

Beyond the Individual: A Systematic Review of the Effects of Unit-Level Demands and Resources on Employee Productivity, Health, and Well-Being

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Creating sustainable employment—that is, a condition in which employees remain productive but also enjoy good health and well-being—is a challenge for many organizations. Work environment factors are major contributors to these employee outcomes. The job demands–resources model categorizes work environment factors into demands versus resources, which are, respectively, detrimental versus beneficial to employee outcomes. Although conceptualized as *workplace* factors, these job characteristics have been studied mostly at an individual level. Therefore, their roles at the supraindividual level (i.e., any work-unit level above an individual, such as group or organization) for employee productivity, health, and well-being remains unclear. The aim of this systematic review is to synthesize evidence concerning job resources and job demands at the supraindividual level and their relationships to productivity, health, and work-related well-being. The review covers articles published through December 2018. In total, 202 papers met the inclusion criteria. We found stronger support for the beneficial roles of supraindividual job resources than for the detrimental roles of job demands for productivity and work-related well-being. Regarding health, most of the relationships were found to be nonsignificant. To conclude, this review demonstrates that, at the supraindividual level, the motivational path has received more support than the health impairment path. Based on these findings, we provide recommendations for further research and practice.

Keywords: sustainable employment, job demands, job resources, multilevel models, systematic review

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Technological progress, economic fluctuations, and the aging of the population constantly pose challenges to creating sustainable employment—that is, a condition in which employees can continuously work productively while maintaining their health and well-being (van der Klink et al., 2016). The consequences of a lack of sustainable employment go beyond the welfare of individual

employees, bearing organizational (e.g., productivity loss due to sickness absences; European Agency for Safety and Health at Work, 2014), and societal costs (e.g., pension system burdens; Dengler, 2019). This urgent problem calls for the integration and development of knowledge regarding the factors that promote and inhibit sustainable employment.

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Accumulated evidence suggests that work environment factors—that is, job demands and job resources—contribute to employee productivity, health, and work-related well-being across a wide spectrum of employment settings (Sverke et al., 2017; van der Lippe & Lippényi, 2019). Although these job demands and resources have been conceptualized as *workplace* factors, they mainly have been studied at an individual level (Demerouti & Bakker, 2011). However, these factors may operate across all levels of organizational reality: from an individual employee to a team or organization (Klein et al., 1994). This recognition acknowledges the nested complexity of real organizational life, in which individuals exposed to the same factors are assumed to show some similarities in their perceptions of and responses to the environment (Bliese & Jex, 2002), allowing us to conceptualize these factors at the *supraindividual* level—that is, pertaining to units such as teams, departments, and even organizations.

Thus, a knowledge gap exists concerning the roles that supraindividual job demands and job resources play in shaping individual employee outcomes related to productivity, health, and work-related well-being. It is unclear whether what we know from previous research concerning individual-level relationships is replicated when demands and resources are studied at the supraindividual level. Answering this question is important due to the risk of erroneously attributing the effects to the workplace level and, subsequently, intervening on the wrong level. Moreover, although the definition of sustainable employment underlines that its three components—employee productivity, work-related well-being, and health—all are crucial, these facets often are studied separately, or organizations may perceive them as contradictory (Ipsen et al., 2020). Although some organizational decision-makers may ignore the relationships among productivity, well-being, and health, others may not use this knowledge systematically to empower employees. Thus, a wider range of sustainable employment outcomes must be synthesized simultaneously to provide a more nuanced and integrative understanding of how workplace factors affect sustainable employment overall. In sum, by adopting the multilevel and integrative approach in this systematic review, we answer the following general question: What factors at the workplace level promote or inhibit individual sustainable employment?

Sustainable Employment: a Work-Environment Issue

The term “sustainability” originally was derived from research on the environment and refers to the use of resources in a way that prevents their depletion and retains them for future generations (Kates et al., 2001). By analogy, sustainability can also be applied to the realm of employment, with sustainable employment defined as the opportunity for workers to “make a valuable contribution through their work, now and in the future, while safeguarding their health and welfare” (p. 74; van der Klink et al., 2016). Thus, sustainable employment is related to other concepts describing how an employee who enjoys physical and mental health, and has a positive view of the job is also likely to perform well and be productive (e.g., “the happy worker”; Wright & Cropanzano, 2000) and the human capital model, in which longevity and illness-free days are viewed as resources that contribute to organizational output (Grossman, 2000). This conceptualization implies that sustainable employment has three equally important facets: *productivity* (the effectiveness of valuable work output; e.g., job performance,

work quality, and customer service; Hazelzet et al., 2019), *health* (a state of complete physical and mental well-being; e.g., assessment of one’s physical health, stress, and absence of sickness; Danna & Griffin, 1999), and *well-being at work* (understood as positive work-related attitudes, e.g., job satisfaction, organizational commitment, and a lack of turnover intentions; Danna & Griffin, 1999). Additionally, a special emphasis is placed on employees’ abilities to contribute through their work over time.

Although the notion of sustainable employment takes the individual’s perspective, it covers outcomes that are vitally important, both for society at large (e.g., effects on public-funded pension and healthcare systems; Dengler, 2019; Knapp, 2003) and for employers (Schulte et al., 2017). Ill-health and poor well-being have been related directly to employer costs (Grawitch et al., 2006) such as medical costs, sickness absence, rehabilitation, and turnover. Some indirect costs also are associated with productivity losses resulting from either ill-health or poor well-being such as problems with talent attraction and retention or when employees are reluctant to do more than the basic requirements. Subsequently, a growing body of research shows that employee health and well-being are linked to business outcomes, including productivity, quality, and the cost of production, as well as financial metrics such as profitability (Krekel et al., 2019).

Although both individual and organizational factors are likely to shape sustainable employment, in this paper, we focus on the workplace as its crucial contributor. Accumulated evidence suggests that the work environment contributes to sustainable employment across a wide spectrum of employment settings. Psychosocial workplace factors have been recognized as sources of poor employee health and well-being in many occupational settings (Cox et al., 2008). Evidence also exists that workplace resources are associated with employee performance (Nielsen et al., 2017). Thus, increasing pressures are being placed on organizations to safeguard work contexts that facilitate sustainable employment. Existing regulations in Europe such as the U.K. Management Standards (Health & Safety Executive, 2007) and the Finnish Institute of Occupational Health Standards (Finnish Institute of Occupational Health, 2008) promote organizational-level, rather than individual-level, occupational health interventions as a means of dealing with work stress by introducing changes to the design, organization, and management of work (Nielsen & Randall, 2013). This can be attributed to the ability of organizational-level interventions to target the root sources of (a lack of) employee health, work-related well-being, and productivity. The focus on organizational-level interventions also reflects the recognition that merely preventing ill health is not sufficient for an organization—a broader approach considering the interrelatedness of employee health, work-related well-being, and productivity is needed (Jain et al., 2018; Schulte et al., 2017). The workplace is considered an ideal setting for early interventions and for protecting and promoting workers’ health (Kortum, 2014). Therefore, it seems vital to recognize how distinct factors that relate to the work environment promote or hinder sustainable employment.

Job Demands–Resources Model

Established stress models provide frameworks to locate such antecedents within the work environment. The job demand–job resources model (JD-R; Bakker & Demerouti, 2007, 2017;

Demerouti & Bakker, 2011) constitutes an overarching framework that is applicable in various occupational settings, regardless of the specific features of the workplace considered. According to the JD-R model, workplace factors can be classified into two general categories: job demands and job resources. *Job demands* (e.g., heavy workload, emotional demands, and relationship conflicts) are a job's physical, psychological, social, or organizational aspects that require sustained physical and/or psychological effort from employees. Consequently, they are related to certain physiological and/or psychological costs. *Job resources* (e.g., learning and development opportunities, social support, and autonomy) constitute physical, psychological, social, or organizational aspects of a job that (a) help employees to reach goals, (b) reduce job demands and associated costs, and/or (c) stimulate personal growth.

Factors explored in the JD-R model have been linked to a wide range of outcomes that constitute the three facets of sustainable employment: job performance (for a review, see Nielsen et al., 2017), employee well-being and work-related attitudes (for reviews, see Alarcon, 2011; Halbesleben, 2010; Lesener et al., 2019), and mental (for reviews, see Bonde, 2008; Kuoppala et al., 2008; Netterström et al., 2008) and physical health (for reviews, see Briggs et al., 2009; da Costa & Vieira, 2010). According to the JD-R model, job characteristics have unique and independent links to outcomes through two underlying psychological processes (Demerouti et al., 2001). The *health-impairment process* occurs when exposure to job demands depletes employees' physical and mental resources, leading to exhaustion, negative effects on health, and—ultimately—productivity. The *motivational process* is triggered by abundant job resources, which stimulate work engagement either extrinsically, through the achievement of work goals, or intrinsically, via the satisfaction of basic needs for autonomy, relatedness, and competence, thus improving well-being and productivity.

