing may also occur during periods of healthy demand with the intention of enhancing long-term competitiveness (Datta & Basuil, 2015).

Downsizing is typically associated with a decrease in employee health (Quinlan & Bohle, 2009). Several studies have shown that downsizing negatively relates to surviving employees' psychological

**FIGURE 1** Hypothesized model

and physical health (Andreeva, Hanson, Westerlund, Theorell, & Brenner, 2015; Dragano, Verde, & Siegrist, 2005; Grunberg et al., 2001; Kalimo et al., 2003; Kivimäki et al., 2001; Snorradóttir et al., 2013), whereas only few studies did not find such an effect (Østhus, 2007; Østhus, 2012). All these studies assessed employees' health with self-report measures; only one study of U.S. workers in a single company showed that severity of downsizing is related to objective measures of hypertension and diabetes (Modrek & Cullen, 2013). As the use of self-reported health measures can lead to bias when studying the effect of downsizing on physical health, more studies using objective measures of health are warranted.

There is some evidence on job demands that might mediate the relationship between downsizing and surviving employees' health. Studies within single organizations (Amabile & Conti, 1999; Armstrong-Stassen, 2005; Snorradóttir et al., 2013; Virick, Lilly, & Casper, 2007), as well as studies that used representative samples of employees from Norway (Østhus, 2007) and Ireland (Harney et al., 2018), show that downsizing is related to higher quantitative work demands. Harney et al. (2018) even find that work intensity mediates the relationship between downsizing and employee exhaustion in a cross-sectional study. Downsizing survivors also report higher job insecurity (Allen et al., 2001; Armstrong-Stassen, 2005; Maertz, Wiley, LeRouge, & Campion, 2010; Moore et al., 2004; Østhus, 2007). Two studies within single organizations even find that job insecurity mediates the relationship between downsizing and self-reported psychological and physical health among downsizing survivors (Grunberg et al., 2001; Kivimäki et al., 2001). Several studies outside the downsizing literature focused on job resources that buffer the relationship between job demands and employee strain (Bakker, Demerouti, & Euwema, 2005; Xanthopoulou et al., 2007), but only Harney et al. (2018) show that the job resource consultation mitigates the adverse effect of increased work intensity on employee exhaustion after downsizing.

Evidence on important job resources that might decrease after downsizing, like managerial support (Foster, Hassard, Morris, &

Wolfram Cox, 2019) or training and development opportunities, is scarce and inconclusive. Two studies that assessed survivor attitudes over the downsizing period showed no significant decrease in supervisor support (Amabile & Conti, 1999; Luthans & Sommer, 1999). Allen et al. (2001) found that satisfaction with top management increases in the downsizing process, whereas Armstrong-Stassen, Wagar, and Cattaneo (2004) found a decrease of supervisor support. All these studies were conducted within single organizations; only Ferrie, Westerlund, Oxenstierna, and Theorell (2007) used a representative sample of Swedish employees to show that downsizing negatively affects a composite measure of supervisor and co-worker support. We did not find any empirical evidence regarding whether career development or training opportunities change for downsizing survivors.

Extant literature also provides little evidence of downsizing consequences for employee attitudes. Luthans and Sommer (1999) found decreased affective commitment and job satisfaction in employees of an organization undergoing downsizing, and Travaglione and Cross (2006) confirmed these findings. Allen et al. (2001) show that organizational commitment and job involvement of managers decreased after downsizing. To date, there is a lack of evidence of the effect of downsizing on employee engagement, motivation, or work effort. Several studies used samples of downsizing survivors but did not include downsizing as study variable (e.g., Arshad & Sparrow, 2010; Brockner et al., 1993; Brockner, Grover, Reed, & Dewitt, 1992; Cotter & Fouad, 2013). In the following, we take this work forward by focusing on various pathways that shape surviving employees' engagement and strain after a downsizing event.

## 2.2 | Theoretical framework

We expect downsizing to result in increased strain and lowered engagement in surviving employees through changes in their working conditions that entail increased job demands and reduced job

resources. We base our reasoning on the job demands–resources model (Demerouti et al., 2001), which posits that a state of high strain and low engagement is caused by two processes. First, being exposed to high job demands causes strain in employees via a health impairment process. Specifically, high job demands cause a process of energy depletion because employees need to invest energy in order to deal with the demands they face, which in turn will eventually result in decreased health of the employees (Demerouti et al., 2001). Second, a lack of job resources in one's work environment causes disengagement. Specifically, when employees lack resources, their engagement in and motivation for work will suffer because they cannot reach their work goals (Demerouti et al., 2001). According to the JD-R model, job resources buffer the association between job demands and strain, while job demands moderate the relationship between job resources and engagement such that a combination of high job demands and high job resources is associated with increased engagement (Bakker & Demerouti, 2017).

We argue that downsizing results in an increase in job demands, which will in turn increase strain levels for the surviving employees. Job demands refer to all physical, social, and organizational aspects of the job that require effort on the part of the employee (Demerouti et al., 2001). Examples of job demands include a high workload, social conflicts, and role ambiguity (Sonnentag & Frese, 2003). Job strain refers to negative reactions that employees display in response to job demands (Spector, Chen, & O'Connell, 2000) and may refer to physical, psychological, and behavioral strains. In the present study, we examine the job demands work overload and job insecurity, as these are two important direct consequences of corporate restructuring (Foster et al., 2019), and because they are known to be particularly relevant for employee strain (Bowling, Alarcon, Bragg, & Hartman, 2015; Shoss, 2017).

Additionally, we argue that downsizing is followed by a decrease in employees' job resources, which in turn will result in lower levels of engagement for the surviving employees. Job resources refer to aspects of one's job that reduce the physiological and psychological costs of job demands, help employees achieve their work goals, or stimulate the personal development of the employee (Bakker & Demerouti, 2007). Examples of job resources include social support, autonomy in how tasks are carried out, performance feedback, and opportunities for career development (Bakker & Demerouti, 2007). The JD-R model posits that job resources lead to employee engagement via a motivational process (Demerouti et al., 2001). Employee engagement is defined as a "positive, fulfilling work-related state of mind" (Schaufeli & Bakker, 2004, p. 295) and involves feeling energetic, enthusiastic, and absorbed at work. In the present study, we focus on supervisor support and opportunities for development as particularly relevant job resources after a downsizing event (Amundson, Borgen, Jordan, & Erlebach, 2004).

While downsizing is likely followed by a decrease in social support and opportunities for development, we argue that if employees receive or keep these important resources after a downsizing event, they may attenuate the negative consequences that increased demands have on their well-being. The JD-R model states that job

resources moderate the relationship between job demands and employee strain (Demerouti et al., 2001), because they help employees to better cope with job demands (Bakker & Demerouti, 2007). Furthermore, as job resources are especially important for employee engagement when job demands are high (Bakker & Demerouti, 2017), downsizing will be associated with even lower engagement of surviving employees when job demands are high.

### 2.3 | Downsizing, job demands, and employee strain

Based on this theoretical background, we argue that downsizing is associated with an increase in work overload and job insecurity, which in turn relates to increases in employee strain; that is, decreases in psychological and physical health. Work overload is a job demand that involves having to do a large amount of work in too little time (Spector & Jex, 1998). Downsizing survivors often have to complete the tasks of downsizing victims in addition to their own (Boyd, Tuckey, & Winefield, 2014; Cascio, 1993; Spreitzer & Mishra, 2002), and the additional tasks are seldom equally distributed and match surviving employees' competencies (Mishra & Spreitzer, 1998). Thus, downsizing will be related to increases in work overload for the remaining employees. According to the JD-R model, being exposed to work overload triggers a health impairment process that results in employee strain (Demerouti et al., 2001). When facing work overload, employees increase efforts and mobilize sympathetic activation (Demerouti et al., 2001) in order to manage their high levels of workload. These increases in activation and effort, in turn, are associated with physiological costs, which result in a state of energy depletion and a decline in psychological and physical health (Demerouti et al., 2001). This may manifest in increased depressive symptoms and less physical strength (Bowling et al., 2015; Nixon, Mazzola, Bauer, Krueger, & Spector, 2011). Moreover, work overload may impair employees' recovery from work, which helps employees maintain health and well-being (Sonnentag, Venz, & Casper, 2017). We therefore hypothesize the following:

**Hypothesis 1:** *Downsizing negatively relates to employees' (a) psychological health and (b) physical health through work overload.*

