

Employee well-being in virtual work- A systematic review and future research agenda

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Abstract:

Purpose: The current study aims to provide a comprehensive review of employee well-being in virtual workspaces, focusing on the challenges and benefits of remote work arrangements.

Design/methodology/approach: This literature review seeks to enrich the discourse on employee well-being in the remote workspace through a comprehensive and detailed review using the SPAR-4-SLR protocol. By utilizing Van Horn's occupational well-being model and the Theory-Context-Characteristics-Methodology (TCCM) framework, the study examines various dimensions of well-being and analyzes the factors influencing employee well-being in virtual work.

Findings: Employee well-being in the virtual workplace is a relatively young discipline. Notably, research in this domain has experienced exponential growth since the COVID-19 pandemic. While the United Kingdom and the United States have been at the forefront of pioneering research in this area, recent trends indicate a steady global dissemination of well-being research in virtual workspaces.

Originality: This study brings a fresh perspective to the existing literature by exploring the relevance of employee well-being in virtual workspaces, an area that has received limited attention but holds significant importance for scholars, practitioners. The study's novelty lies in its unique focus on the intersection of employee well-being, virtual workspaces, we provide future agenda for researchers in theory, context, characteristics and methodology.

Keywords: Virtual work, remote work, employee well-being, systematic review, occupational well-being model, TCCM framework.

Introduction

Virtual work has become a prominent feature of modern work (Karl *et al.*, 2022). With the advancements in communication technology and digital tools, organizations have shifted to remote work arrangements during the COVID-19 pandemic (Yang *et al.*, 2023). This trend of employees working virtually away from the traditional workplace is a constantly evolving phenomenon. Virtual work, or work from home, is facilitated by the proliferation of information and communication technology and has resulted in various changes to the nature

of work (Lal *et al.*, 2021). Virtual work includes employees working remotely from any location and time, away from the traditional office space with their gadgets like laptops, smartphones, and tablets (Rachmawati *et al.*, 2021).

Virtual work has the potential to enhance productivity, flexibility, improved work-life balance, and job autonomy (Gashi *et al.*, 2022). However, it can also pose challenges to the well-being of employees (Demerouti, 2023). Recent studies have found that employees working virtually experience heightened stress and burnout as a result of the physical separation between work and home due to work-life interference (Boamah *et al.*, 2022). It has also been found that remote e-workers experience guilt and may overwork to compensate for the flexibility afforded to them, potentially leading to negative outcomes (Borelli *et al.*, 2017). By blurring the boundaries between work life and family life, work intensification ultimately diminishes the benefits of virtual work, with employees engaging in work-related activities like email and official phone communication during non-working hours (Gaskin *et al.*, 2019). Despite the prevalence of virtual work benefits, there is no clear consensus on remote work being truly beneficial to employee well-being. Thus, the current study aims to address this issue by examining various dimensions of employee well-being while working virtually using Van Horn's occupational well-being model.

Although virtual work has become a common practice, especially after the COVID-19 pandemic, there are several research papers in this area, but there is no comprehensive up-to-date systematic review post COVID-19 (the most recent one being on knowledge workers' well-being (Charalampous *et al.*, 2019). Therefore, this study is valuable because it offers a critical analysis of the relation between employee well-being in the virtual workspace. This review considers five dimensions: affective well-being, social well-being, cognitive well-being, professional well-being, and psychosomatic well-being (Horn *et al.*, 2004), which play a vital role in an employee's life.

Additionally, there has been a renewed focus on work from home because the scenarios pre-COVID, during the pandemic, and post-COVID have entirely different challenges for work-from-home employees. This calls for a systematic review to trace the roadmap of employee well-being in virtual work. Against this backdrop, our review aims to provide an up-to-date understanding of employee well-being in a virtual work environment. To achieve this, the authors of this review employ the Theory-Context-Characteristics-Methodology (TCCM) (Paul and Criado, 2020a) framework to capture the theoretical and empirical aspects in this field. The previous review was a narrative review and primarily focused on knowledge workers and remote e-working terms and definitions. In a similar vein, our review takes a comprehensive and inclusive approach to employee well-being in virtual work compared to the previous review (Charalampous *et al.*, 2019). This review synthesizes employee well-being dimensions in virtual workspaces by shedding light on the theories, countries, constructs, and methods used in this area of study, thus providing a comprehensive and broader account of employee well-being. By doing so, we aim to offer a comprehensive and broader account of employee well-being in virtual workspaces.

In conclusion, virtual work has become increasingly prevalent in modern organizations, especially with the rise of remote work arrangements during the COVID-19 pandemic. While

virtual work offers advantages such as increased productivity and flexibility, it also presents challenges to employee well-being, including heightened stress, burnout, and blurred work-life boundaries. To address the lack of consensus on the true impact of virtual work on employee well-being, this study aims to examine various dimensions of well-being using Van Horn's occupational well-being model.

Furthermore, this study fills a gap in the existing literature by providing a comprehensive and up-to-date systematic review of employee well-being in virtual work environments post-COVID-19. By employing the TCCM framework, we aim to capture the theoretical and empirical aspects of this field. Unlike previous reviews that primarily focused on knowledge workers and remote e-working, our review takes a more inclusive approach, considering various dimensions of employee well-being and shedding light on different theories, countries, constructs, and methodologies used in this area of study.

Overall, this study aims to contribute to the understanding of employee well-being in virtual work environments and provide valuable insights for organizations and policymakers in creating effective strategies to support employee well-being in the changing landscape of work.