In addition to the direct effects, demands and resources also have a joint effect: whereas resources buffer the relationship between demands and strain, demands may boost the resource–motivation relationship (Bakker & Demerouti, 2017). A further development of the JD-R model has been the acknowledgment of gain and loss cycles, in which (respectively) employees proactively change their demands and resources through job crafting or undermine their own functioning (Bakker & Demerouti, 2018). Moreover, personal resources have also been incorporated in the JD-R model and are conceptualized as being equivalent to job resources (Xanthopoulou et al., 2007).

Thus, the JD-R model provides a theoretical framework explaining how the work environment can affect well-being, health, and productivity. Because our research is concerned with how the psychosocial work environment affects individual sustainable employment, in this study, we focus on the direct effects of job demands and resources via the motivational and health impairment paths.

Supraindividual Workplace Factors

Even though the seminal study that introduced the JD-R model (Demerouti et al., 2001) included not only self-report measures of working conditions but also ratings of those conditions provided by two observers, thus reflecting the “job unit of analysis” (p. 510), much of the research concerning job demands or job resources has focused on studying individual perceptions of these factors (Bakker & Demerouti, 2018; Demerouti & Bakker, 2011). Yet, employees

share a common work environment by working in teams, which are also parts of the departments forming organizations. Thus, some of the constructs could be conceptualized as supraindividual factors—that is, by belonging to levels above the individual. Klein and Kozlowski (2000) distinguished three basic types of higher, unit-level constructs: (a) global properties, (b) shared properties, and (c) configural properties.

Global properties comprise relatively objective and descriptive supraindividual properties that are fairly easy to observe. These properties characterize the team, unit, or organization as a whole, such as team size or location. Global properties do not originate from the characteristics of individual team members; rather, an expert (e.g., a team leader) or registry data may provide information about the construct. *Shared constructs* derive from common experiences, attitudes, perceptions, values, cognitions, or behaviors of a group's members. According to Klein and Kozlowski (2000), these collective perceptions can be explained by homogeneous organizational context factors, socialization, leadership, social interaction and communication, and attraction–selection–attrition processes. Examples of shared properties include team climate, perceptions of leadership styles, or organizational constraints. Although *configural properties* also originate from individual group members' experiences, they capture the configuration or variability of individual characteristics within this group. Possible operationalizations may include the sum of individual member values, indices of variability among the values in the group, and the minimum/maximum values among members.

Overall, demands and resources may be conceptualized and operate at multiple levels of nested organizational structures. In recent years, research conducted in the organizational sciences has reflected this perspective of many levels (González-Romá & Hernández, 2017), and considerations of the level at which a factor operates are vitally important in organizational research (Klein et al., 1994). A shift toward so-called multilevel models in theoretical concepts and statistical analyses has enabled the detection of relationships that may be evident only when a broader—that is, a group—context is invoked. To illustrate this, Kim (2018) investigated gender-composition effects at the occupational and workplace levels on employee wages and found that the gender wage gap within jobs is even larger in female-dominated workplaces. Including workplace-level gender structure allowed Kim to go beyond the occupation level to uncover dependencies that are more complex. Conversely, some relationships investigated at the individual level may not be replicated at the group level of analysis. For example, Elovainio et al. (2004) studied the link between organizational justice and personnel health and showed that sickness absence was related to individual—but not work-unit—perceptions of justice. This finding emphasizes the relevance of distinguishing between contextual characteristics and individuals' perceptions of these characteristics.

Several studies have provided evidence demonstrating that job resources and job demands may be analyzed as supraindividual factors (for examples, see Bakker & Demerouti, 2018). However, the empirical evidence for some of these factors at the work-unit level still is scarce; for others, the evidence is scattered across disciplines such as work psychology, nursing, and public health. A review that covers all these disciplines is needed. Existing systematic reviews and meta-analyses (e.g., Alarcon, 2011; Lesener et al., 2019) have neglected the multilevel aspects of the JD-R model. A

previous review on stressors on team outcomes (Razinskas & Hoegl, 2020) and a review of the relationship between multiple levels of resources and well-being and productivity (Nielsen et al., 2017) highlighted the importance of considering the supraindividual level. Other reviews have focused on one supraindividual level, such as teams and groups (Balkundi & Harrison, 2006; Razinskas & Hoegl, 2020) or the organization (Van De Voorde et al., 2012). To integrate and further our understanding of job demands and job resources as *workplace* factors that affect individual employee outcomes, we consider them at the *supraindividual* level and include all examples of supraindividual levels: teams, groups, units, leaders, departments, and organizations.

Contributions and Research Questions

This systematic review contributes to the literature in three main ways. First, we synthesize results concerning job demands and job resources as supraindividual factors explaining differences in employee outcomes that vary as a function of these workplaces, rather than only individual differences. Job demands and job resources often are studied at an individual level, although conceptually, they are discussed as *workplace* factors (e.g., in systematic reviews and/or meta-analyses such as Alarcon, 2011; Bennett et al., 2018; Lesener et al., 2019), which would indicate that they belong to a supraindividual level. If the conceptualization of job demands and job resources as workplace factors indeed is correct, this raises the question of whether conclusions derived from these previous systematic reviews and meta-analyses that utilized individual-level research can apply straightforwardly to the supraindividual level. This kind of error of reasoning is referred to as atomistic fallacy (Klein & Kozlowski, 2000). Drawing conclusions about supraindividual relationships from individual data may attribute problems misleadingly to the workplace level. This may lead to interventions on the wrong level, for example, such as attempts to impact factors at the group level that should be addressed at the individual level, or vice versa.

We as a field need more systematic evidence regarding how factors at the supraindividual level consistently explain between-unit variability in individual employee outcomes. Thus, to better understand how the work environment influences the individual outcomes, we must consider cross-level direct-effects models (Klein & Kozlowski, 2000), in which a predictor variable at a supraindividual level of analysis is linked with an outcome variable at an individual level of analysis. This design explains variability in individual-level outcomes with systematic differences in work environment (Klein & Kozlowski, 2000). Thus, this design is instrumental for elucidating how differences in work characteristics between distinct groups determine differences in individual outcomes. By focusing on direct cross-level models in our synthesis and by considering all possible supraindividual levels, we build upon and go beyond previous reviews (Alarcon, 2011; Lesener et al., 2019; Nielsen et al., 2017; Razinskas & Hoegl, 2020) to investigate how differences in work characteristics between functional units (teams, departments, and organizations) are responsible for differences in individual productivity, health, and work-related well-being. When systematic differences in individual outcomes can be explained with differences between supraindividual units (such as teams or organizations) and not solely by individual differences, then such results may guide decisions regarding the level at which

interventions should occur to create the desired change. Thus, we developed the following research questions (RQs) to guide our systematic review:

RQ1a: Are supraindividual job resources related positively to individual employee productivity, health, and work-related well-being?

RQ1b: Are supraindividual job demands related negatively to individual employee productivity, health, and work-related well-being?

A second contribution of this review is an integrative approach to studying sustainable employment that encompasses all of its aspects simultaneously: productivity, health, and work-related well-being. Such integration is vital for detecting and understanding potential trade-offs for a given work factor between different facets of sustainable employment. Specifically, some job demands may promote productivity at the cost of worker well-being and health, and conversely, certain job resources may support employee well-being while putting performance at risk. This potential contradiction has been raised especially for job demands. Specifically, some authors distinguish between hindrance and challenge job demands (LePine et al., 2005), which have differential effects on the employee outcomes in question. Hindrance job demands interfere with an individual's ability to achieve goals, whereas challenge demands may promote growth and achievement (LePine et al., 2005). Although previous meta-analyses show that both types of demands are linked with employee strain (LePine et al., 2005; Podsakoff et al., 2007), they affect attitudes (Podsakoff et al., 2007) and performance (LePine et al., 2005) differently: challenge job demands have a positive role for these outcomes, whereas hindering demands tend to demonstrate a detrimental influence. However, the concurrent influence of job demands on productivity versus health must be investigated at the supraindividual level to understand these contradictory results better. This information is vital for designing interventions that account for the potential trade-offs among health, work-related well-being, and productivity and, in turn, to guide organizations that need to make decisions based on a holistic consideration of the overall value for the organization to balance different outcomes (von Thiele Schwarz et al., 2019; von Thiele Schwarz et al., 2021).