Job insecurity is a job demand (Cheng & Chan, 2008) that is defined as a perceived threat to the continuity and stability of employment (Shoss, 2017). It can be triggered by downsizing, which is seen as a warning sign that jobs in an organization are not safe (Amundson et al., 2004; Maertz et al., 2010; Roskies & Louis-Guerin, 1990; Sverke, Hellgren, & Näswall, 2002). Due to its threatening nature, job insecurity is associated with anxiety and worry (Shoss, 2017), which are indicators of increased activation levels that may cause strain reactions (Meurs & Perrewé, 2011). Supporting this reasoning, previous studies provide evidence that job insecurity is related

to psychological and physical strain (Cheng & Chan, 2008; De Witte, Pienaar, & De Cuyper, 2016; Vander Elst, Notelaers, & Skogstad, 2018). For example, individuals who are afraid to lose their job might show higher levels of presenteeism, which can have severe consequences for their physical health (Miraglia & Johns, 2016). We hypothesize:

**Hypothesis 2:** *Downsizing negatively relates to employees' (a) psychological health and (b) physical health through job insecurity.*

## 2.4 | Downsizing, job resources, and employee engagement

We further propose that downsizing is related to a decrease in supervisor support and opportunities for development for the remaining employees, which in turn is related to a decrease in employee engagement. Supervisor support refers to helping behaviors toward employees and includes emotional and task-related behaviors (Viswesvaran, Sanchez, & Fisher, 1999). Following downsizing, managers report an increase of demands that they are unable to fulfill, such as having to manage more employees than before or take over new functions (Cameron, Freeman, & Mishra, 2011). Qualitative research shows that when downsizing becomes emotionally burdensome, downsizing agents, who are often supervisors, react by cognitively, emotionally, and physically distancing themselves from their roles (Clair & Dufresne, 2004). Thus, supervisors might not be able to provide sufficient support to employees after downsizing. Decreases in supervisor support, in turn, may impair employees' engagement. Supervisor support satisfies important needs (Bakker & Demerouti, 2007) and motivates employees. In line with this reasoning, meta-analytic evidence links supportive leadership to increased employee engagement (Christian, Garza, & Slaughter, 2011). Based on the above, we hypothesize the following:

**Hypothesis 3:** *Downsizing negatively relates to employees' engagement through supervisor support.*

Opportunities for development can be defined as a job resource that allows employees to develop their personal skills and engage in workplace learning (Molino, Ghislieri, & Cortese, 2013). Most workplace learning is informal (Molino et al., 2013), and may be impaired after a downsizing event. For example, when supervisors and colleagues feel overwhelmed with increased and unfamiliar duties (Cameron et al., 2011), they may be less able to provide learning opportunities. Reduced learning and career advancement prospects are perceived negatively by employees (Bozionelos, 2001), and a decrease in opportunities for development will be associated with a decrease in employee engagement (Bakker & Demerouti, 2007). Thus, we hypothesize the following:

**Hypothesis 4:** *Downsizing negatively relates to employees' engagement through opportunities for development.*

## 2.5 | The moderating role of job resources

Following the rationale of JD-R theory, we propose that the job resources supervisor support and opportunities for development will attenuate the relationships between downsizing and employee strain. Social support moderates the relationship between job demands and strain, such that those with more support will experience fewer health complaints in response to high job demands (Van Veldhoven et al., 2020). Specifically, receiving help from one's supervisor is important during times of organizational change (Neves & Caetano, 2006) and may help employees cope with increased demands. A supportive supervisor may help employees by providing help or advice regarding how to manage an increased workload or new and unfamiliar demands (Mathieu, Eschleman, & Cheng, 2019) after downsizing. Thus, we hypothesize the following:

**Hypothesis 5:** *Supervisor support moderates the relationships between downsizing and (a) psychological health and (b) physical health through work overload, such that the indirect relationships are weaker for employees who have more (vs. less) supervisor support.*

Similarly, we expect that social support moderates the indirect relationship between downsizing and employee strain via job insecurity. Receiving support from one's supervisor after a downsizing event makes employees feel more comfortable and is associated with more trust in the organization and perceptions that the organization is reliable (Amundson et al., 2004). Thus, when employees receive more supervisor support, the negative consequences of job insecurity might be less pronounced, for example because a supportive supervisor will prevent behavior such as presenteeism that affects employee health (Miraglia & Johns, 2016).

**Hypothesis 6:** *Supervisor support moderates the relationships between downsizing and (a) psychological health and (b) physical health through job insecurity, such that the indirect relationships are weaker for employees who have more (vs. less) supervisor support.*

Furthermore, opportunities for development should attenuate the indirect relationship between downsizing and employee strain via work overload. When employees are provided with opportunities to learn new skills and develop their abilities, this may help them cope with increased or new demands after a downsizing event (Molino et al., 2013). For example, when employees have to carry out unfamiliar tasks that were formerly carried out by other staff, it will be easier for them to do so if the organization provides them with the possibility to learn necessary new skills. Thus, we hypothesize the following:

**Hypothesis 7:** *Opportunities for development moderate the relationships between downsizing and (a) psychological health and (b) physical health through work overload, such that the indirect relationships are weaker for employees who have more (vs. fewer) opportunities for development at work.*

Moreover, we propose that opportunities for development attenuate the indirect relationship between downsizing and employee strain via job insecurity. Opportunities for development may provide employees with the possibility to develop their skills and abilities. Thus, employees might be less afraid of the consequences of job loss (De Cuyper, Bernhard-Oettel, Berntson, De Witte, & Alarco, 2008), and perceive better prospects in the future so that they would engage less in behavior that negatively affects their health.

**Hypothesis 8:** *Opportunities for development moderate the relationships between downsizing and (a) psychological health and (b) physical health through job insecurity, such that the indirect relationships are weaker for employees who have more (vs. fewer) opportunities for development at work.*

## 2.6 | The moderating role of job demands

According to JD-R theory, job demands accentuate the relationship between job resources and motivation (Bakker & Demerouti, 2017), because job resources are particularly important for maintaining engagement when employees face high demands. Work overload will thus moderate the relationship between supervisor support and engagement. Support and guidance from a supervisor represent resources that provide motivating potential when employees cope with professional demands (Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007). When downsizing survivors face the task of completing a large amount of work in little time, support from a supervisor who sets a clear work schedule and helps them accomplish their tasks will be especially motivating. We hypothesize the following:

**Hypothesis 9:** *Work overload moderates the relationship between downsizing and employee engagement through supervisor support, such that the indirect relationships are stronger for employees who have more (vs. less) work overload.*

When high demands are combined with high resources, employees are challenged to learn new things on the job and become motivated to use new behaviors (Bakker & Demerouti, 2017). Downsizing survivors experience work overload often due to new or additional tasks that do not match their competencies (Mishra & Spreitzer, 1998). Letting downsizing survivors acquire these competencies through opportunities for development is therefore particularly useful to maintain employee motivation when work overload is high. We hypothesize the following:

**Hypothesis 10:** *Work overload moderates the relationship between downsizing and employee engagement through opportunities for development, such that the indirect relationships are stronger for employees who have more (vs. less) work overload.*

Additionally, job insecurity will moderate the relationship between supervisor support and engagement. Because supervisor

support provides motivating potential by helping employees cope with increased demands (Bakker et al., 2007), supervisor support should be more important for employee motivation when job insecurity is high. When a downsizing survivor's job is insecure, support from the supervisor is a signal that the supervisor wants the employee to stay employed, leading to higher motivation at work. We therefore hypothesize the following:

**Hypothesis 11:** *Job insecurity moderates the relationship between downsizing and employee engagement through supervisor support, such that the indirect relationships are stronger for employees who have more (vs. less) job insecurity.*

Furthermore, when downsizing survivors feel that their job is not secure, opportunities for development might be especially important to keep them motivated. Opportunities for development enable employees to develop their personal skills (Molino et al., 2013) and are particularly useful in maintaining employee motivation when high job insecurity implies that new skills and knowledge could be required to keep the current job. Accordingly, we hypothesize:

**Hypothesis 12:** *Job insecurity moderates the relationship between downsizing and employee engagement through opportunities for development, such that the indirect relationships are stronger for employees who have more (vs. less) job insecurity.*

## 3 | STUDY 1

### 3.1 | Sample

In Study 1, the hypotheses were tested with data from the Study on Mental Health at Work (Rose, Friedland, & Pattloch, 2017), a representative study of the population of German employees conducted by the German Federal Employment Agency. The sample was drawn following a two-stage procedure involving a stratified selection of regions in Germany at the first stage, followed by random sampling of potential participants, aged 31 to 60 years, within these regions. From this population, 13,590 addresses of individuals were randomly drawn. Potential participants were asked whether they were willing to take part in a face-to-face, computer-assisted personal interview at their homes. A total of 4,511 interviews were conducted (response rate of 33.1%), as some respondents could not be reached at home or declined to take part in the interview. We only included individuals who were regularly employed and who worked either full-time or part-time (at least 15 hr a week).