Virtual work

Virtual working arrangements or remote working arrangements were earlier termed as telecommuting (Nilles, 1975). It was described as employees working from home using technology to communicate with their workplaces (Charalampous *et al.*, 2019). The term "tele-work" has been commonly used in the U.S, while the term "e-work" is used in Europe for home-based employees who mainly communicate through electronic mediums for work (Charalampous *et al.*, 2019). "Remote e-working" is a broader and more comprehensive term used to describe work being completed anywhere and at any time regardless of location and the widening use of technology (Grant *et al.*, 2013). However, virtual work is an umbrella term that includes employees who spend time away from the traditional office and use ICT to access work. Thus, the current review authors have chosen all the above terms to evaluate the research papers.

Well-being at work

Well-being encompasses a comprehensive assessment of an employee's experience and functioning in both physical and psychological dimensions (Warr, 1994). The concept of well-being at work pertains to the holistic assessment of an employee's experience and performance in their job (Ruggeri *et al.*, 2020). Factors such as job satisfaction, physical fitness, emotional intelligence, work-supportive family members, emotional sustenance of employees, workplace relationships, and social support by employers are said to be major antecedents of employee well-being (Aleem *et al.*, 2023). Employee commitment, better productivity, and work attendance are common outcomes of employee well-being (Aleem *et al.*, 2023). It is important to note that employee well-being is important not only to the organizations hiring them but also to the financial and economic costs to society (Johnson *et al.*, 2020).

Employee well-being in virtual work

The well-being of employees in the context of virtual work refers to the overall quality of an employee's experience and functioning while working remotely. It encompasses various physical, psychological, and social aspects of well-being that are relevant in virtual work environments (Standaert *et al.*, 2022). This includes factors such as maintaining work-life

balance, job satisfaction, mental health, social connections, and physical well-being (Beckel and Fisher, 2022). As remote work arrangements become more common, organizations and researchers are increasingly focused on understanding and promoting employee well-being in virtual work settings (Karl *et al.*, 2022). Strategies to support employee well-being in virtual work include providing resources for remote work setup, fostering social connections through virtual means, promoting work-life balance, and addressing challenges such as isolation and burnout that may arise in remote work contexts. Organizations need to prioritize the well-being of virtual work employees as their physical and mental health, work-life balance, and social connections can significantly impact their job satisfaction, engagement, and performance. Ensuring the well-being of teleworkers can contribute to higher retention rates and increased productivity (Singh *et al.*, 2022). Additionally, organizations have legal and compliance responsibilities towards their remote workers, including ensuring their health and safety, providing appropriate work arrangements, and complying with relevant labor laws and regulations (Quinlan, 2007). Failing to prioritize teleworker well-being can result in legal and compliance risks for organizations (Salikova & Batukhtina, 2020).

This review is a comprehensive account of employee well-being in the virtual workspace and contributes to the body of literature in the following ways. First, it provides an account of the theoretical support found in the area of employee well-being in virtual work. Second, it identifies the data collection methods and statistical tools used in this area of research. The authors also identify antecedents, moderators, mediators, and outcomes associated with employee well-being in the virtual workspace. Finally, it identifies the research gaps and suggests a future research agenda.

The paper is structured as follows. In Section 2, we discuss the review methodology. The third section presents a summary of findings related to theoretical perspectives, contexts, constructs, data collection methods, and statistical methods used in the review papers. Section 4 outlines the future research agenda. Finally, the paper concludes with implications drawn from the findings and a summary of key takeaways.

2. Data and Methods

To ensure transparency in the literature review, the authors have utilized the SPAR-4-SLR protocol. Unlike other methods such as PRISMA and PRISMA-P, this protocol is more appropriate for reviews that aim to make theoretical contributions. The SPAR-4-SLR protocol consists of three stages: assembling, arranging, and assessing, along with six sub-stages: identification, acquisition, organization, purification, evaluation, and reporting (Figure 1). This review followed a structured approach similar to the one recommended by Paul *et al.*, (2022), which involves theories, constructs, contexts, and methods to identify research gaps.

In stage 1 (assembling), to ensure the quality of the reviewed papers, we utilized peer-reviewed research papers from ABDC journals (A star, A, and B category). We chose these databases due to their broad scope and established reputation in various fields (Çelik *et al.*, 2022), making them more comprehensive in nature (Paul & Criado, 2020). The search was conducted using terms like "well-being," "happiness," "tele-commute," "virtual work," etc. (more details on keywords in the SPAR diagram). The search yielded 96 articles.

In stage 2 (arranging), the articles were coded using the TCCM framework. The organizational codes included theory, contexts (i.e., country/ies of the research undertaken), and characteristics (i.e., antecedents, mediators, moderators, outcomes/consequences). In the purification stage, we eliminated duplicates (15) and conducted two rounds of screening for the remaining articles, evaluating the title, abstract, and full text. As a result, 10 articles were eliminated. Additionally, 31 articles did not align with the literature on employee well-being in virtual workspaces, leaving us with a final list of 40 articles to analyze. The validity of the chosen sample was based on the criteria for qualifying studies. The inclusion criteria for this review were as follows: a) Only articles related to the well-being of employees in virtual workplaces were chosen; b) Only English language articles were considered; c) The search was confined to top-tier journals (ABDC-A star, A, and B category journals). The exclusion criteria were: a) Papers that did not contribute to employee well-being in virtual work; b) Inaccessible papers; c) Conference proceedings and editorial notes were excluded.

In stage 3 (assessing), the authors performed a thorough content analysis using the TCCM framework as a basis for analysis and evaluation. This enhanced the dependability of the results. We also conducted research gap analysis and devised a future research agenda in reference to theory, constructs, contexts, and methodology. In the final stage of reporting, we organized the evaluated literature into tables based on theories in the literature, research settings (contexts), antecedents, mediators, moderators, outcomes, and methodologies used in the studies. Finally, we evaluated the limitations of the current review and provided the implications of the study.