Given that organizations and managers sometimes may perceive productivity and employee health as contradictory (Van De Voorde et al., 2012), researchers often study the facets that comprise sustainable employment separately, especially those concerning productivity versus those related to health and well-being (e.g., Halbesleben, 2010; Häusser et al., 2010; Judge & Piccolo, 2004; Skakon et al., 2010). An exception is the review by Nielsen et al. (2017), which covered both productivity and well-being. However, the latter authors did not separate work-related well-being and attitudes from health outcomes, even though these two types of outcomes may be different aspects of global well-being (Danna & Griffin, 1999). Thus, although health and work-related well-being are correlated and affect each other through different bidirectional pathways, environmental or workplace factors may affect each of these aspects differently. Overall, we posed the following question:

RQ2: Is there evidence supporting the contradictory roles of job resources and job demands for productivity, versus for health and work-related well-being?

Third, as highlighted by the JD-R model, although it is valuable to recognize which factors may hinder sustainable employment, it is also important to identify those that promote sustainable employment. Still, many studies and literature reviews focus solely on demands *or* resources. For example, [Razinskas and Hoegl \(2020\)](#) reviewed the extant literature on stress stimuli in teams, with a special focus on multilevel relationships. However, the authors focused only on stressors, which limits the work environment to negative factors threatening employee well-being. On the other hand, [Nielsen et al. \(2017\)](#) reviewed multiple levels of job resources but did not examine job demands. To cover both characteristics present in the JD-R model, this review synthesizes evidence supporting the role of supraindividual job resources in the motivational path and the role of supraindividual job demands in the health-impairment path. To date, no systematic analysis has been conducted of these two processes at the supraindividual level. With this new knowledge, it may be able to answer questions concerning evidence for specific workplace-level factors before organizations design interventions at the supraindividual level. Thus, this review may provide indications for organizations concerning what to focus on with their limited time and financial resources. Additionally, the review may also guide future research by pointing to research gaps (e.g., unstudied links) or mixed findings that require further investigation. The final research question is as follows:

RQ3: Overall, is there more evidence concerning the beneficial role of supraindividual job resources (motivational path) than for the detrimental role of the supraindividual job demands (health-impairment path) regarding employee productivity, health, and work-related well-being?

Review Method

The present systematic review was conducted in line with the PRISMA guidelines ([Moher et al., 2009](#)). The protocol of the study is registered with the PROSPERO database under reference number CRD42019119244.

Search Strategy

In collaboration with the university library at Karolinska Institutet, we developed a search strategy based on our research questions. Through an iterative search process, we developed search terms by using initially identified articles meeting the inclusion criteria. When reviewing the search results, we ensured that these initially identified papers were included. We performed searches with four electronic databases (Medline, Web of Science Core Collection, PsycInfo, and Cinahl). Keywords relevant for the search were based on four categories (see [Supplemental File 1](#)): (a) keywords demonstrating that a study had a multilevel structure with employees nested in departments or units or under leaders; (b) a list of job demands; (c) a list of job resources; and (d) a list of outcomes reflecting one of the facets of sustainable employment (i.e., productivity, health, or work-related well-being). The search strategies applied for all databases are available from the PROSPERO protocol (CRD42019119244).

In total, 4,942 papers were identified, covering papers published until December 2018. After removing 84 duplicates, 4,858 papers remained for further screening. For an overview of these stages, see the PRISMA flowchart in [Figure 1](#).

Inclusion Criteria, Data-Extraction Process, and Quality Assessment

To be eligible for inclusion, studies needed to meet the following criteria: (a) be peer-reviewed and published in English; (b) be an empirical study with employees as the target population (i.e., not a student sample with an experimental design); (c) employ multilevel analysis with employees nested in work groups, units, organizations, or similar; (d) use an outcome reflecting a facet of sustainable employment (productivity, health, or work-related well-being) measured at the individual level; and (e) use a workplace factor as a predictor, specifically job demand or job resources, as conceptualized by the job demands–resources model ([Bakker & Demerouti, 2007](#)), analyzed at the supraindividual level—that is, either measured directly at a level higher than the individual level or aggregated to that level from lower-level measurements.

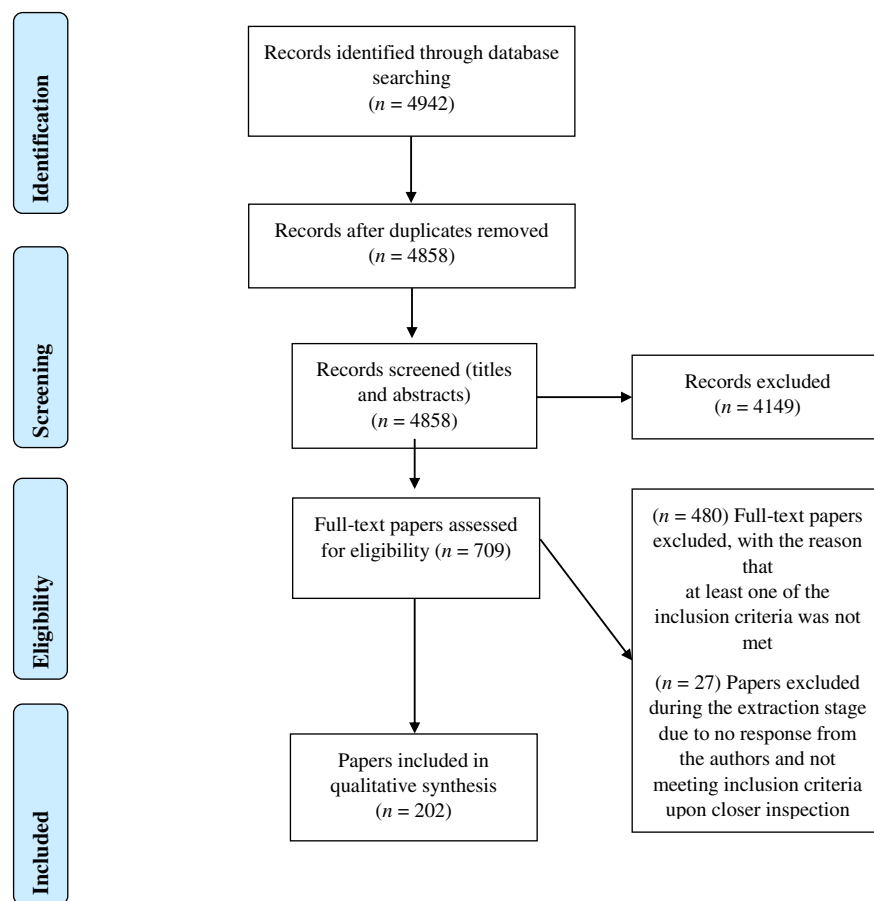
The papers eligible for systematic review were selected using the open-source Rayyan software ([Ouzzani et al., 2016](#)). In two steps, the papers were screened independently by two authors (MR and ES) against the inclusion criteria ([Figure 1](#)). First, the titles and abstracts were screened (709 papers remained); then, full texts were screened (229 papers remained). Discrepancies in the screening were resolved by discussion, and a third person (AR) was consulted when needed.

Data were extracted using a standardized prepiloted form that included seven blocks of information ([Supplemental File 2](#)). To ensure precise data extraction, two authors reviewed each of the included papers. One author (CCC) extracted data from all of the papers, and the remaining two authors (MR and ES) each extracted data from half of the papers. When the reviewed studies included missing or unclear information (e.g., when it was unclear whether the predictors were aggregated to a supraindividual level), the corresponding author was contacted for information. A reminder email was sent to each corresponding author 2 weeks after the initial request was sent if they did not reply. At this stage, 27 papers were excluded from the analysis because the information included in the articles was insufficient for determining whether the articles met the inclusion criteria or if crucial information was missing that the study authors did not provide after two attempts at contact. Ultimately, 202 papers were entered into the systematic review (see [Supplemental File 3](#) for the full list of included papers). Next, two research assistants compared the extractions and highlighted inconsistencies, which MR, ES, and CCC subsequently discussed and resolved through consensus decision-making.

The categories for job demands and job resources were assigned through discussion between two of the authors (MR and ES) using a bottom-up approach: they created categories that were simultaneously broad and distinct from each other using examples of resources and demands commonly used in organizational research applying the JD-R model (see [Table 1](#) for the categories and their examples).

The categories for sustainable employment were established through discussion between three authors (MR, ES, and CCC) following examples utilized in previous research on sustainable employment (see [Table 2](#) for the categories and their examples). Following [Danna and Griffin \(1999\)](#), health encompassed both physiological and psychological symptomology (e.g., reported symptoms, stress, anxiety, musculoskeletal symptoms, and sleep problems). Due to the recent inclusion of burnout in the 11th

Figure 1
PRISMA Flow Diagram



Note. See the online article for the color version of this figure.