The final sample comprised 3,865 individuals (2,036 men and 1,829 women). We conducted construct-level analyses, in which we used each respondents' available items to represent constructs (Newman, 2014). The full response rate at the construct level was 89%.

As the data were strictly anonymized, the age of respondents was present in five-year age spans (10.1% were 31–35 years old, 14.3%

were 36–40, 19.7% were 41–45, 21.9% were 46–50, 18.9% were 51–55, and 15.4% were 56–60). In our final sample, 75.3% of respondents were employed full-time (working 35 hr or more). On average, employees had worked for their companies for 14.28 years ( $SD = 10.37$ ), ranging from less than 1 to 43 years, and 6.3% of employees in the sample had temporary contracts.

## 3.2 | Measures

### 3.2.1 | Downsizing

Downsizing was measured with a single item: “In the past two years, has there been downsizing, or have there been layoffs, in your immediate work environment?” The response format was 1 (yes) and 0 (no). The consequences of downsizing for the individual employee were important, so using individual-level information on downsizing or layoffs was appropriate (Amabile & Conti, 1999). As ill effects of downsizing take some time to manifest, previous studies also investigated longer-term periods after downsizing (Allen et al., 2001; Armstrong-Stassen, 2002; Harney et al., 2018; Iverson & Zatzick, 2011; Maertz et al., 2010; Trevor & Nyberg, 2008).

### 3.2.2 | Work overload

Work overload was measured using the six-item scale ( $\alpha = .76$ ) from the Copenhagen Psychosocial Questionnaire (COPSOQ; Kristensen, Hannerz, Høgh, & Borg, 2005), which was translated and validated for the German context (Nübling, Stöbel, Hasselhorn, Michaelis, & Hofmann, 2006). A sample item is “Do you have enough time for your work tasks?” The response format was a 5-point Likert scale ranging from 1 (never or hardly ever) to 5 (always).

### 3.2.3 | Job insecurity

Job insecurity was measured using the single item “Are you worried about becoming unemployed?” The response format was a 5-point Likert-type scale ranging from 1 (to a very small extent) to 5 (to a very large extent). This global single-item measure of job insecurity concerns threats to the continuity and stability of employment (Shoss, 2017), which is of interest in our study.

### 3.2.4 | Supervisor support

Supervisor support was measured using the four-item scale from the COPSOQ. A sample item is “To what extent would you say that your immediate superior is concerned with your job satisfaction?” The response format was a 5-point Likert-type scale ranging from 1 (to a very small extent) to 5 (to a very large extent). The internal consistency estimate (Cronbach's  $\alpha$ ) of the scale was .85.

### 3.2.5 | Opportunities for development

Opportunities for development were measured using the four-item scale from the COPSOQ ( $\alpha = .77$ ). A sample item is “Do you have the possibility of learning new things through your work?” The response format was a 5-point Likert-type scale ranging from 1 (to a very small extent) to 5 (to a very large extent).

### 3.2.6 | Psychological health

Psychological health was measured using the depression scale with nine items from the Patient Health Questionnaire (Gräfe, Zipfel, Herzog, & Löwe, 2004;  $\alpha = .82$ ). It was not assessed via personal interview questions like the other study variables. Instead, participants filled out a paper questionnaire, which they then handed back to the interviewer in a sealed envelope. A sample question was “In the last two weeks, have you experienced markedly diminished interest or pleasure in activities?” The response format was a 4-point Likert-type scale ranging from 0 (almost every day) to 3 (not at all) in our study, with responses adding up to a psychological health score between 0 and 27.

### 3.2.7 | Physical health

Respondents were asked whether a medical doctor had diagnosed them with any of a list of 12 medical conditions in the past 12 months. A sample condition was “Diseases of the musculoskeletal system, including for instance sciatica, rheumatism, or spinal diseases.” The response format was 0 (yes) or 1 (no) in our study, and responses were summed across all conditions for every respondent, resulting in a physical health score between 0 and 12.

### 3.2.8 | Employee engagement

Engagement was measured with the Utrecht Work Engagement Scale (Schaufeli & Bakker, 2003;  $\alpha = .92$ ). A sample item is “I am proud of the work that I do.” The response format was a 7-point Likert scale ranging from 1 (never) to 7 (always).

### 3.2.9 | Control variables

We included several control variables: gender (1 = male; 2 = female), age (coded with six age spans from 1 (31–35 years) to 6 (56–60 years)), tenure, education (coded as 1 = no degree, 2 = vocational training, 3 = vocational college, 4 = university degree), and physical stressors. Six items from the COPSOQ ( $\alpha = .83$ ) assessed the amount of time individuals worked under physically strenuous conditions, like lifting or carrying heavy weights. The response format was a 5-point Likert scale ranging from 1 (never) to 5 (more than 75% of my work time).

### 3.3 | Data analytic strategy

The hypothesized model was tested using the method of conditional indirect effects testing in conjunction with bootstrapping procedures for multiple mediators and an index of moderated mediation (Hayes, 2015). All paths in the mediated model were estimated simultaneously. Thus, it is possible to interpret all indirect effects without having to refer to the procedure of causal steps, which can be unreliable for models with multiple mediators (Preacher & Hayes, 2008). Missingness in the data was addressed with the full information maximum likelihood approach, which is preferable over listwise deletion or single imputation (Newman, 2014) and which uses all available information for the estimation of the model. We estimated 5,000 bootstrap samples. Continuous predictors were standardized prior to testing the hypotheses. Thus, the resulting indirect effects are completely standardized and can be compared across situations using different metrics (Preacher & Kelley, 2011). We conducted our analyses using the software R with the lavaan package (Rosseel, 2012) and the MBESS package (Kelley, 2007).

### 3.4 | Results

The means, SDs, and correlations of the variables in Study 1 are presented in Table 1. The results of the mediation analyses are presented in Table 2. The indirect effects (IE) are significant if the 95% bias-corrected bootstrap confidence interval (CI) does not include zero. We not only report completely standardized indirect effects but also follow the recommendation of Preacher and Kelley (2011) to report  $\kappa^2$ , which is interpreted as the proportion of the maximum possible

indirect effect. Similar to the determination coefficient  $R^2$ , it ranges between 0 and 1 and can be interpreted in the same light as  $R^2$ , with 0.01 as small, 0.09 as medium, and 0.25 as large effect size (Preacher & Kelley, 2011). Results of the moderated mediation analyses with conditional indirect effects are shown in Tables 3–6. Here, a significant index of moderated mediation indicates that the indirect effects are significantly different at different values of the moderator.

Downsizing had a significant indirect effect (IE) on psychological health (IE =  $-0.21$ , 95% CI [ $-0.28$ ,  $-0.15$ ]) and on physical health (IE =  $-0.04$ , 95% CI [ $-0.06$ ,  $-0.02$ ]) via work overload. Hypotheses 1a and 1b, which stated that downsizing is negatively related to psychological and physical health through work overload, thus received support. Moreover, downsizing had significant indirect effects on psychological health (IE =  $-0.19$ , 95% CI [ $-0.25$ ,  $-0.13$ ]) and physical health (IE =  $-0.03$ , 95% CI [ $-0.05$ ,  $-0.01$ ]) via job insecurity, supporting Hypotheses 2a and 2b. There was a significant indirect effect of downsizing on employee engagement via supervisor support (IE =  $-0.10$ , 95% CI [ $-0.12$ ,  $-0.08$ ]), supporting Hypothesis 3. Furthermore, there was a significant indirect effect of downsizing on employee engagement via opportunities for development (IE =  $-0.06$ , 95% CI [ $-0.09$ ,  $-0.03$ ]); thus, Hypothesis 4 was also supported. The direct effects (DE) of downsizing on psychological health (DE =  $-0.27$ , 95% CI [ $-0.35$ ,  $-0.20$ ]), and physical health (DE =  $-0.18$ , 95% CI [ $-0.28$ ,  $-0.08$ ]) were significant, such that the mediators partially mediated these relationships. The direct effect of downsizing on engagement was not significant (DE =  $-0.04$ , 95% CI [ $-0.11$ ,  $0.03$ ]); the mediators fully mediated this relationship.