Assembling	Identification Domain: Employee well-being in virtual workspace Research questions: What do we know about employee well-being in virtual workspace Where is the research happening? What are the antecedents, moderators, mediators outcomes of employee well-being in virtual workplace?
Arranging	Acquisition Search mechanism and material acquisition: Library and journal website Search period: February 2023 Search keywords: "happiness", "happiness at work", "well-being", "well-being at work", "happy", "happiness in hospitality", "well-being in hospitality", "happiness in tourism", "well-being in tourism", "employee happiness", "employee well-being", "life satisfaction", "employee life-satisfaction", "workplace happiness", "workplace well-being", "eudaimonia", "eudaimonic well-being", "hedonia", "hedonic well-being", "psychologic well-being", "psychological well-being", "well-being at work", "workplace well-being", "employee well-being", "employee life-satisfaction", "workplace happiness", "workplace well-being", "eudaimonia", "eudaimonic well-being", "hedonia", "hedonic well-being", "psychologic well-being", "psychological well-being" Organisation Organizing codes: Article title, journal title, author name, publication year, citation, theory, context, characteristics (i.e., antecedents, moderators, mediators, outcomes), methodology. Organizing framework: TCCM Purification Article type included: - The articles were restricted to employee happiness and well-being. - Only articles related to virtual workspace was included. - Only English language research articles were considered for the investigation. - The search was confined to scholarly articles in top-tier journals. Article type excluded: - The paper does not contribute to the current understanding of happiness and well-being in virtual workspace. - Inaccessibility of the full research paper
Assembling	Evaluation Analysis method: Thematic gap analysis Agenda Proposal method: thematic analysis (implications and future research agenda) Reporting Reporting conventions: Figures (3), tables (2) and words () Limitations: Data type limited to English journal article Source of support: No funding received

3. Synthesis and findings

Over the past three years, there has been a 75% increase in studies investigating well-being in the virtual workplace. Out of a total of 40 research articles, 36 were quantitative, 1 was qualitative, and 3 used mixed methods. The employee relations journal emerged as the primary publication outlet for research on workplace well-being in the virtual workplace, featuring 7 of the studies. Other journals such as the International Journal of Human Resource Management, New Technology, Work and Employment, and the Journal of Management & Organization had more than 2 research papers in this area. The studies included in the review examined various implications of happiness and well-being in the remote workplace.

3.1 Theoretical perspectives

In the field of employee well-being at virtual work environment research, several theoretical lenses are used. This section gives a brief summary of some of the commonly used theories in the field. Table 1 gives a glimpse of all the theories in the literature review.

Table 1: Theoretical perspectives in Employee well-being in virtual work

Theory	No of articles	Reference
Job demand resource model (Bakker and Demerouti 2007)	5	Yang et al. (2023), Hoeven & Zoonen (2015), Olsen et al (2023), Gunther et al (2022), Valiūnienė et al (2021)
Conservation of resources (COR) theory (Hobfoll, 1989),	5	Standaert et al (2022), Chambel et al (2022), Miglioretti et al (2022), Kapoor et al (2021), Boulet & Lamarche (2022a), Johnson & Mabry (2022), Granger et al (2022)
Self-determination theory	3	Perry et al. (2018), Dias et al (2022), Lopes et al (2022)
Affective events theory	2	Anderson et al. (2015), Zoonen et al (2021)
Affect theory	1	Qiu & Dauth (2021)
Belongingness theory	1	Yang et al. (2022)
Person environment fit theory	1	Jaiswal et al (2022)
Control theory (Carver & Scheier, 1990)	1	Gillet et al (2022)
Organizational support theory	1	Beauregard, T. A. (2011)
Work design theory	1	Wang et al. (2020)
Problem-behavior theory (Jessor and Jessor 1977; De Leo and Wulfert 2013)	1	Deutron (2022)

Emotional intelligence theory	1	Chaudhary et al (2022)
social identity theory (Tajfel & Turner, 1979) and self-categorization theory (Turner et al., 1987),	1	Brown & Leite (2021)
Task-technology fit	1	Marikyan et al (2023)
Stressor-strain-outcome model	1	Singh et al (2022)
Social exchange theory	1	Felstead & Henseke (2017)
Event system theory with transactional stress theory	1	Straus et al (2022)
Self-regulation theory	1	Demerouti (2023)
Contingency theory and boundary management theory	1	Boulet & Lamarche (2022b)

3.1.1 Job demand-resource model

The JD-R theory has emerged as a crucial theoretical framework for understanding the well-being of employees, emphasizing the impact of work-related factors such as job demands and job resources on job outcomes and overall well-being (Olsen *et al.*, 2023). Job demands refer to factors that require effort and may lead to strain, while job resources facilitate goal attainment. This model recognizes that both positive and negative outcomes are possible. Work-home balance is an intriguing concept that can be viewed as both a job resource and a boundary-spanning demand, although its boundaries remain unclear. The model suggests that job resources are strong predictors of motivation, while job demands may lead to psychosomatic health problems such as exhaustion (Hoeven & Zoonen, 2015). In a virtual work setting, job demands include challenges such as poor work environments, blurred work hours, and childcare responsibilities, making it critical for employees to provide the necessary resources such as communication and information to sustain social and professional interactions (Günther *et al.*, 2022). The job demands-resource model is particularly relevant in today's context, given the growing importance of workplace well-being for job performance and human functioning (Valiūnienė *et al.*, 2021).

3.1.2 Conservation of resource theory

According to COR theory, employees strive to maintain their resources, which has important implications for the virtual workplace because of its unique resource limitations and opportunities (Rapisarda *et al.*, 2022). Resources in COR are defined as anything an employee perceives as helpful in achieving their goals (Standaert *et al.*, 2022). Endangered resources can lead to negative outcomes such as stress and emotional exhaustion, while possessing more resources can lead to positive work outcomes like engagement (Miglioretti *et al.*, 2022). Building resilience is crucial for employees to thrive and remain engaged while working from home amidst challenges (Kapoor *et al.*, 2021). The COVID-19 pandemic has further highlighted the importance of maintaining individual resources and promoting workplace well-being (Boulet & Lamarche, 2022).