Revision of the International Classification of Diseases (ICD-11) as an occupational phenomenon (World Health Organisation, 2019), we also categorized this syndrome under health. To differentiate it from health, work-related well-being was defined as generalized positive job-related attitudes (e.g., job satisfaction, job attachment, and intention to remain with the organization). These positive attitudes and conditions were restricted to work (e.g., not *life* satisfaction). Productivity was operationalized as valuable work output and comprised measures of, for example, in-role performance, work quality, and customer service reports (Hazelzet et al., 2019).

We also analyzed the overall quality of the evidence. The unit of analysis was the relationship between a predictor (that is, demands and resources) and an outcome (that is, sustainable employment). Three of the authors (MR, ES, and CCC) assessed the quality of each relationship based on three criteria: (a) when applicable, there was justification for aggregation, specifically the provision and adequate values of intraclass correlation coefficient [ICC](2) and r_{wg} indices¹ (Bliese, 2000); (b) there was minimal power at Level 2 (i.e., at least 30 units; Hox et al., 2017); and (c) the predictors and outcomes were measured at separate time points or with different sources (e.g., self-report and HR reports). The first two criteria stemmed directly from

investigating cross-level relationships in our analysis, and the third one reflects the quality of the designs attempting to mitigate the problem of common-method variance (Podsakoff et al., 2003). Each relationship was rated on three criteria. The relationship was considered high quality when all three criteria were met. The quality of each relationship did not determine inclusion in the final analysis but was used to evaluate the overall quality of the evidence of a relationship between a given predictor–outcome pair.

To analyze the relationships between job demands/resources and sustainable employment facets, we described associations between

¹ When supra-individual factors were created through aggregation from lower-level reports, we analyzed the aggregation indices. ICC(2) and R_{wg} . Intraclass correlation coefficient 2 or ICC(2) represents the reliability of the group means, and the suggested cutoff value should fall between .70 and .85 (LeBreton & Senter, 2008). R_{wg} represents a within-group agreement of ratings related to a construct of interest: If employees within one team/group/department have similar ratings, then r_{wg} will be high. While the most common cutoff value for r_{wg} is .70 (e.g., Biemann et al., 2012), the alternative is to examine ranges of values to identify where the agreement between respondents falls on the continuum from none to very strong (LeBreton & Senter, 2008). Because all of the cutoff values are set as rules of thumb, both should be considered when assessing whether the aggregation of variables is justified (Woehr et al., 2015).

Table 1*Categories Assigned to Job Demands and Job Resources and Their Examples in the Reviewed Literature*

Categories	Examples
Job demands	
Conflict	Task conflict, interpersonal conflict, role conflict
Organizational constraints	Lack of resources, equipment-related barriers, interruptions, barriers for information processing
Psychological demands	Emotional demands, composite measures of job demands, general job demands, excessive job demands, job demands climate
Uncertainty	Job insecurity, lack of predictability, role ambiguity
Workload	Working hours, overload, staffing, student-teacher ratio, patients per nurse, work hours, work pace
Job resources	
Autonomy	Autonomy in decision-making, peers' autonomy support, team leader's autonomy differentiation, autonomy in work methods
Control and empowerment	Decision latitude, schedule control, voice climate, decision authority, influence at work, participation in decision-making, participative climate, psychological empowerment, structural empowerment
Justice	informational justice, interpersonal justice climate, organization-focused procedural justice, fairness
Leadership	Servant leadership, transactional leadership, transformational leadership, managerial quality, ethical leadership, leader-member exchange, quality of leadership
Learning and development	Opportunities of advancement, skill discretion, developmental climate, development stimulation
Social capital	Cooperative climate, trust, staff collegiality, positive organizational climate, relationships quality, cohesion, collaboration, cooperation
Social support	Support from team leader, support from colleagues, supportive coworker climate, organizational support, team supportive behavior

each job-demand and job-resource category with each facet of sustainable employment. For each of the job-resource and job-demand categories, we computed percentages of (a) significant results in line with general JD-R assumptions (positive for resources, negative for demands), (b) significant results contrary to JD-R assumptions (negative for resources, positive for demands), and (c) nonsignificant results.

Results

Overview of Studies

A total of 202 papers were included in the review. They were published between 1987 and 2018. Papers on the topic of investigation have increased exponentially over time (Figure 2).

All but two papers contained a single study. Data from 992,167 employees are included in the review, with sample sizes varying from 90 to 295,851. The research was conducted in many sectors, including healthcare (26.2%), retail and services (10.4%), education (9.9%), and finance (6.9%). The majority (63.9%) of studies were conducted in the Global North (e.g., 38 studies from the U.S., 11 from the Netherlands, and 10 from Denmark). Of the studies, 30.7% were conducted in the Global South (e.g., 21 studies from China, 11 from Taiwan, and 11 from South Korea), and the remaining 5.4% were conducted in unspecified or mixed locations.

In total, 685 relations between supraindividual workplace factors and measures of sustainable employment were extracted. A total of 99 relations focused on productivity, 190 focused on health, and 396 focused on work-related well-being.

Quality of Included Studies

We calculated the number of high-quality relationships for productivity, health, and work-related well-being outcomes separately for job resources and job demands. Overall, 38% of links between job resources and measures of productivity met our

criteria of high-quality relations. However, only 4% of links for health and for work-related well-being outcomes could be considered high quality. For job demands and productivity, only one in three links met all of the criteria. In terms of job demands and health, 14% were considered high quality, and only 8% for work-related well-being. In summary, although we retrieved a substantial number of links ($N = 685$), most of them did not meet all of the criteria taken into consideration.

Supraindividual Job Resources and Sustainability

To integrate knowledge about the role of supraindividual job resources for sustainable employment, we summarized how these unit-level job resources relate to individual employee productivity, health, and work-related well-being. Figure 3 summarizes these findings.

Looking at job resource relations in total (first panel in Figure 3), a similar proportion of significant and positive relationships were uncovered for productivity (60%) and for work-related well-being (58%), although there is less support for health (31%). The vast majority of the significant relationships were in line with the JD-R model (positive links); virtually no significant negative link was uncovered between supraindividual job resources and productivity measures, whereas only 2% and 5% percent of all relationships linked job resources with work-related well-being and health outcomes negatively (respectively). Overall, this pattern is in line with the assumptions of the JD-R model for the motivational path that predicts positive influence of supraindividual job resources on employee work-related well-being and productivity.

Focusing on specific types of job resources, only leadership showed consistent patterns across all facets of sustainable employment. Specifically, 54%, 52%, and 56% of the links of leadership were significant and positive for productivity, health, and work-related well-being (respectively). None of the links between leadership and productivity were significant and negative, and this was the

Table 2

Categories Assigned to Sustainable Employment and Their Examples in the Reviewed Literature

Categories	Examples
Productivity	
Performance	Task performance, in-role performance, job performance, work role performance, group member performance, customer service performance, service performance
Quality of service	Customer service quality, patient centered care, quality of care, quality of service, service ability
Health	
Psychological health	Anxiety, psychological distress, burnout, cynicism, depersonalization, depression, disengagement, emotional exhaustion, mental disorders, subjective mental health, perceived stress, psychological health symptoms, work-related strain
Physical health	Musculoskeletal disorders, musculoskeletal symptoms, sleeping problems, sleep quality, subjective physical health, work ability
Sickness absence	Long-term sickness absence, sickness absenteeism, number of sick days, absence and attitudes
Organizational well-being	
Commitment	Affective commitment, continuance commitment, organizational commitment, organizational identification
Engagement	Work engagement, job engagement, vigor, dedication
Subjective well-being	Company satisfaction, job satisfaction, dissatisfaction, positive affect, negative affect
Turnover	Turnover intention, intention to leave profession, voluntary turnover

case for only 4% and 2% of the health and work-related well-being links, respectively. Thus, positive leadership practices seem to have a beneficial effect on all facets of sustainable employment in a similar manner.

The strongest support for the positive role of supraindividual job resources for productivity and work-related well-being was observed for social capital (73% and 82%), social support (71% and 62%), and learning and development opportunities (80% and 63%). However, their positive effects on health outcomes are less substantiated (30%, 23%, and 10% positive significant relationships, respectively). For health outcomes, most of the relationships were statistically insignificant.

Supraindividual justice seems to be beneficial more consistently for employee productivity (60% positive significant links) than for work-related well-being (41%) or health (14%). Although there are no negative significant links between justice and productivity or work-related well-being, there is one such link for health. The pattern is somewhat different for control and empowerment, where there is more support for its positive role for work-related well-being (62%) than productivity (38%) or health (32%). Finally, in case of autonomy all two retrieved links with productivity were statistically significant and positive with only one in three such links for work-related well-being and health. We did not identify any links showing a negative effect of supraindividual autonomy on any of the facets of sustainable employment.