When testing the moderated mediation hypotheses, we report effects when the moderator is one SD below the mean and one SD above the mean. There was a stronger effect of downsizing on

**TABLE 1** Study 1: Means, SDs, and correlations

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Downsizing	0.34	0.48	-											
2. Work overload	2.95	0.79	.14	-										
3. Job insecurity	1.94	1.10	.17	.06	-									
4. Opp. for develop.	2.83	0.59	-.07	.17	-.16	-								
5. Supervisor support	3.28	0.91	-.16	-.23	-.10	.22	-							
6. Psychological health	22.68	3.53	-.13	-.25	-.23	.16	.24	-						
7. Physical health	10.69	1.30	-.11	-.13	-.10	.06	.12	.35	-					
8. Employee engagement	5.00	1.11	-.11	-.11	-.15	.36	.38	.32	.14	-				
9. Gender <sup>a</sup>	1.47	0.50	-.03	-.02	-.02	-.05	.04	-.10	-.10	.08	-			
10. Age <sup>b</sup>	3.70	1.56	.01	-.09	-.03	-.05	.00	-.01	-.10	-.03	.02	-		
11. Years of tenure	14.28	10.37	.06	-.02	-.14	.02	.01	.03	-.05	-.03	-.03	.40	-	
12. Education	2.67	1.12	.00	.18	-.08	.26	-.01	.06	.06	-.04	-.02	-.02	-.10	-
13. Physical stressors	2.27	1.03	.04	-.02	.11	-.13	-.02	-.09	-.08	.05	-.12	-.04	-.06	-.35

Note: N = 3,865; M = mean; SD = standard deviation.

<sup>a</sup>Male (1), female (2).

<sup>b</sup>Age spans from 1 (31–35 years) to 6 (56–60 years).

$p < .05$  for  $|r| \geq .04$ .

$p < .01$  for  $|r| \geq .06$ .

$p < .001$  for  $|r| \geq .07$ .

**TABLE 2** Bootstrapping results for mediation analyses

	DE	CI [95%]	Mediator	IE	CI [95%]	$\kappa^2$
<b>Study 1</b>						
Psychological health	−0.27 *	−0.35, −0.20	Work overload	−0.21 *	−0.28, −0.15	0.06
			Job insecurity	−0.19 *	−0.25, −0.13	0.05
Physical health	−0.18 *	−0.28, −0.08	Work overload	−0.04 *	−0.06, −0.02	0.03
			Job insecurity	−0.03 *	−0.05, −0.01	0.01
Employee engagement	−0.04	−0.11, 0.03	Supervisor support	−0.10 *	−0.12, −0.08	0.05
			Opp. for develop.	−0.06 *	−0.09, −0.03	0.03
<b>Study 2</b>						
Psychological health	0.10	−0.67, 0.98	Work overload	−0.30 *	−0.43, −0.19	0.03
			Job insecurity	−0.21 *	−0.40, −0.03	0.04
Physical health	−0.15	−0.58, 0.27	Work overload	−0.04 *	−0.08, 0.00 <sup>a</sup>	0.00
			Job insecurity	−0.13 *	−0.21, −0.05	0.01
Employee engagement	−0.02	−0.07, 0.04	Supervisor support	−0.02 *	−0.02, −0.01	0.01
			Opp. for develop.	−0.02 *	−0.03, −0.01	0.01

Note: Bootstrap sample size = 5,000; DE = direct effect; IE = indirect effect; CI [95%] = 95% confidence interval.  $\kappa^2$  = mediation effect size.

<sup>a</sup>The bound of the confidence interval was rounded to .00, but does not include zero.

\* $p < .05$ .

**TABLE 3** Supervisor support as moderator: Bootstrapping results for tests of conditional indirect effects

Dependent variable	Value of the moderator	Conditional indirect effect: Work overload	CI [95%] work overload	Conditional indirect effect: Job insecurity	CI [95%] job insecurity
<b>Study 1</b>					
Psychological health	−1 SD (2.37)	−0.24 *	−0.32, −0.17	−0.23 *	−0.30, −0.15
	+1 SD (4.19)	−0.17 *	−0.24, −0.11	−0.14 *	−0.21, −0.08
	Index	0.04 *	0.00 <sup>a</sup> , 0.08	0.05	0.00, 0.10
Physical health	−1 SD (2.37)	−0.04 *	−0.06, −0.02	−0.03 *	−0.06, −0.01
	+1 SD (4.19)	−0.04 *	−0.06, −0.02	−0.03 *	−0.05, −0.01
	Index	0.00	−0.01, 0.01	0.00	−0.02, 0.02
<b>Study 2</b>					
Psychological health	−1 SD (2.17)	−0.34 *	−0.51, −0.20	−0.30 *	−0.51, −0.10
	+1 SD (4.05)	−0.25 *	−0.39, −0.14	−0.10	−0.36, 0.16
	Index	0.07	−0.02, 0.16	0.12	−0.07, 0.31
Physical health	−1 SD (2.17)	−0.02	−0.08, 0.03	−0.06	−0.16, 0.02
	+1 SD (4.05)	−0.06 *	−0.11, −0.01	−0.20 *	−0.33, −0.09
	Index	−0.02	−0.07, 0.02	−0.09 *	−0.17, −0.01

Note: Bootstrap sample size = 5,000; SD = standard deviation; CI [95%] = 95% confidence interval; Index = index of moderated mediation.

<sup>a</sup>The bound of the confidence interval was rounded to .00, but does not include zero.

\* $p < .05$ .

psychological health through work overload when supervisor support was low (IE = −0.24, 95% CI [−0.32, −0.17]) than when it was high (IE = −0.17, 95% CI [−0.24, −0.11]). The index of moderated mediation was significant (index = 0.04, 95% CI [0.00, 0.08]), indicating that the indirect effect varied with the level of supervisor support; thus, Hypothesis 5a was supported. Here, the bound of the confidence interval was rounded to 0.00 but does not include zero. The

interaction is plotted in Figure 2. However, no support was found for Hypotheses 5b, 6a, and 6b, as the other conditional indirect effects of downsizing at different levels of the moderator supervisor support were not significantly different. Hypotheses 7a, 7b, 8a, and 8b were also not supported, as opportunities for development did not significantly moderate any of the indirect effects of downsizing via work overload and job insecurity on psychological and physical health.

**TABLE 4** Opportunities for development as moderator: Bootstrapping results for tests of conditional indirect effects

Dependent variable	Value of the moderator	Conditional indirect effect: Work overload	CI [95%] work overload	Conditional indirect effect: Job insecurity	CI [95%] job insecurity
<b>Study 1</b>					
Psychological health	-1 SD (2.24)	-0.24 *	-0.33, -0.16	-0.20 *	-0.27, -0.13
	+1 SD (3.42)	-0.18 *	-0.25, -0.12	-0.18 *	-0.26, -0.11
	Index	0.03	-0.01, 0.09	0.01	-0.05, 0.07
Physical health	-1 SD (2.24)	-0.05 *	-0.07, -0.03	-0.02 *	-0.05, 0.00 <sup>a</sup>
	+1 SD (3.42)	-0.03 *	-0.05, -0.01	-0.03 *	-0.06, -0.01
	Index	0.01	0.00, 0.03	-0.01	-0.03, 0.01
<b>Study 2</b>					
Psychological health	-1 SD (2.74)	-0.38 *	-0.55, -0.23	-0.26 *	-0.47, -0.06
	+1 SD (4.35)	-0.22 *	-0.35, -0.12	-0.14	-0.09, 0.39
	Index	0.10 *	0.02, 0.22	0.09	-0.11, 0.30
Physical health	-1 SD (2.74)	-0.06 *	-0.11, -0.01	-0.18 *	-0.28, -0.08
	+1 SD (4.35)	-0.02	-0.07, 0.03	-0.08	-0.17, 0.02
	Index	0.03	-0.01, 0.09	0.08	-0.01, 0.17

Note: Bootstrap sample size = 5,000; SD = standard deviation; CI [95%] = 95% confidence interval; Index = index of moderated mediation.

<sup>a</sup>The bound of the confidence interval was rounded to .00, but does not include zero.