3.1.3 Self-Determination Theory (SDT)

SDT has significant implications for the well-being of employees in the virtual workplace. This is because employees in a virtual work environment may face unique challenges in meeting their basic psychological needs for autonomy, competence, and relatedness. Recent studies have shown that motivation is crucial for employees to take specific action (Lopes *et al.*, 2023). Perry *et al.*, (2018) also found that meeting the needs for autonomy, relatedness, and competence is essential for positive performance-related behaviors in a virtual work context. However, it is important to address these needs through proper work design when working remotely. Moreover, the exhaustion that comes with working from home and the feeling of involuntarily performing virtual work are congruent with SDT. This is because pressure and control from external sources can result in less optimal outcomes (Dias *et al.*, 2022).

3.1.4 The affective events theory (AET)

The affective events theory (AET) is a useful tool for understanding how emotional experiences impact employee well-being, particularly in the context of remote work. Remote workers face unique emotional challenges, including social isolation, difficulties in distinguishing between personal and professional life, and a lack of face-to-face interaction with colleagues (Zoonen *et al.*, 2021). These challenges can trigger negative emotions and have an impact on employee well-being. According to the AET, positive events elicit positive emotions in employees. In the case of telework, certain factors can contribute to more positive events, resulting in positive emotions (Anderson *et al.*, 2015). Researchers have found that teleworkers experience a greater sense of autonomy, control, and flexibility in choosing their work location and schedule, which positively affects their mental health and well-being (Zoonen *et al.*, 2021). Additionally, teleworkers experience fewer interruptions, allowing them to make greater progress towards their goals, which serves as a source of positive emotions.

3.1.5 Affect theory

Locke's affect theory (1976) seeks to understand how human emotions and feelings influence social, cultural, and political encounters. In the virtual work setting, this theory suggests that emotions are influenced by various factors, such as communication technology, job tasks, social support, and the physical environment. (Qiu and Dauth, 2022) apply this theory to explain that employee satisfaction in virtual work is determined by how closely their job experiences align with their expectations. When expectations are met, job satisfaction increases, but when they are not, (Baumeister and Robson, 2021)satisfaction decreases (Qiu and Dauth, 2022).

3.1.6 Belongingness theory

According to the belongingness theory, employees who have a sense of connection to a group or organization are more likely to feel satisfied, motivated, and committed to their work (Baumeister and Robson, 2021). Therefore, in virtual work settings, it is crucial to establish a sense of community and connectedness among remote employees to enhance their well-being and job satisfaction. This can be achieved through regular virtual meetings, team-building exercises, and encouraging social interaction. When remote workers feel valued and connected, they are more likely to experience a sense of belonging, leading to increased productivity, job satisfaction, and overall well-being (Yang *et al.*, 2022). Moreover, Yang *et al.*, (2022) explains

the concept of cyber ostracism and online work engagement when addressing remote work challenges such as work-home interference, procrastination, loneliness, and ineffective communication that can affect an organization's performance.

3.1.7 Person-environment misfit theory

The person-environment misfit theory refers to a situation where an individual's personal characteristics do not align with the demands of their work environment (Erdoğan *et al.*, 2022). This concept is particularly relevant in virtual work settings, where employees may face various challenges that create a mismatch between their personal characteristics and the requirements of their work. This mismatch can have a negative impact on employee well-being, leading to lower job satisfaction and productivity (Jaiswal *et al.*, 2022).

3.1.8 Control theory

According to Carver and Scheier's control theory (1990), employees who prioritize work may experience decreased psychological well-being while working remotely due to various factors, such as limited workspace, insufficient technological and support resources, and disruptions from family obligations. These employees may perceive their family responsibilities as barriers to their work performance, depleting their mental and emotional resources and hindering their ability to engage positively in their work. Consequently, this can result in an unsatisfying work experience and reduced levels of work engagement (Jaiswal *et al.*, 2022).

3.1.9 Organizational support theory

The organizational support theory asserts that in the virtual work environment, employees' perception of support from their organization can fulfill their emotional needs at work. Such support is believed to alleviate psychological and physical pressures by providing employees with material and emotional assistance to cope with job demands. Research has established a connection between perceived organizational support, lower burnout rates, and a decrease in physical symptoms (Beauregard, 2011).

3.1.10 Work design theory

Work design theory (2014) encompasses the structure and organization of work tasks, activities, relationships, and responsibilities. This concept is relevant to remote work as it represents a different arrangement of tasks compared to working in an office. Work design is also applicable to other contemporary work changes, such as the digital era. Various theoretical perspectives on work design have indicated that designing work to possess specific characteristics can lead to positive outcomes, including well-being, job satisfaction, and performance (Wang *et al.*, 2021).

3.2 Context

Table 2 Global dissemination of employee well-being in virtual work research

		Single	Twin	Multiple	Total	
America	USA	3	-	1	4	5
	Canada	1	-	-	1	
Europe	Germany	2	2	-	4	32
	Netherland	1	-	-	1	

	England	1	-	-	1	
	UK	9	-	1	10	
	The Kingdom of Belgium	1	-	-	1	
	Republic of Austria	1	-	-	1	
	Portugal	3		-	3	
	The Netherlands	1	-	-	1	
	Italy	1	-	1	2	
	Norway	1	-	-	1	
	Slovakia	1	-	-	1	
	Republic of Lithuania	1	-	-	1	
	Finland	1	-	-	1	
	France	-	-	1	1	
	Spain	-	-	1	1	
	Denmark	-	-	1	1	
	Sweden	-	-	1	1	
Asia	India	2		1	3	6
	Pakistan	1	-	-	1	
	China	1	1	-	2	
Oceania	Australia	-	1	1	2	2

3.2.1 Countries

In terms of context and background, the majority of research on employee well-being in virtual work has focused on the European continent (refer to Table 3). Notably, the United Kingdom has been the dominant contributor, accounting for 27% of the research, followed by the United States with 11%. Germany had four studies, while India and Portugal had three studies each. China, Italy, and Australia each had two studies. It is worth mentioning that Granger et al. (2022) conducted a study across multiple continents, and (Wu, 2022) undertook a study involving 27 European countries.