Supraindividual Job Demands and Sustainability

Figure 4 summarizes the synthesis for the role of supraindividual job demands for the three facets of sustainable employment.

In terms of supraindividual job demands in total (upper panel of Figure 4), less than half of the relationships were significant and in the expected direction (i.e., negative): 38% for productivity, 35% for work-related well-being, and only 20% for health. Most of the findings were not statistically significant. However, we also detected positive effects of job demands on productivity (12%), health (5%), and work-related well-being (4%).

There are three groups of demands (workload, conflict, and uncertainty), with studies linking them to all facets of sustainability, thus enabling comparison of effects across productivity, health, and work-related well-being. For workload, all retrieved links supported the assumptions that demands have detrimental effects on productivity, and 51% for work-related well-being. However, only 26% of the relationships with health were significant and in the expected direction. In the case of workload, 3% of links pointed to it being positive for work-related well-being.

In the case of conflict, the results were the most mixed: between 17% and 33% of relationships pointed to the negative effects of job demands, and between 11% and 17% showed positive significant effects. However, the majority of the relationships were insignificant. This pattern was similar across all three facets of sustainability.

For uncertainty, all of the retrieved relationships with productivity and with health were statistically insignificant. In the case of work-related well-being, only 17% were significant and negative with all other relationships being nonsignificant. Virtually none of the links showed a positive role of supraindividual uncertainty for any of the outcomes. Overall, there is weak support for the detrimental role of supraindividual uncertainty on employee sustainability.

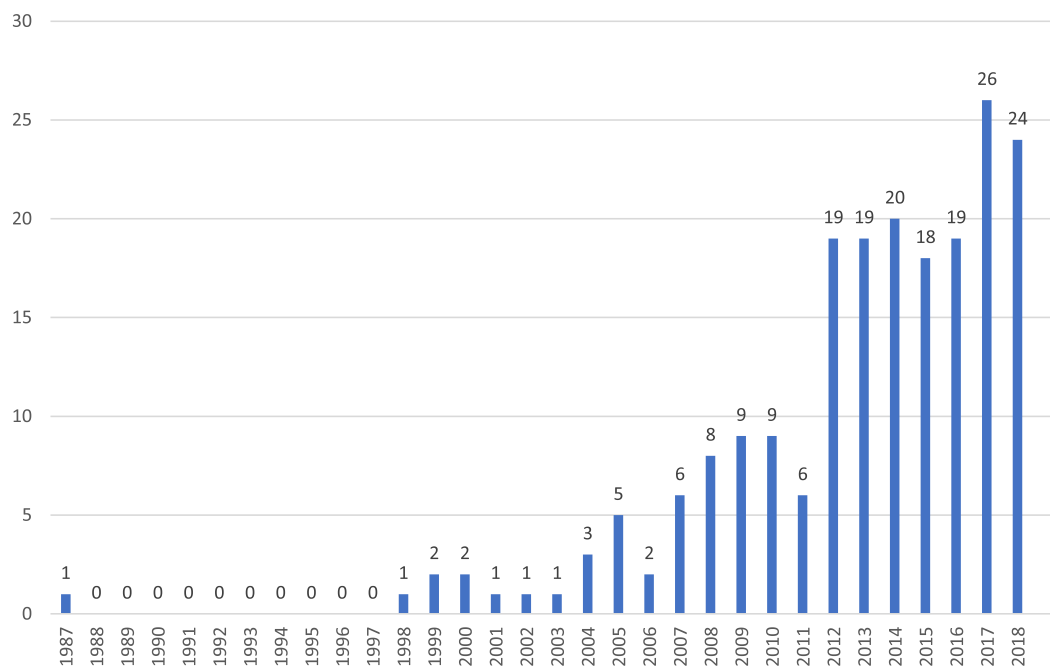
We did not identify any relationships between supraindividual psychological demands and productivity. In case of work-related well-being and health, most relationships were not statistically significant (66% and 72%, respectively). For work-related well-being, 21% of the links were negatively and 7% positively linked with psychological demands. In case of health, 29% of the links were negative, and 5% positive.

Finally, we retrieved a very small number of links ($n = 10$) between supraindividual organizational constraints and sustainable employment facets. None of these links included productivity outcomes. For work-related well-being, all of them were statistically insignificant. For health, 62% were insignificant, 25% were negative, and 13% were positive.

Comparison of Motivational and Health Impairment Path Effects

RQ3 concerned the overall evaluation of the evidence for the beneficial role of supraindividual job resources (motivational path) compared with the detrimental role of supraindividual job demands (halt impairment path) for employee productivity, health, and work-related well-being. Figure 5 summarizes information about the percentage of findings that are in line with JD-R model assumptions. As depicted in Figure 5, we found more studies supporting the beneficial role of resources in total for productivity and work-related well-being (60% and 58%, respectively), than the detrimental role of job demands in total (38% and 35%, respectively) for these two

Figure 2
Number of Published Papers Fulfilling the Review Criteria Per Year



Note. See the online article for the color version of this figure.

outcomes. For health, there was less support for the role of both supra-individual job characteristics: the majority of positive relationships between resources and health did not reach significance (only 31% is in line with JD-R assumptions), and there was even less support (20%) for the negative role of job demands in the links that we identified.

Overall, at the supra-individual level, there seems to be more support for the motivational paths, that is those between resources and enlisted outcomes, than for the health impairment path, that is those between job demands and outcomes.

Discussion

In this systematic review, we synthesized the evidence on the role that job resources and job demands conceptualized at the supra-individual level—that is, teams, groups, units, departments, and organizations—play in shaping the three facets of sustainable employment: productivity, health, and work-related well-being. Specifically, we synthesize results concerning the cross-level link between group-level work characteristics and employee outcomes to elucidate how differences in the work environment explain between-units variability in these outcomes.

This review reveals exponential growth in the studies investigating the proposed links over time; this pattern shows that the relevance of cross-level relationships—that is, where supra-individual workplace factors affect an individual employee—is recognized by the research field. We contribute to the literature by moving beyond conclusions drawn from previous individual-level research to test the extent to which the assumptions of the JD-R model are supported when demands and resources are conceptualized and analyzed at the group

level and explain between-unit differences—for example, between teams or organizations—in individual employee outcomes.

As Klein and Kozlowski (2000) stated, micro-research tends to neglect the effects of the organizational contexts within which individual behavior occurs. Because organizations are hierarchically nested systems, neglecting this systems' structure in conceptualization and research design may result in incomplete and incorrectly specified models. By focusing on the cross-level effects of environment on individual work-related well-being and performance, our review provides valuable insight into explaining how managers can help employees to avoid ill health, and enhance well-being and job performance. Below, we expand on these contributions.

Theoretical Contributions

The contribution of this systematic review is threefold. First, we integrated the knowledge regarding the role of group-level job resources for productivity, work-related well-being, and health. This synthesis allowed us to uncover which factors are consistently linked with outcomes that usually have been studied separately—that is, productivity compared with well-being and health. Overall, our review demonstrates that supra-individual resources are beneficial for both productivity and employee work-related well-being. Thus, we did not find any tensions between these outcomes, despite some findings showing that organizations and managers may think of well-being (especially health-related) and organizational performance as disconnected or conflicting (Ipsen et al., 2020; Van De Voorde et al., 2012). We also corroborate previous findings by Nielsen et al. (2017), who meta-analytically compared the strengths

Figure 3
Relations of Supraindividual Resources With Sustainable Employment Categories



Note. Percentages demonstrate relations (a) significant and expected from JD-R model assumptions (i.e., positive), (b) significant and contrary to JD-R model (i.e., negative), and (c) nonsignificant.