\* $p < .05$ .

**TABLE 5** Work overload as moderator: Bootstrapping results for tests of conditional indirect effects

Dependent variable	Value of the moderator	Conditional indirect effect: Supervisor support	CI [95%] supervisor support	Conditional indirect effect: Opp. for develop.	CI [95%] opp. for develop.
<b>Study 1</b>					
Engagement	-1 SD (2.16)	-0.12 *	-0.15, -0.09	-0.05 *	-0.07, -0.02
	+1 SD (3.74)	-0.08 *	-0.11, -0.06	-0.07 *	-0.10, -0.04
	Index	0.02 *	0.01, 0.04	-0.01 *	-0.02, -0.01
<b>Study 2</b>					
Engagement	-1 SD (2.24)	-0.02 *	-0.03, -0.01	-0.02 *	-0.03, -0.01
	+1 SD (3.84)	-0.01 *	-0.02, -0.01	-0.02 *	-0.03, -0.01
	Index	0.01	0.00, 0.01	0.00	-0.01, 0.00

Note: Bootstrap sample size = 5,000; SD = standard deviation; CI [95%] = 95% confidence interval; Index = index of moderated mediation.

\* $p < .05$ .

We also tested moderating effects of job demands for the relationship between downsizing and engagement that is mediated by job resources. Contrary to Hypothesis 9, there was a significantly stronger effect of downsizing on engagement through supervisor support when work overload was low (IE = -0.12, 95% CI [-0.15, -0.09]) than when it was high (IE = -0.08, 95% CI [-0.11, -0.06], index = 0.02, 95% CI [0.01, 0.04]). The interaction is plotted in Figure 3. The effect of downsizing on employee engagement through opportunities for development was stronger when work overload was high (IE = -0.07, 95% CI [-0.10, -0.04]) than when it was low (IE = -0.05, 95% CI [-0.07, -0.02]); the index of moderated mediation was significant (index = -0.01, 95% CI [-0.02, -0.01]). This supports Hypothesis 10; the interaction is plotted in Figure 4. Job insecurity was not a significant

moderator of the indirect relationships between downsizing and employee engagement via supervisor support and opportunities for development, so that Hypotheses 11 and 12 were not supported.

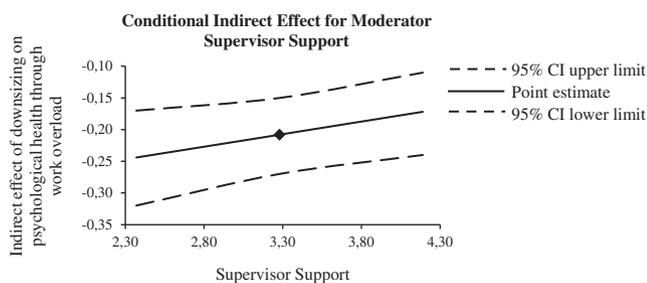
The inclusion of control variables did not affect any of the hypothesized relationships. We also tested the robustness of our results, first by excluding all respondents with missing data and second by excluding respondents with temporary contracts, but the pattern of hypothesized results did not change. As the measures of psychological health and physical health were left-skewed, we conducted analyses where we transformed these variables using the natural logarithm transformation. Again, the results of the hypothesis tests did not change. We therefore followed the recommendation by Becker, Robertson, and Vandenberg (2019) in presenting the untransformed findings.

**TABLE 6** Job insecurity as moderator: Bootstrapping results for tests of conditional indirect effects

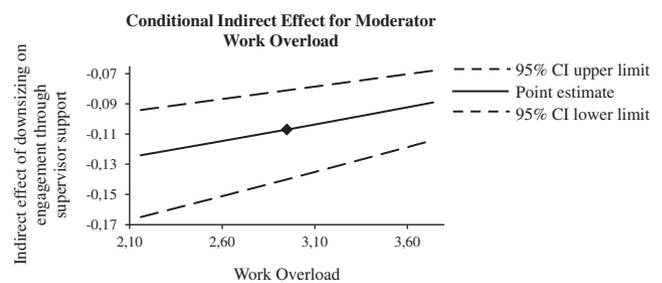
Dependent variable	Value of the moderator	Conditional indirect effect: Supervisor support	CI [95%] supervisor support	Conditional indirect effect: Opp. for develop.	CI [95%] opp. for develop.
<b>Study 1</b>					
Engagement	-1 SD (2.24)	-0.09 *	-0.12, -0.07	-0.06 *	-0.09, -0.03
	+1 SD (3.42)	-0.11 *	-0.14, -0.08	-0.06 *	-0.09, -0.03
	Index	-0.02	-0.02, 0.01	0.00	0.00, 0.01
<b>Study 2</b>					
Engagement	0	-0.02 *	-0.02, -0.01	-0.02 *	-0.03, -0.01
	1	0.00	-0.02, 0.01	-0.02 *	-0.04, -0.01
	Index	0.01	-0.01, 0.03	0.00	-0.02, 0.01

Note: Bootstrap sample size = 5,000; SD = standard deviation; CI [95%] = 95% confidence interval; Index = index of moderated mediation.

\* $p < .05$ .



**FIGURE 2** Study 1: Conditional indirect effect of downsizing on psychological health through work overload at different levels of the moderator supervisor support



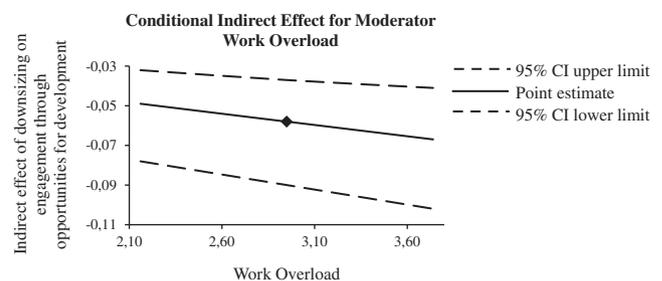
**FIGURE 3** Study 1: Conditional indirect effect of downsizing on engagement through supervisor support at different levels of the moderator work overload

## 4 | STUDY 2

### 4.1 | Sample

In Study 2, we used panel data with two waves of data collection from the study lidA (Tophoven, Wurdack, Rauch, Munkert, & Bauer, 2016), which was conducted by the German Federal Employment Agency. A sample of individuals from the birth cohorts of 1959 and 1965 was obtained from register data of the German Federal Employment Agency, and a random sample of 24,322 addresses was then drawn. As in Study 1, participants took part in face-to-face, computer-assisted personal interviews at their homes. A total of 6,585 individuals participated in the first study wave in 2011 (response rate 27.0%), and 4,244 individuals participated in the second study wave in 2014 (attrition rate 35.5%).

We conducted an attrition analysis to check whether dropout at  $t_2$  could be predicted by our study variables at  $t_1$ . Using a logistic regression analysis to predict continuance in the study at  $t_2$ , we found that only being male ( $B = -0.20, p < .01$ ), having a low education ( $B = -0.14, p < .001$ ), and having physical stress at work ( $B = 0.08, p < .05$ ) were predictors of study dropout. We included individuals in our study who participated in both waves of the study, who were full-time or part-time employed (working at least 15 hr a week), and who had not changed their employer between  $t_1$  and  $t_2$ , resulting in a final sample of 3,290 employees (1,710 women and 1,580 men). The full response rate at the construct level was 88.2% at  $t_1$ , and 90.2% at  $t_2$ .



**FIGURE 4** Study 1: Conditional indirect effect of downsizing on engagement through opportunities for development at different levels of the moderator work overload

At  $t_2$ , 70.1% of respondents worked full-time (i.e., more than 35 hr per week). On average, employees worked for their companies for 15.04 years ( $SD = 9.43$ ) at  $t_2$ , ranging from less than 1 to 31 years of tenure, and 5.0% had temporary contracts.

## 4.2 | Measures

### 4.2.1 | Downsizing

As in Study 1, respondents indicated whether there had been downsizing or layoffs in their immediate work environment in the last 2 years at  $t_2$ .