Upon closer analysis, it becomes evident that the majority of studies were conducted within a single country. There were two studies involving pairs of countries and two studies with a multi-country context. However, it is important to note that findings from single country studies offer limited insights and are not directly comparable. Consequently, future research should place greater emphasis on conducting studies across multiple and twin countries to enhance our understanding of employee well-being in virtual work.

3.3 Characteristics

Research on employee well-being in virtual workplaces has extensively investigated various constructs. The following section gives a comprehensive overview of these variables, categorized according to their roles within the study, such as antecedents, mediators, moderators, and outcome variables. These categories are aligned with Van Horn's occupational well-being model, facilitating a structured understanding of the factors influencing employee well-being in virtual work environments. The inclusion of a substantial number of variables in the study contributes to the theoretical advancement and development of research on well-being in virtual workplaces, broadening our knowledge in this area.

3.3.1 Antecedent variables

The constructs examined as antecedents are discussed under 5 different heads based on Van Horn's well-being model (i.e., affective, social, professional, psychosomatic, cognitive).

Antecedents such as extension work from home (Yang *et al.*, 2023), online intervention (Demerouti, 2023), work from home/remote working/tele-working/remote e-working experience (Anderson *et al.*, 2015; Charalampous *et al.*, 2022; Felstead and Henseke, 2017; Kapoor *et al.*, 2021), work engagement (Günther *et al.*, 2022; Miglioretti *et al.*, 2022; Straus *et al.*, 2022), continuing to work on the organization's premises and shifting to a telework situation (Rapisarda *et al.*, 2022), task-technology fit (Marikyan *et al.*, 2023), employee's fit to tele-work (Dias *et al.*, 2022), involuntariness in teleworking (Dias *et al.*, 2022), virtual meetings (Schifano *et al.*, 2021), flexible work designs (Hoeven & Zoonen, 2015), job demands and resources (Olsen *et al.*, 2023), lack of time for recuperation, over-working (Grant *et al.*, 2013), virtual work intensity (Qiu and Dauth, 2022), hindrance stressors (Zoonen *et al.*, 2021), institutional support (Valiūnienė *et al.*, 2021), work and personal digital platforms (Singh *et al.*, 2022), work centrality were examined for professional well-being of an employee in virtual workplace.

Social support (Wang *et al.*, 2020), supportive work-home culture (Beauregard, 2011), employee's level of trust in management (Jaiswal *et al.*, 2022), connectedness (Brown and Leite, 2022), are some of the antecedents to examine social well-being of an employees' well-being at virtual work.

Under affective well-being of an employee research in virtual workplace job satisfaction (Günther *et al.*, 2022), emotion regulation ability, emotion regulation style, low emotional stability (Perry *et al.*, 2018), loneliness, life-satisfaction (Deutrom *et al.*, 2022), emotional exhaustion (Schlegel *et al.*, 2021), are few of the constructs used as antecedents.

Autonomy (Perry *et al.*, 2018), leader's e-competencies (Chaudhary *et al.*, 2022), adaptive cognitive regulation (Schlegel *et al.*, 2021) are few of the cognitive well-being of employees examined for antecedents in cognitive well-being at virtual workplace.

While technostress is the only antecedent examined for psychosomatic well-being aspect of an employee in virtual working literature.

3.3.2 Mediating variables

Not many researchers in the review articles had used mediated variables. Shift to telework (Rapisarda *et al.*, 2022), time spent working from home (Olsen *et al.*, 2023), involuntariness in telework (Lopes *et al.*, 2023) were tested as mediating variables for professional well-being.

Work-home interference (Beauregard, 2011; Yang *et al.*, 2022), increased interruptions (Hoeven & Zoonen, 2015), work-family balance (Qiu and Dauth, 2022), social isolation (Günther *et al.*, 2022) were few of the constructs among social well-being. Procrastination (Yang *et al.*, 2023), psychological well-being (Jaiswal *et al.*, 2022), psychological strain (Günther *et al.*, 2022) were some of the affective well-being related constructs used to test employee well-being in remote well-being literature.

3.3.3 Moderating variables

Based on Van Horn's classification of well-being the moderators in the literature could be classified as follows:

Gender, age, education, number of children were some of the demography that were examined for professional well-being. Self-discipline employees frequency of working remotely (Wang *et al.*, 2020), voluntariness to teleworking (Felstead and Henseke, 2017), access to technology, ability to work flexibly (Grant *et al.*, 2013), worker's well-being (Boulet and Parent-Lamarche, 2022) and remote working (Gillet *et al.*, 2021) were few of the professional well-being aspects that were tested as moderators.

Openness to experience, social connectedness outside of work (Anderson *et al.*, 2015), crowded housing (Schifano *et al.*, 2021), expectations (Felstead and Henseke, 2017), inter-connectedness (Charalampous *et al.*, 2022) were some of the social well-being moderators tested in the literature.

Sensation seeking (Anderson *et al.*, 2015), resilience (Kapoor *et al.*, 2021), emotional intelligence (Chaudhary *et al.*, 2022) were few of the constructs used to test affective well-being.