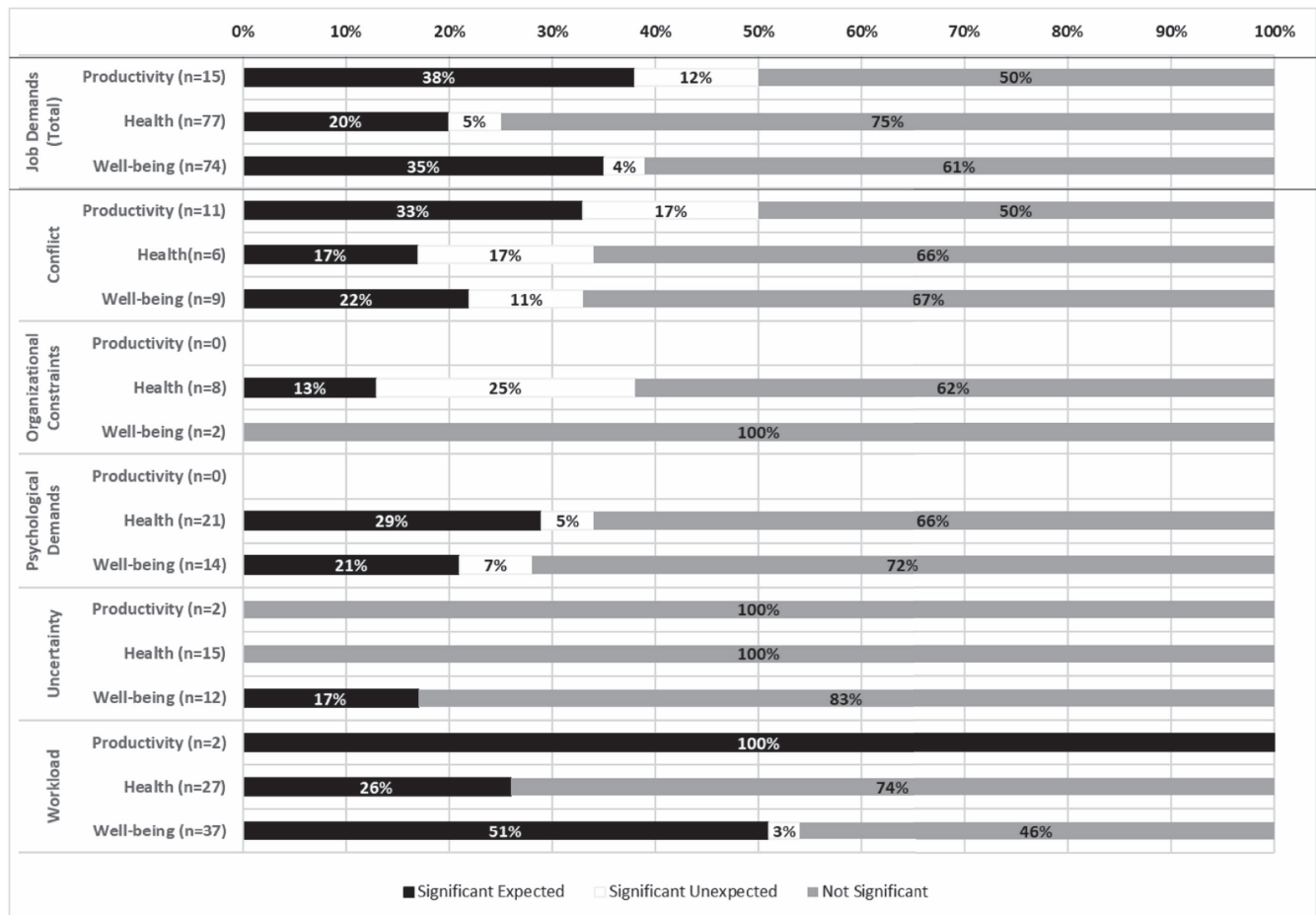
of the relationships between job resources and job performance compared to well-being and revealed no differences between these two types of outcomes. Thus, creating an environment abundant in job resources may be viewed as a multidimensional strategy that focuses on employee well-being without sacrificing productivity or vice versa.

Nevertheless, there were some note-worthy differences between types of job resources and their relationship to outcomes. Leadership stood out as most consistently demonstrating positive relationships all facets of sustainable employment, with more than half of the relationships for all three outcomes being positive. Thus, we found support that positive leadership practices, such as servant leadership, transformational leadership or leader-member exchange, seem to benefit both employee productivity and work-related well-being and health. One reason may be that one leadership task is to manage all

three, juggling the allocation of resources wisely and ensuring that the focus on achieving one outcome does not have unintended consequences for another (von Thiele Schwarz et al., 2016). The findings support previous propositions that leadership is not only important for performance but may also be a way to improve occupational health and work-related well-being (Kelloway & Barling, 2010)

The review also revealed evidence for the positive role of social capital (e.g., trust), social support, and learning and development opportunities. Yet, we found more evidence for their beneficial effects on productivity and work-related well-being than on health outcomes, where most of the relationships were statistically insignificant. Thus, social resources and learning opportunities seem to have synergistic roles only for productivity and work-related well-being, but there is no consistent proof of their negative roles in

Figure 4
Relations of Supraindividual Demands With Sustainable Employment Categories



Note. Percentages demonstrate relations (a) significant and expected from JD-R model assumptions (i.e., negative), (b) significant and contrary to JD-R model (i.e., positive), and (c) nonsignificant.

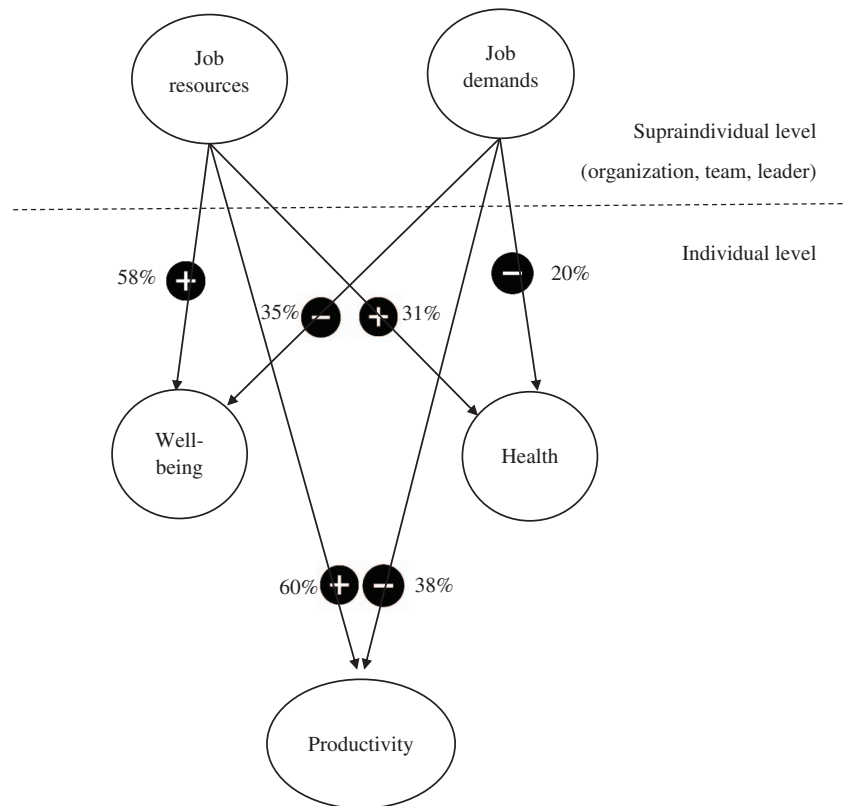
health. We also found more evidence for the beneficial role of justice in employee productivity than in work-related well-being, whereas the pattern was somewhat reversed for control and empowerment. Specifically, we found more support for this resource's positive role for well-being than productivity. Finally, autonomy as well as learning and development were the only two supraindividual job resources where virtually no negative links with any of the employee outcomes were found.

The second contribution of this review is to provide more knowledge concerning potential trade-offs in the role of job demands for the outcomes related to productivity compared to those that relate to health or work-related well-being. This specifically concerns the idea that some job demands, conceptualized as challenges, may boost motivation and productivity at the cost of employee health. The review revealed that most of the findings for supraindividual job demands were not statistically significant. We were able to detect both negative and positive links between job demands and outcomes; however, the former were more prevalent as expected by the general assumptions of the JD-R model.

The job demand that was most consistently linked with negative outcomes for work-related well-being at the supraindividual level was workload, despite previous reviews categorizing it as a challenge stressor and demonstrating its positive links with motivation and performance (LePine et al., 2005). Yet, our review revealed that at supraindividual level, most relationships between workload and work-related well-being—that is, work engagement, organizational commitment, and low turnover intentions—were negative, pointing to its detrimental effect.

Uncertainty—for example, job insecurity, unpredictability, role ambiguity—was the only factor where no beneficial role was found for any of the outcomes. This pattern is consistent with the earlier conceptualizations of uncertainty as a hindrance or a threatening demand (Searle & Tuckey, 2017), with a detrimental role for employee well-being (strain) and performance (Cavanaugh et al., 2000). Thus, at the supraindividual level, our synthesis supports the lack of evidence for the positive role of uncertainty. However, it is worth pointing out that most of the remaining relationships we uncovered were not statistically significant; thus, the negative role of uncertainty at the supraindividual level was not substantiated.

Figure 5
 Summary of the Systematic Review of Cross-Level Direct Effect Relationships Supporting the Assumptions of the JD-R Model



Note. Percentages represent the proportion of significant effects in the expected direction among all links retrieved for that specific relationship.