**TABLE 7** Study 2: Means, SDs, and correlations

	M	SD	1	2	3	4	5	6	7	8	9
1. Downsizing prior to t2	0.31	0.46	-								
2. Work overload t1	3.05	0.81	.11***	-							
3. Work overload t2	3.04	0.80	.16***	.60***	-						
4. Job insecurity t1	0.08	0.27	.15***	.07***	.02	-					
5. Job insecurity t2	0.10	0.30	.26***	.07***	.06***	.27***	-				
6. Supervisor support t1	3.21	0.93	-.10***	-.21***	-.16***	-.15***	-.10***	-			
7. Supervisor support t2	3.11	0.94	-.14***	-.12***	-.21***	-.08***	-.16***	.52***	-		
8. Opp. for develop. t1	3.78	0.77	-.03	.09***	.08***	-.08***	-.05*	.25***	.19***	-	
9. Opp. for develop. t2	3.54	0.81	-.07***	.08***	.05*	-.08***	-.10***	.20***	.30***	.59***	-
10. Psychological health t1	80.31	13.14	-.08***	-.19***	-.17***	-.15***	-.10***	.21***	.16***	.19***	.17***
11. Psychological health t2	79.88	13.80	-.09***	-.17***	-.21***	-.10***	-.13***	.17***	.21***	.16***	.20***
12. Physical health t1	38.46	11.36	-.02	.00	-.03	-.02	-.01	-.04*	-.02	.08***	.08***
13. Physical health t2	37.88	11.45	-.04*	-.02	-.04*	.00	-.04*	-.04*	-.02	.08***	.09***
14. Employee engagement t1	6.16	0.81	-.03	.01	.03	-.09***	-.06***	.22***	.14***	.41***	.29***
15. Employee engagement t2	6.14	0.78	-.05**	.02	.01	-.07**	-.07**	.20***	.23***	.35***	.40***
16. Gender <sup>a</sup>	1.52	0.50	-.04*	.00	.04*	-.02	-.01	.05*	.03	-.04*	-.05*
17. Age <sup>b</sup>	51.77	3.00	.01	.01	.03	-.01	.00	-.03	-.05*	-.02	.02
18. Years of tenure t2	15.04	9.43	-.06***	-.09***	-.03	.01	.01	.04*	.01	-.05*	-.05*
19. Education t2	2.76	1.12	.00	.11***	.12***	.01	.01	.01	.00	.20***	.19***
20. Physical stressors t2	2.03	0.93	.01	-.08***	-.03	.02	.01	-.07***	-.09***	-.16***	-.16***

Note: N = 3,290; M = mean; SD = standard deviation.

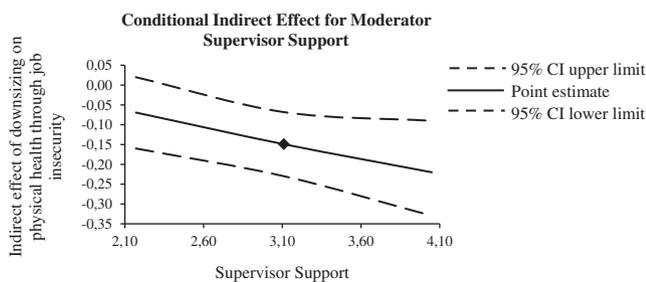
<sup>a</sup>Male (1), Female (2).

<sup>b</sup>Cohort 1 (1959), 2 (1965).

\*p < .05.

\*\*p < .01.

\*\*\*p < .001.



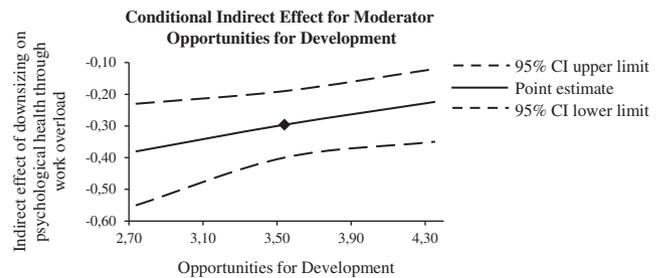
**FIGURE 5** Study 2: Conditional indirect effect of downsizing on physical health through job insecurity at different levels of the moderator supervisor support

### 4.2.2 | Work overload

Work overload was again measured using a scale from the COPSOQ (Kristensen et al., 2005; Nübling et al., 2006;  $\alpha = .73$ ) at t1 and t2.

### 4.2.3 | Job insecurity

As in Study 1, job insecurity was measured using a single item. Respondents had to answer whether the statement “I am at risk of



**FIGURE 6** Study 2: Conditional indirect effect of downsizing on psychological health through work overload at different levels of the moderator opportunities for development

losing my job” applied to their situation. The response format was 1 (yes) and 0 (no) at t1 and t2.

### 4.2.4 | Supervisor support

Supervisor support was again measured using a scale from the COPSOQ at t1 and t2. The internal consistency estimate (Cronbach’s  $\alpha$ ) of the scale was .84.

#### 4.2.5 | Opportunities for development

Opportunities for development were again measured using a scale from the COPSQ ( $\alpha = .81$ ), but in this study the short version with two items was used (Kristensen et al., 2005; Nübling et al., 2006) at  $t1$  and  $t2$ .

#### 4.2.6 | Psychological health

Psychological health was measured with the Beck Depression Inventory (Schmitt, Altstötter-Gleich, Hinz, Maes, & Brähler, 2006) at  $t1$  and  $t2$ . As in Study 1, the scale was a paper and pencil version that was returned to the interviewer in a closed envelope. It contained 20 items (e.g., "I feel discouraged when I think of the future"). The response format for every item was a 6-point Likert-type scale ranging from 0 (*almost always*) to 5 (*never*) in our study. These items were then summed up and gave a psychological health score ranging between 0 and 100. To ensure participants' anonymity, single-item scores were not available from the German Federal Employment Agency, only the overall score. The internal consistency estimate of the scale has been stable at 0.92 throughout different studies that use the lidA dataset (Peter, March, & du Prel, 2016; Tophoven, du Prel, Peter, & Kretschmer, 2015).

#### 4.2.7 | Physical health

Physical health was measured by hand grip strength, which can be assessed by measuring the amount of static force in kilograms that an individual's hand can exert on a dynamometer, a portable device that was developed specifically for this purpose. A firm hand grip (i.e., the ability to exert high force when squeezing the dynamometer) is an indicator of good health status (Kuh, Bassey, Butterworth, Hardy, & Wadsworth, 2005). Hand grip strength has been linked to short-term and long-term quality of life, physical health, and mortality (Kuh et al., 2005; Montalcini et al., 2013). There were two measurements of hand grip strength for each hand, so that a mean value of four measurements was available for every individual at  $t1$  and  $t2$ .

#### 4.2.8 | Employee engagement

Employee engagement was measured at  $t1$  and  $t2$  with three items from the German version of the job diagnostic survey (Schmidt & Kleinbeck, 1999;  $\alpha = .74$ ). A sample item is "The work that I do means a lot to me." The response format was a 7-point Likert-type scale ranging from 1 (*do not agree at all*) to 7 (*completely agree*).

#### 4.2.9 | Control variables

The same control variables as in Study 1 (gender, age, tenure at  $t2$ , education at  $t2$ , and physical stressors at  $t2$  with an internal

consistency of 0.86) were used, except that age was coded as 1 (*born in 1965*) or 2 (*born in 1959*).

#### 4.3 | Data analytic strategy

Previous downsizing as reported at  $t2$  was a predictor of job demands and job resources at  $t2$ , and of health and employee engagement at  $t2$ . We controlled for the baseline of job demands, job resources, health, and employee engagement at  $t1$ . Therefore, we were able to predict changes in job demands, job resources, health, and employee engagement. As in Study 1, all hypotheses were tested using bootstrapping procedures, and all paths in the mediated models were estimated simultaneously. Continuous predictors were again standardized prior to testing the hypotheses, and missing data were again addressed with the full information maximum likelihood approach (Newman, 2014).

#### 4.4 | Results

The means, *SDs*, and correlations of the variables in Study 2 are shown in Table 7. Results of the mediation analyses are presented in Table 2, and conditional indirect effects that depend on the magnitude of the moderators are shown in Tables 3–6.