Technostress was the only construct assessed for psychosomatic well-being by two researchers (Chaudhary *et al.*, 2022; Jaiswal *et al.*, 2022). While, rumination (Anderson *et al.*, 2015) and individual competencies (Grant *et al.*, 2013) were examined as moderators for cognitive well-being.

3.3.4 Outcome variables

The outcomes or consequences of employee well-being in virtual work is classified as follows. Higher turnover intention (Yang *et al.*, 2023), task performance, relaxation (Demerouti, 2023), online work engagement (Yang *et al.*, 2022), remote work challenge (Wang *et al.*, 2021), cyber security behavior, problematic internet use (Deutrom *et al.*, 2022), well-being (Brown & Leite, 2022; Nadal *et al.*, 2020a, 2020b; Grant *et al.*, 2013; Schifano *et al.*, 2021), performance (Jaiswal *et al.*, 2022), job performance (Boulet and Parent-Lamarche, 2022), telework quality (Miglioretti *et al.*, 2022), higher organisational commitment (Felstead and Henseke, 2017), work engagement (Dias *et al.*, 2022) are some of the aspects that were the outcomes associated with professional well-being. Psychological well-being (Yang *et al.*, 2023), fatigue, motivation, happiness with life, self-focused emotional intelligence (Demerouti, 2023), employee mental and emotional well-being (Yang *et al.*, 2022), emotional problems (Rožman and Tominc, 2021) were outcomes examined for affective well-being. Higher work-to-family and family-to-work conflicts (Yang *et al.*, 2023), work-home interference (Wang *et al.*, 2021), work and family relationship (Rapisarda *et al.*, 2022), family satisfaction (Gillet *et al.*, 2021), social support (Zoonen *et al.*, 2021) were few of the outcomes associated with social well-

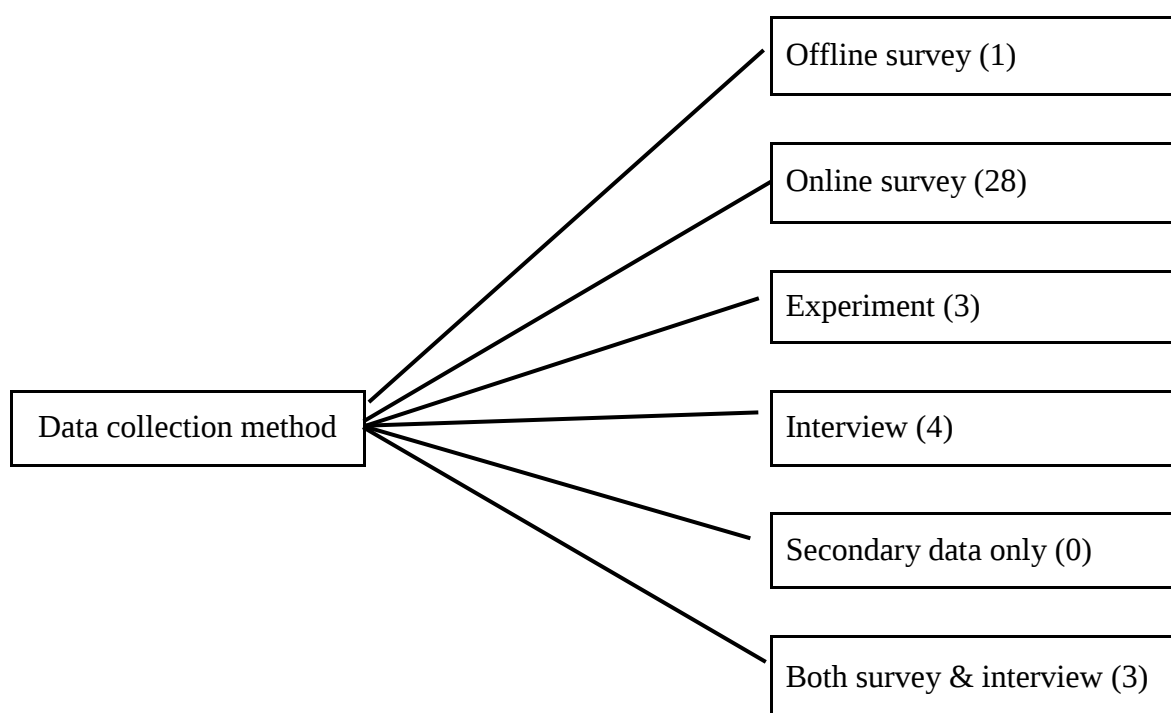
being. Loneliness (Wang et al., 2021), strain (Perry *et al.*, 2018) were few of the psychosomatic outcomes of remote working in virtual workspace. Self-efficacy was the only cognitive well-being outcome that was studied under employee well-being in remote work.

3.4 Methodologies used in prior studies

3.4.1 Data collection

The findings of this review are derived from the data collection methods and analysis techniques employed in 36 empirical studies, as presented in the summarized information in Figure 3 below. The survey method was the most commonly used data collection technique in 29 studies, with online mode (28) being preferred over offline mode (1). Experimental design studies were limited to 3 studies which were undertaken along with online survey. Interviews were employed in four studies as a data collection method, out of which 3 studies employed both survey and interview method simultaneously.