Finally, our review points to conflict—including task conflict, interpersonal conflict, or role conflict—as a supraindividual job demand with mixed findings. Although the majority of the relationships were insignificant, all three facets of the significant effects were both positive and negative. However, the overall number of links retrieved was low and these findings should be interpreted with caution.

The third contribution concerns the development of the JD-R model by investigating its assumptions for supraindividual job resources and job demands. Our review found support for the cross-level motivational path—that is, when supraindividual job resources benefit individual outcomes. However, there is more support—in terms of the amount of research and significant results—for the conclusion that supraindividual resources foster productivity and work-related well-being, whereas there is less support concerning their role in health outcomes. Thus, our review supports the role of supraindividual job resources for outcomes that are more directly related to the workplace—that is, work-related attitudes such as organizational commitment, turnover intentions, or job satisfaction, and how well employees perform (productivity). These outcomes are domain specific. It is also possible that for health outcomes individual factors, such as resilience, genetics, and lifestyle or fitness play a greater role. Given that health is likely to be

influenced by various factors that go beyond the workplace, it is possible that smaller number of relations between supraindividual job demands and health may have been detected compared to the two domain specific outcomes (i.e., work-related well-being and productivity). Moreover, the consequences of job demands and resources on individual outcomes may develop at different paces: it is likely that the effects of stress on health may occur later than for work-related well-being, and that work-related well-being may affect health in later life (e.g., Dirlam & Zheng, 2017).

The findings put into question the health impairment processes tested at the supraindividual level. Namely, whereas research on individual-level demands supports assumptions about their detrimental effects (e.g., Alarcon, 2011; Lesener et al., 2019), in our systematic review, we found weaker support for the harmful effects of workplace-level job demands on all facets of sustainable employment, and especially health. Specifically, less than half of the reported relationships were reported as significant and in the expected direction. We see two possible reasons for these mixed findings that require further investigation. First, in the JD-R model, job demands are defined as aspects of work that require effort; thus, they are associated with strain. However, as indicated earlier, contrary to hindrance job demands, challenge demands may potentially promote personal growth and achievement and have been

positively linked with certain employee attitudes (Podsakoff et al., 2007) and performance (LePine et al., 2005). Looking only at significant results and their directions in Figure 4, we cannot confirm that some of the demands were mostly positively linked with sustainable employment outcomes. However, we found that in case of conflict, the results were the most mixed, showing both negative and positive roles for this job demand. Overall, on the supraindividual level, most statistically significant effects of the demands support their negative role for sustainable employment. However, the number of these significant results is low.

Another possible explanation for the relatively weaker support for the health impairment path relates to the hypothesis that the link between supraindividual job demands and individual outcomes may be mediated by individual stress appraisal. That is, some individuals may perceive a specific job demand as threatening or hindering, whereas the same demand may be appraised as a challenge by others (Searle & Auton, 2015). This idea is consistent with findings showing that the appraisal of a demand as a challenge or a hindrance depends on the context. For instance, for nurses, workload (work pressure) may be experienced more as a hindrance demand rather than as a challenge demand (Bakker & Sanz-Vergel, 2013).

Research has also shown that some job demands, such as job insecurity, may be simultaneously perceived as a challenge and a hindrance (Bazzoli et al., 2020), adding complexity to the crude categorization of job demands into challenges or hindrances. Consequently, variability in perceptions of demands and their effects on individuals may result in a weak or nonsignificant link at the supraindividual level. The supraindividual conceptualization of job demands that we applied in this review may be responsible for the differences between our findings and previous meta-analyses which included individual-level perceptions of job demands as challenges and hindrances (Crawford et al., 2010; LePine et al., 2005; Podsakoff et al., 2007).

However, because we did not account for the individual appraisals in this review, this hypothesis needs further testing using, for example, cross-level mediation models, where unit-level demands affect individual outcomes via individual stress appraisal, or homologous models that compare individual and team levels of analysis.

Practical Contributions

Our findings have practical implications concerning the role of work-environment factors in employee productivity, work-related well-being, and health. The large scope of this review implies that the practical implications concern most of the work sectors, such as healthcare, retail and services, education, and finance, as these were included in the reviewed studies.

The first practical contribution relates to the fact that there is no contradiction between employee productivity and employee well-being at work. We did not identify any job resources that—while fostering employee health or work-related well-being—consistently jeopardize employee productivity. This pattern implies that actions targeted at improving employee well-being by introducing more job resources or reducing job demands at the workplace level do not need to sacrifice the productivity that organizations strive for. Our findings support the mutual gains perspective (Appelbaum et al., 2000) where human resource management practices are viewed as means of creating benefits for both employees (i.e., well-being) and organizations (i.e., performance). Thus, our findings urge managers

to view employee well-being and their productivity as connected outcomes; improving work-related well-being does not need to sacrifice productivity (von Thiele Schwarz et al., 2016). This means that interventions to improve employee job resources may serve both aims (Appelbaum et al., 2000). As noted by Ipsen et al. (2020), there already are organizations which implement workplace initiatives that take both mental health and organizational performance into account. These initiatives may include, among others, shorter working weeks, longer parental breaks, or flexible work arrangements. Other possible initiatives include leadership training and integration of health promotion and safety with quality improvement processes and systems (von Thiele Schwarz et al., 2016). Our review found that leadership was the only job resource that was consistently beneficial for all facets of sustainability, including health. Thus, leadership training might be a valuable initiative to increase sustainable employment among employees. Leaders affect employees not only directly via positive behaviors toward their subordinates, but they also do so indirectly by influencing the levels of job resources, including social support, learning and development, or empowerment and job demands in the work environment that they manage, including which and how many demands are placed on employees. Hence, leadership training provides a valuable avenue for organizations to provide a favorable work environment where employees can flourish. It is important to make a conscious choice about the purpose of the training, its pedagogy, as well as how the proximal effects of the training, including increased leadership skills, are then managed and fostered in the organization so that a return of investment can come out of leadership training (Blume et al., 2010).

The JD-R model implies that interventions based on adjusting demands and resources are means to influence employee outcomes (Bauer et al., 2014). The findings of this review suggest that improving resources at a workplace may be a more efficient way to foster employees' productivity and work-related well-being than making changes in workplace-level demands. This pattern gives important guidance for managers and HR-professionals in designing interventions and is particularly useful knowledge because changes in job demands can be difficult to achieve in practice. Thus, our findings encourage organizations, researchers, and organizational consultants to take actions toward increasing job resources at the workplace level to improve employee work-related well-being and productivity. This type of intervention could target, for instance, opportunities of groups and teams for learning and development at work together with actions for improving social support at the workplace level. In particular, in our review, social capital (encompassing teamwork, trust, and communication) was found to be related to both productivity and work-related well-being to the greatest extent. Thus, our systematic review contributes to the literature by pointing to social job resources as important organizational assets that—introduced and strengthened at the group level—may foster employee well-being and performance and ultimately translate into organizational, operational, and financial performance (Van De Voorde et al., 2012).

The cross-level effects suggesting that group-level characteristics explain differences in individual outcomes between distinct units imply that the experiences of work are, at least partly, shared by members of the group, and these experiences should be considered, at least to a certain extent, workplace characteristics. For interventions targeting the work environment, this implies that interventions

should not only target individual employees, as in stress management or exercise programs, but should also target other levels such as group, team, department, and organization. These types of interventions are often called *organizational* interventions and concern changes in how work is designed, organized, and managed rather than how individuals manage their own well-being or work situation. Organizational interventions can be introduced at the group, departmental, and organizational levels but are often also a combination of actions targeting individuals and the other levels (Nielsen et al., 2018). Some of the factors studied—social capital, social support, learning and development, and workload—stand out as clearly manifesting a cross-level impact and thus should be targeted with organizational interventions rather than with individual interventions. This suggestion implies a radical change in work environment practice because the majority of interventions in workplaces are applied at the individual level (e.g., Giga et al., 2003).

Limitations and Avenues for Further Research

The JD-R model proposes two separate direct links between job demands or job resources and employee outcomes such as organizational commitment, stress, and work performance, where an abundance of job resources triggers a motivational process, and the presence of job demands initiates the health impairment process. These two processes were synthesized in this review in a cross-level, direct effects model. At the same time, the JD-R model outlines another possibility—that is, an interaction between demands and resources, wherein job resources help employees manage their job demands and the associated strain more effectively (Bakker & Demerouti, 2017). Given the categories used in this review (i.e., seven job resources, five job demands, and three outcomes), there could be 105 potential effects to analyze, where not all may be a meaningful match. For example, whereas the negative effects of uncertainty are likely to be compensated by social support, autonomy seems to be less instrumental. We thus encourage researchers to apply the demand-induced strain compensation model (De Jonge & Dormann, 2003) to meta-analytically investigate such interactions in a more nuanced way—that is, by uncovering which supraindividual resources are functional for specific supraindividual job demands.