Downsizing had a significant indirect effect (IE) on psychological health (IE =  $-0.30$ , 95% CI [ $-0.43$ ,  $-0.19$ ]) through work overload; thus, Hypothesis 1a was supported. There was a significant indirect effect of downsizing on physical health through work overload (IE =  $-0.04$ , 95% CI [ $-0.08$ ,  $-0.00$ ]); the bound of the confidence interval was rounded to .00 but did not include zero. Therefore, Hypothesis 1b was also supported. Downsizing had significant indirect effects on psychological health (IE =  $-0.21$ , 95% CI [ $-0.40$ ,  $-0.03$ ]) and physical health (IE =  $-0.13$ , 95% CI [ $-0.21$ ,  $-0.05$ ]) via job insecurity, supporting Hypotheses 2a and 2b. Furthermore, downsizing had a significant indirect effect on employee engagement through supervisor support (IE =  $-0.02$ , 95% CI [ $-0.02$ ,  $-0.01$ ]), supporting Hypothesis 3. There was a significant indirect effect of downsizing on employee engagement via opportunities for development (IE =  $-0.02$ , 95% CI [ $-0.03$ ,  $-0.01$ ]); thus, Hypothesis 4 was also supported. The direct effects of downsizing on psychological health, physical health, and employee engagement were not significant, such that the mediators fully mediated these relationships.

When testing the moderated-mediation hypotheses, there was no significant indirect effect of downsizing on physical health through job insecurity when supervisor support was low (IE =  $-0.06$ , 95% CI [ $-0.16$ ,  $0.02$ ]). When supervisor support was high, the negative indirect effect of downsizing on physical health through job insecurity was significant (IE =  $-0.20$ , 95% CI [ $-0.33$ ,  $-0.09$ ]). The interaction is plotted in Figure 5. Although the index of moderated mediation was significant (index =  $-0.09$ , 95% CI [ $-0.17$ ,  $-0.01$ ]), this relationship was contrary to what we expected, so that Hypothesis 6b had to be rejected. Likewise, no support was found for Hypotheses 5a, 5b, or

6a, as the other indirect effects of downsizing at different levels of the moderator supervisor support were not significantly different.

There was a stronger effect of downsizing on psychological health through work overload when opportunities for development were low (IE =  $-0.38$ , 95% CI [ $-0.55$ ,  $-0.23$ ]) than when they were high (IE =  $-0.22$ , 95% CI [ $-0.35$ ,  $-0.12$ ]). The index of moderated mediation was significant (index =  $0.10$ , 95% CI [ $0.02$ ,  $0.22$ ]); thus, Hypothesis 7a was supported. The interaction is plotted in Figure 6. Although the other indirect effects varied at different levels of the moderator opportunities for development as hypothesized, the indices of moderated mediation were not significant. Thus, Hypotheses 7b, 8a, and 8b were not supported. Moreover, neither work overload nor job insecurity were significant moderators of the indirect relationships between downsizing and employee engagement via supervisor support and opportunities for development, so that Hypotheses 9, 10, 11, and 12 were also not supported.

The inclusion of control variables and the exclusion of respondents with missing data or temporary contracts did not change the results of the hypothesis tests. The measures of psychological health and employee engagement were left-skewed, but analyses with transformed variables did not yield different results regarding the hypothesis tests. Thus, we present untransformed findings (Becker et al., 2019).

## 5 | DISCUSSION

Due to the increasing global prevalence of downsizing (Datta & Basuil, 2015), examining employee reactions to this organizational change event is of great interest for human resource management. The purpose of our research was to increase the understanding of the mechanisms through which downsizing relates to surviving employees' engagement and strain, and to investigate how strain reactions of surviving employees might be reduced. Following JD-R theory (Demerouti et al., 2001), we expected that a decrease in job resources would mediate the relationship between downsizing and engagement, and that an increase in job demands would mediate the relationship between downsizing and strain. Furthermore, we expected that job resources would attenuate the effect of downsizing on employee strain through job demands, and that job demands would accentuate the effect of downsizing on employee engagement through job resources. We investigated the relationships of downsizing with engagement, psychological health, and physical health of employees who remain in the organization, thus answering the call for research on downsizing consequences (Iverson & Zatzick, 2011). Moreover, we answered the call to examine mediation processes and boundary conditions of these downsizing effects (Datta et al., 2010).

Overall, the results from two studies partially support this model. We found that downsizing had small to medium effects on psychological health that were mediated by work overload and job insecurity. There also was a small effect of downsizing on physical health through job insecurity in both studies. The effect of downsizing on physical health through work overload was small in Study 1, and statistically

significant yet practically non-existent in Study 2. Furthermore, there was a small effect of downsizing on employee engagement that was mediated by supervisor support and opportunities for development in both studies. Even those small effects are enormously important when considering that employees' health and engagement are affected because organizations often downsize merely to improve their financial performance (Datta & Basuil, 2015). Moreover, the effects are important because they emerged even though the independent variable was up to 2 years in the past, and because our dependent variables, specifically objective physical health, are difficult to influence (Prentice & Miller, 1992).

Regarding moderating effects, our overall findings do not support the assumption that job resources can reduce strain reactions after downsizing, or that job demands accentuate the effect of downsizing on employee engagement. However, supervisor support and opportunities for development might have the potential to alleviate the relationship between downsizing and psychological strain that is mediated by work overload. We used large, representative samples of employees from different organizations, and different measures for our dependent variables across the two studies. The fact that the studies overall yielded similar results demonstrates the generalizability and dependability of our findings. However, the effect of downsizing on physical health through work overload was not meaningful when using an objective measure of physical health. This might imply that self-reported measures are more likely to be affected by work overload after downsizing than objective measures of physical health, which is another important finding given that the overwhelming majority of studies that link downsizing to physical health used self-reported data.

### 5.1 | Theoretical implications

In the extant literature, downsizing has often been conceptualized as organizational behavior that surviving employees perceive as violation of the psychological contract (e.g., Arshad & Sparrow, 2010; Iverson & Zatzick, 2011; Kalimo et al., 2003) or as unjust (e.g., Brockner et al., 1993; Brockner et al., 2004; Spreitzer & Mishra, 2002). The present conceptualization of downsizing as an organizational change stressor (Devine et al., 2003; Sonnentag & Frese, 2003) that elicits changes in job demands and job resources for employees who remain in the organization enabled us to focus on specific working conditions that trigger disadvantageous health changes and motivational processes (Demerouti et al., 2001). Previous studies that conceptualized downsizing as a stressor (Devine et al., 2003; Moore et al., 2004), even those based on JD-R theory (Harney et al., 2018), focused merely on downsizing effects on job demands and strain. Applying JD-R theory to study both employee health and engagement allowed us to explore the mechanisms through which downsizing adversely affects downsizing survivors in a systematic way. Furthermore, it enabled us to gain a more thorough and holistic understanding of how changes in working conditions affect outcomes on the individual level.

**TABLE 7** (Continued) Study 2: Means, SDs, and correlations

	10	11	12	13	14	15	16	17	18	19
1. Downsizing prior to t2										
2. Work overload t1										
3. Work overload t2										
4. Job insecurity t1										
5. Job insecurity t2										
6. Supervisor support t1										
7. Supervisor support t2										
8. Opp. for develop. t1										
9. Opp. for develop. t2										
10. Psychological health t1	-									
11. Psychological health t2	.66***	-								
12. Physical health t1	.16***	.17***	-							
13. Physical health t2	.17***	.18***	.89***	-						
14. Employee engagement t1	.16***	.12***	-.04*	-.05*	-					
15. Employee engagement t2	.15***	.17***	-.04*	-.03*	.51***	-				
16. Gender <sup>a</sup>	-.15***	-.16***	-.80***	-.82***	.07***	.08***	-			
17. Age <sup>b</sup>	-.01	-.02	.09***	.12***	-.07***	-.02	-.03	-		
18. Years of tenure t2	-.02	-.02	-.04*	-.04*	-.01	-.01	.07***	.15***	-	
19. Education t2	.01	.01	.04*	.05*	.03	.04*	-.06***	.01	.09***	-
20. Physical stressors t2	.00	-.05*	.06*	.03*	.00	.01	-.05**	.01	.06***	-.30***

Note:  $N = 3,290$ ;  $M$  = mean;  $SD$  = standard deviation.

<sup>a</sup>Male (1), Female (2).

<sup>b</sup>Cohort 1 (1959), 2 (1965).

\* $p < .05$ .

\*\* $p < .01$ .

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

Our results suggest that downsizing is related to increases in work overload and job insecurity, and that increases in these job demands account for most of the change in employees' psychological health. This finding is in line with previous research that emphasized the role of work overload (Harney et al., 2018) and job insecurity (Grunberg et al., 2001; Kivimäki et al., 2001) after downsizing for employee health, but did not assess their effects simultaneously and control for previous levels of job demands prior to downsizing. The findings from our studies suggest that work overload and job insecurity are both important when it comes to explaining downsizing survivors' strain. However, it appears that job insecurity is the more important and consistent mediator when it comes to explaining the effects of downsizing on physical health, as work overload resulting from downsizing is comparatively less likely to result in negative effects on surviving employees' physical health.