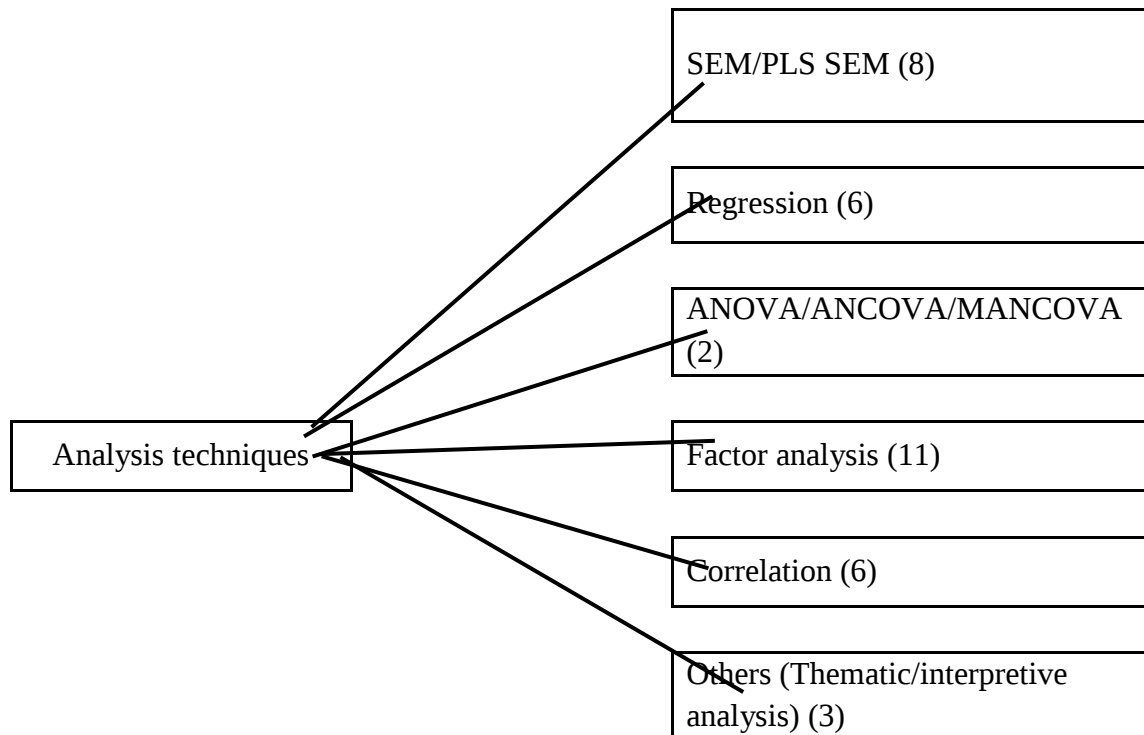
Figure 2: Data collection method



3.4.2 Analysis technique

In terms of data analysis, factor analysis (11) was the most extensively used method followed by Structural equation modelling (SEM) and partial least squares structural equation modelling (8). 6 studies have utilized correlation and the same number goes with regression analysis. Two studies employed ANOVA/ANCOVA methods. Out of 3 qualitative studies thematic analysis was used in 2 and 1 study has employed interpretive analysis. There were no studies on scale development in employee well-being in virtual well-being research

Figure 3: Data analysis methods



4. Discussion

Employee well-being in the virtual workplace is a relatively young discipline. Notably, research in this domain has experienced exponential growth since the COVID-19 pandemic. While the United Kingdom and the United States have been at the forefront of pioneering research in this area, recent trends indicate a steady global dissemination of well-being research in virtual workspaces.

The majority of studies have employed various theoretical lenses, with only a few using more than one theoretical framework. However, it is worth noting that a few studies did not specify the theoretical framework employed. In terms of characteristics examined, there is a limited number of studies that have explored mediators and moderation mechanisms. To enhance the understanding of this domain, it would be beneficial for researchers to incorporate qualitative methods, as well as employ interpretive analysis techniques, for data collection and analysis.

Overall, while the field of employee well-being in the virtual workplace is still emerging, the research in this area has shown significant growth, particularly in response to the COVID-19 pandemic. There is a need for further exploration and expansion of theoretical perspectives, consideration of additional characteristics, and utilization of a broader range of research methods to deepen our understanding of employee well-being in virtual workspaces.

5. Future research agenda

In line with early reviews the researchers of the current review highlight the research gaps and propose future research agenda using TCCM framework. The researchers propose the roadmap for future research agenda in terms theories, context, characteristics and methodologies to assimilate and strengthen the research base of employee well-being in virtual work.

5.1 Theory development

Based on current research, it is evident that no specific measures have been designed to evaluate employee well-being in the virtual work domain. A multi-dimensional approach may serve as a suitable theoretical foundation for creating such a measure. Implementing a well-being measure would enable organizations to identify and address the challenges related to the well-being of virtual working employees.

Future researchers could utilize theories such as the technology acceptance model to examine employees' acceptance and usage of technology, along with its impact, while assessing employee well-being in virtual workspaces. Additionally, the PsyCap theory could be employed to assess employees' positive psychological resources, including self-efficacy, optimism, hope, and resilience. The transactional theory of stress and coping could be utilized to understand employees' perception of stressors in virtual work environments.

Furthermore, future researchers may consider employing theories such as social capital theory, social learning theory, and social support theory to analyze the social well-being of employees. Job-embeddedness theory, job crafting theories, and organizational justice theories could be studied in relation to professional well-being. In assessing the psychosomatic well-being of employees, researchers may find the occupational health theory, health belief model, and resilience theory useful.

To evaluate the cognitive well-being of employees, researchers could consider utilizing theories such as cognitive appraisal theory, information processing theory, and cognitive dissonance theory. Flow theory and flourishing theory could be employed to assess employees' affective well-being.

Overall, incorporating these theories into future research can contribute to a comprehensive understanding of employee well-being in virtual work settings.

5.2 Context

The field of employee well-being in the virtual workplace has made significant progress in our understanding. However, further research is needed in different national and cultural contexts to advance this area of study. Currently, the majority of studies have been undertaken in the United Kingdom and the United States, while emerging economies are underrepresented. This presents ample opportunities for research in regions such as the Middle East, Asia, and Latin America to explore the similarities and differences in employee well-being in virtual work environments.