The conclusions from our systematic review are limited by the quality of primary sources that we synthesized. It is possible that some of the relationships at the supraindividual level were not statistically significant because the studies were underpowered—that is, they comprised too few units at the higher levels of the analyses. As a consequence, we reported a lack of support for certain relationships. Although several simulation studies have shown that multilevel modeling may be used even with as few as 10 groups (Huang, 2018), and rules of thumb exist regarding the minimal number of units (Tonidandel et al., 2014), we suggest that actual power analyses should be conducted and that when researchers focus on the cross-level direct effects models, they should strive for a larger number of units.

A limitation of our systematic review—compared to a meta-analytical approach—is that it does not utilize statistical methods to summarize the results of the studies. Thus, no effect sizes were computed. Narrative synthesis was chosen and preregistered to answer our research questions due to expected heterogeneity resulting from two sources simultaneously: diversity of outcomes that fell under the three broad categories of outcomes (i.e., productivity,

health, and work-related well-being) as well as the variety of variables that were categorized into each category of job demands and resources. As a consequence, the effect size would not be informative and there is a possibility of reaching erroneous conclusions from a meta-analysis if data are too diverse (Jones et al., 2008). It has been argued that in such cases results should not be pooled but rather be presented in a narrative review (Jones et al., 2008). A qualitative strategy was also adopted by the recent review of multilevel stressors in teams (Razinskas & Hoegl, 2020). Additionally, given potential publication biases (i.e., significant results are more likely to be published), the fact that we only included research that had been published in peer-reviewed journals (but not dissertations or conference papers) could be considered another limitation. We believe that in this early stage of synthesizing the multilevel dependencies in the organizational research, this systematic review offers, nevertheless, important contributions: it provides information about the types of relationships that are investigated in a cross-level direct effects design and points to research gaps, summarizes evidence that supports the assumptions of the JD-R model, as well as suggests where enough evidence is gathered to warrant a meta-analytic enquiry in the future. We recommend that future investigators focus on specific relationships to provide ranges of the estimates and/or a meta-analytic effect to quantify the strength of the links.

As reviewed above, job demands and job resources at the supraindividual level have been linked to outcomes of varying frequencies. Surprisingly, we did not identify a study examining the link between workplace-level organizational constraints and measures of productivity. This is unfortunate given that organizational constraints represent aspects of the workplace that interfere with job performance because they prevent employees' abilities from operating at full capacity (Peters & O'Connor, 1980). Examples of such constraints include malfunctioning equipment, conflicting organizational rules, or interruptions by others. Thus, organizational constraints seem to depend largely on supraindividual factors such as a lack of resources, organizational climates, or specific procedures. Future research should investigate group-level measures of organizational constraints and their links with employee job performance.

Our review points to the relevance of collecting cross-level rather than solely single-level data when functional organizational units can be distinguished, as between-unit differences in job characteristics were explanatory across a variety of outcomes. The fact that job demands and job resources are conceptualized at the supraindividual level assumes social-psychological processes involving shared perceptions and/or shared experiences concerning the work environment (Klein & Kozlowski, 2000). Instead of merely aggregating individual scores of job characteristics, future research on the JD-R model at the team and organizational levels should develop theories explaining what accounts for these collective perceptions and experiences. Why are some of the demands or resources so congruently perceived in a group, and how does this come about? Future research should also investigate the consequences of agreement regarding how individuals in a group perceive the same workplace environment. Past literature suggests that a lack of "shared reality," especially concerning problematic workplace issues, may have negative consequences for employees (e.g., Hasson et al., 2019) by preventing teams from acting on the problem. Transactional stress theories (Lazarus & Folkman, 1984) argue that

people react to stressors differently, depending on their personality (e.g., neuroticism, [Schneider, 2004](#)) or available resources to deal with the stressor. Thus, job demands may be especially prone to perceptual incongruence. We call for more research to investigate how team members collectively make sense of job characteristics in their work environment, as well as to examine how an individual is affected when they experience stronger stressors than his or her colleagues.

While our review found that justice and social capital have limited cross-level relationships with health, there is some evidence that supports their role in shaping health outcomes when the effects are studied at the individual level (e.g., [Elovainio et al., 2010](#); [Ndjaboué et al., 2012](#)). This seeming inconsistency may suggest different roles of individual perceptions versus supraindividual contextual factors (when perceptions are aggregated for a work unit). To this end, [Elovainio et al. \(2004\)](#) examined the role of organizational justice for hospital personnel's health. Though organizational justice was interrelated at the individual and work unit levels, only individual perceptions of justice predicted sickness absence. This finding implies the importance of making a distinction between contextual characteristics and individuals' perceptions of them. There is ample research pointing to the relevance of individual stress appraisal in how individuals react to stressors ([Piccoli et al., 2021](#); [Tuckey et al., 2015](#)); however, not much is known about the importance of individual perceptions of job resources. This topic could be an avenue of future research using homologous multilevel models where both individual and group-level perceptions of justice or social capital could be measured to compare their relative importance for specific health outcomes.

Sustainability is focused on the future because it assumes the long-term employment of individuals. However, none of the studies we reviewed examined whether the investigated workplace factors predicted working to an advanced age or prevented earlier retirement. Moreover, the longest time interval between the measurement of a workplace factor and its effect on individual outcomes in this review was 5 years, with the majority of the research employing a time lag of between 2 weeks and 2 months. Thus, more research should examine the long-term effects of particular job demands and job resources as well as their changes throughout an employee's working lifetime for individual sustainable employment. Another potential research avenue concerns possible age differences in motivational and health impairment processes. Specifically, the negative effects of certain job demands might be more severe for older than younger employees (e.g., [Scheibe et al., 2015](#)). Knowledge regarding possible heterogeneities in these processes might guide intervention design toward finding a fit to the needs of particular employee groups.

In this review, we only summarize the cross-level effects of higher-level demands and resources on outcomes pertaining to individual members of work groups, teams, and organizations. Individual employee data aggregated to a supraindividual level may enable a more objective evaluation of the environment because they reduce the bias resulting from individual reporting tendencies ([Bliese & Jex, 2002](#)). On the other hand, aggregation may also remove the unbiased variability in individual perceptions of organizational reality. Individual-level data and aggregated measures may capture different aspects of workplace factors, such as actual workload as measured by the number of patients contrasted with

perceived workload that includes one's assessment of being able to handle such workload. In a recent review, [Razinskas and Hoegl \(2020\)](#) concluded that articles simultaneously accounting for individual- and team-level models, that is homologous multilevel models, are scarce. Thus, we propose that future research including both of these levels may provide complementary information on the role of the work environment and its perceptions in shaping employee outcomes. It could be especially relevant for job demands, as our review indicated less strong support for their role at the supraindividual level.

Finally, in this review we synthesized findings for all possible supraindividual levels but did not separate the results by these levels. Yet, it is possible that the workplace factors at units that are proximal to the individual (such as team) are more influential to the outcomes than predictors at higher, more distal levels (such as organization). However, these comparisons would not have been informative for all factors. [Klein and Kozlowski \(2000\)](#) note that it is particularly challenging to find constructs and functional relations that hold at multiple levels from the theoretical point of view, and therefore one may abstract and simplify the phenomenon of interest from lower to higher unit levels to the point that it is no longer useful. We suggest that such comparison would be better suited for a more focused review on specific predictors that includes factors that could be well-theorized and operationalized at both levels ([Chan, 1998](#)). Moreover, future studies should contain more information about the organizational context to allow researchers who conduct literature reviews to determine whether the job characteristics are measured at proximal or distal levels.

Conclusion

Taken together, we contribute to the existing literature by explicitly focusing on collective entities, and we advance related streams of multilevel organizational research that center on workplace factors that shape sustainable employment. Although, in general, the studies included in this review support basic assumptions of the JD-R model that job demands are detrimental and job resources are beneficial for sustainable employment, we found stronger support for the motivational path—that is, the beneficial role of resources at the supraindividual level in productivity and well-being, than for the health impairment path—that is, the detrimental role of job demands. For health, the evidence is weak, because the majority of relationships between workplace factors and health were not statistically significant. Importantly, none of the investigated demands and resources play contradictory roles in relation to productivity on the one hand and health and well-being on the other. This supports the conceptualization of sustainable employment where all three facets could be achieved. The evidence collected to date suggests that workplace resources play an important role in enhancing employee productivity and well-being, whereas the role of demands is less straightforward. Integrating this knowledge contributes to the development of the JD-R model by providing evidence for motivational and health impairment paths leading from supraindividual workplace factors to individual employee outcomes. In practice, our findings may provide guidance concerning levels of an organization's reality at which interventions should take place—individual, team, or organization.

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