Furthermore, our findings suggest that downsizing is related to employee engagement, and that this relationship is explained through a decrease in supervisor support and opportunities for development. As previous studies on the relationship between downsizing and supervisor support have yielded inconclusive results (Allen et al., 2001; Amabile & Conti, 1999; Armstrong-Stassen et al., 2004; Luthans & Sommer, 1999), the results of our studies with

representative samples from various organizations offer an important contribution to the downsizing literature, supporting the notion of a negative impact of downsizing on supervisor support. Thus, although previous research suggests a decrease in several resources (Amabile & Conti, 1999), our study is the first to show that after downsizing, surviving employees have fewer learning and development opportunities, which results in lower levels of engagement.

While job resources are important for employee engagement after downsizing, it seems unlikely that they meaningfully reduce the impact of downsizing on employee strain. Our findings were not consistent across the two studies that receiving help from a supervisor and having opportunities to learn new things at work might help employees cope with increased workload after downsizing; therefore, this evidence inspires cautious inference at best. The relationship between downsizing and employee strain that is mediated by job insecurity could not be alleviated by job resources in either study. On the contrary, downsizing affected physical health through increased job insecurity only when supervisor support was high, but not when it was low. This finding adds to the growing body of research showing that job resources could have adverse effects on well-being under specific circumstances (Van Veldhoven et al., 2020). Increased supervisor support after downsizing might be seen as a signal by surviving

employees that their supervisor, too, is afraid that further layoffs might follow, leading to anxiety and work behavior that negatively affects surviving employees' physical health. Additionally, employees who receive support from their supervisor might value their job more than employees who do not receive the same level of support. Consequently, losing a job that one values might be more detrimental to employee health than the threat of losing a job that seems less valuable because the supervisor does not provide much support. To buffer the effects of downsizing on strain that are mediated by job insecurity, surviving employees might possibly require job resources that signal continuity in employment.

Overall, job demands did not alter the relationships between downsizing and engagement that were mediated by job resources. JD-R theory posits that job resources gain their motivating potential and become particularly useful when they are needed, that is, during times of high job demand (Bakker & Demerouti, 2017). Only opportunities for development seemed to help downsizing survivors stay engaged when workload was high. However, this finding too should be handled with caution, as it was not consistent across studies. Furthermore, our cross-sectional study found that reduced supervisor support after downsizing is more detrimental to employees' engagement when work overload is low; this finding counters the proposition of the JD-R model. A possible explanation could be that, even though workload is conceptualized as a job demand causing strain (Bakker & Demerouti, 2017), it also has motivating potential. Workload is positively associated with engagement and performance (LePine, Podsakoff, & LePine, 2005) and may be seen as a motivating challenge among employees (Webster, Beehr, & Love, 2011). The finding that job insecurity did not moderate the relationship between downsizing and employee engagement might be explained by the threatening nature of job insecurity (Shoss, 2017). When job insecurity is high, other resources beyond supervisor support and opportunities for development might be required.

## 5.2 | Practical implications

Our findings have implications for the practice of human resource management. First, following downsizing, surviving employees show decreases in psychological and physical health because they experience higher job insecurity and work overload. Furthermore, downsizing survivors' engagement suffers because they experience a decrease in supervisor support and opportunities for development. One implication of these findings might be that managers should rethink downsizing as a measure to improve organizations' profitability. However, this might not always be feasible, as the decision to downsize may depend on multiple factors (Datta et al., 2010), or be a recessionary action (Wood et al., 2020). Thus, organizations should try to prevent or reduce increases in job demands for surviving employees. For example, organizations and supervisors should make sure that downsizing survivors who have to take over new or unfamiliar tasks also have the necessary knowledge and skills to do so (Mishra & Spreitzer, 1998), or that they have the opportunity to acquire new

knowledge and skills. Additionally, organizations should increase efforts to reduce downsizing survivors' job insecurity. For example, they could aim for transparent communication (Shoss, 2017), which has been shown to be perceived as helpful by downsizing survivors (Amundson et al., 2004).

Moreover, organizations should increase efforts to maintain surviving employees' access to job resources. For instance, they should inform supervisors that providing support to their employees following a downsizing event is important. Given that supervisors themselves might suffer from high workload and new challenges following downsizing (Cameron et al., 2011), this might prove difficult. Organizations should thus ensure that supervisors' workload also remains within feasible limits so that they are able to provide the necessary support to their subordinates. However, as higher supervisor support has been shown to increase the effect of job insecurity on surviving employees' strain after downsizing, supervisors should make sure that their support is not misunderstood as an attempt to prevent further planned layoffs. Moreover, organizations should make sure that employees have access to opportunities for development, for example through workplace training programs (Bell, Tannenbaum, Ford, Noe, & Kraiger, 2017).

## 5.3 | Limitations and avenues for future research

Our study findings should be interpreted in light of their limitations. First, most of our data were obtained using self-report measures, which may increase the risk of common-method bias. However, several factors minimize this risk (Podsakoff, MacKenzie, & Podsakoff, 2012). There was a separation of antecedent and criterion measures in the interviews, which also included numerous other variables, as well as varied response formats. Asking employees whether downsizing has taken place in their organization is unlikely to result in biased responses, as this event is neither attitudinal nor perceptual. In addition, we assessed physical health by asking about health conditions diagnosed by a medical doctor in Study 1 and by using objective health data in Study 2.

Another limitation is the cross-sectional design of Study 1, which prohibits causal inferences and could potentially raise concerns about reverse causality. However, the direction of the relationships tested is consistent with theory (Bakker & Demerouti, 2017), and while there is some evidence for reversed causal relationships between working conditions and well-being (Sonnentag, 2018), the lagged relationships between job demands and subsequent strain are larger than the reversed causal relationships between job strain and subsequent demands (Ford et al., 2014). Moreover, we partially overcame this limitation by using a lagged study design in Study 2. Although it is difficult to obtain longitudinal data in downsizing organizations, research on these topics would certainly benefit from future investigation. What needs to be considered is that both datasets were collected in Germany, which has strong unemployment benefits. In countries with weaker unemployment benefits, strain might be more strongly affected by job insecurity, which might be perceived as an even stronger job demand.

Our study offers several promising avenues for future research. First, future studies may want to investigate under what conditions downsizing is associated with higher job demands and lower job resources for surviving employees and to examine first-stage moderated mediation effects of environmental and organizational factors (Datta et al., 2010). Additionally, future research could investigate other potential moderators that can alleviate the disadvantageous indirect effects of downsizing on employee strain and engagement. As the results regarding moderating effects of job resources were inconclusive, future research might examine the role of personal resources such as self-efficacy and optimism (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007), or moderating effects of specific human resource management techniques aimed at employee development, such as coaching or training (Bell et al., 2017). More specific behaviors of the supervisor or ethical leadership styles might also moderate the detrimental effects of downsizing (Neves, Almeida, & Velez, 2018). The job resources that we examined did not alleviate downsizing's consequences that were mediated by job insecurity; perhaps bundles of individual and organizational resources might be required to diminish its harmful effects.

To conclude, our study offered several important insights on individual consequences of downsizing on employees who remain in the organization. The economy is becoming increasingly global, and this development will be further accompanied by global competition that contributes to an increase in stressor events such as downsizing (Foster et al., 2019). Thus, further research is needed to identify moderators that have the potential to diminish the adverse effects of downsizing and other restructuring measures that affect organizations' human resources. While other theoretical models often propose a predefined set of job characteristics to predict strain and motivation, JD-R theory is flexible and can accommodate various job demands and job resources (Van Veldhoven et al., 2020). It can thus be useful to further increase the understanding of downsizing consequences.

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## ORCID

Katja Dlouhy  <https://orcid.org/0000-0002-0836-4541>

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## AUTHOR BIOGRAPHIES

Katja Dlouhy is an Assistant Professor of Human Resource Management and Leadership at the University of Mannheim, Germany. Her research focuses on individuals' career development, organizational change, and methods in management research.

Anne Casper is a Post-Doctoral Researcher in Work and Organizational Psychology at the University of Mannheim, Germany. Her research interests include job stress, recovery from work, and employee well-being. Methodologically, she studies these topics from multi-level and person-centered perspectives.

## SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.

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