Additionally, only a small percentage of studies have examined cross-country comparisons. Therefore, future researchers should prioritize cross-national and multinational research to comprehend the impact of cultural diversity on employee well-being in remote workspaces. This will contribute to a more comprehensive understanding of the factors influencing well-being across different cultural and national contexts.

5.3 Characteristics

5.3.1 Antecedents

While research on employee well-being in the virtual workplace has experienced significant growth, especially during and after the COVID-19 pandemic, there has been limited focus on conceptual and demographic variables (e.g., religion, race, cultural background) that may impact employee well-being while working remotely. Future studies could explore antecedents associated with individual characteristics, such as personality traits, work experience, psychological needs, cognitive factors, coping strategies, and diversity and inclusion.

Furthermore, it is important to examine organization-related antecedents, including organizational culture, work design, social support from the organization, leadership style of employers, and organizational policies and practices for remote working. Additionally, technology-related antecedents, such as digital workload and boundary management, and the role of human-technology interaction and technology self-efficacy, should be considered when investigating employee well-being in virtual workspaces.

5.3.2 Moderators and Mediators

Future researchers could investigate moderators such as contextual factors (e.g., team dynamics, employee job characteristics) and cultural and national differences. Individual resilience, coping strategies, and isolation could also serve as potential moderators. Moreover, researchers may consider examining multi-level moderators (individual, team, and organizational) that collectively shape employee well-being.

In terms of mediators, mechanisms or processes such as autonomy, virtual communication tools, job satisfaction, internal drive, social support, provision of assistance, personality traits, and perceived autonomy could be investigated.

5.3.3 Outcome

While well-being is predominantly examined as an outcome variable, studies exploring the consequences of employee well-being in virtual work settings are currently non-existent. It is crucial for researchers to recognize the broader impacts of well-being on individuals, teams, and organizations as the nature of work continues to evolve and virtual work becomes more prevalent. Taking a holistic approach to well-being involves understanding its consequences and providing a comprehensive understanding of the implications for individuals, teams, and organizations.

5.4 Methodology

Many existing studies in employee well-being research in virtual work have predominantly utilized quantitative and cross-sectional research methods. However, future studies can greatly benefit from employing longitudinal research designs to investigate the long-term impact of remote work on employee well-being. Additionally, incorporating in-depth qualitative methods can provide valuable insights by collecting data directly from employees in virtual workspaces. Current researchers acknowledge the need for multi-study and multi-source research approaches to obtain a comprehensive understanding of how employee well-being is affected in virtual workplaces. It is strongly recommended to prioritize longitudinal research that relies

on panel data analysis and focused group methods to gain deeper insights into employee well-being.

Furthermore, the authors of the current review suggest that future researchers should consider employing advanced research tools such as cluster analysis, triangulation, and other analytical techniques to enhance the depth and rigor of their studies. Another valuable addition could be the application of bibliometric analysis to assess the scholarly impact and trends in employee well-being research in virtual work settings.

6. Conclusion

Despite the extensive coverage of research papers on employee well-being at work, the authors cannot guarantee the exhaustiveness of this review, and we acknowledge that there may be some papers that have been overlooked. Nevertheless, we believe that this systematic review provides a fair and comprehensive representation of employee well-being research in virtual workplaces.

The current review summarizes the present state of employee well-being research in virtual workplaces. Based on the findings, we suggest both theoretical and managerial implications. It was noted that the majority of the articles were based on a single theoretical underpinning, while a few studies had none. However, the authors of this review believe that a single theoretical lens is insufficient to account for the nature of employee well-being, given the numerous challenges associated with remote work. Therefore, we suggest that future researchers adopt multi-theory perspectives to gain a clearer understanding of the differences between employees working from home and those working from the office.

Regarding the setting of employees in different contexts, there is a need for cross-country studies to better understand employee views and perspectives on remote working and its implications for employee well-being. This review also reveals that researchers heavily rely on quantitative research, particularly self-reported surveys. However, these survey-based methods fail to capture the broad spectrum of challenges associated with employee well-being in virtual workspaces. Thus, we encourage researchers to incorporate other methods such as the diary method and auto-ethnography studies to allow for a more nuanced understanding of employee well-being.

Employee well-being in remote workplaces has several managerial implications. One such implication is the need to prioritize and proactively address the well-being of virtual employees. As virtual workspaces become increasingly prevalent, it is essential for managers to take appropriate measures to support their virtual workforce. Employers should consider implementing policies, practices, and resources that promote employee well-being. This may include providing tools and technologies that facilitate proper communication and effective collaboration, promoting work-life balance by establishing clear boundaries between work and personal time, fostering a positive and inclusive virtual work culture, and regularly assessing employee well-being to provide appropriate support. Managers also need to be mindful of the unique challenges and stressors associated with feelings of isolation, reduced social interaction, blurred work-life boundaries, and excessive reliance on technology due to remote work.

Finally, this review provides a detailed and comprehensive account of the work in the field of employee well-being in virtual workspaces. Although there has been a spike in research after the COVID-19 pandemic, gaps in the literature still exist. Thus, this research proposes promising avenues that may further contribute to the field's research. We have identified areas for theory development, contextual considerations, characteristics to be examined, and methods that could be employed in future research.

In conclusion, the findings synthesized in the existing research shed light on various factors that influence employee well-being. Advancements in this crucial area can help organizations devise strategies to support the specific needs necessary for employee well-being. These insights can also inform organizations, policymakers, and practitioners in creating effective strategies and interventions to support and enhance employee well-being in remote work settings. Further research in this area can continue to contribute to the evolving understanding of remote work and its implications for employee well-being, ultimately leading to improved work practices and better outcomes for employees in remote workspaces.

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