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Working From Home in Higher Education: A Systematic Review

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Abstract

Expectations of teaching staff employed in higher education institutions worldwide transformed during the COVID-19 pandemic. The rapid shift to online curriculum delivery, with teachers working from their homes, resulted in significant changes to employer-employee workplace relations and management systems (some temporary; others permanent). Following the Job Demands-Resources Model as a theoretical framework, this study adopts a systematic literature review research methodology using the PRISMA approach and a deductive thematic analysis to analyse and synthesise the literature on working from home in higher education published during the pandemic (2020+). The findings indicated a convergence between the identified challenges and increased job demands such as workload and role ambiguity, along with a dearth of job resources encompassing infrastructure, training, and support. In addition to establishing support policies and providing training opportunities, the study raised the need for reassessment and modification of work policies in higher education to support work-from-home settings navigating the post-pandemic era.

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Introduction

The COVID-19 pandemic caused massive disruption to higher education as social distancing policies were implemented, severely limiting or preventing face-to-face classes. Millions of students were impacted by the mass closure of universities (UNESCO, 2020). Higher education institutions had to shift to Emergency Remote Teaching (ERT) (Crawford et al., 2020), which is the type of instruction being delivered online through online learning and video-conferencing systems by universities in response to the pandemic (Hodges et al., 2020). Mandatory government restrictions forced higher education institutions to offer teachers the option to work from home (WFH) and use existing virtual communication technologies and learning management systems (Afrianty et al., 2022; Bolisani et al, 2022; Nagel, 2020; Turner et al., 2023; Watson et al., 2022, Yamamura & Tsustsui, 2021). Nowadays, all restrictions are lifted; staff and students can return to a face-to-face learning mode. However, there are advantages to online education modes that include teachers WFH (i.e., not being required to teach online from their workplace). Many universities adopted blended learning which can also have teachers working from home (see for example, Paravastu & Ramanujan, 2024).

Before the pandemic, office-based work was the norm, with under 5% of workers in the U.S. and Europe telecommuting (Beckel & Fisher, 2022). Some companies adopted WFH to promote work-life balance, maintaining employee flexibility without sacrificing work quality or productivity (Afrianty et al., 2022). Crosbie and Moore (2004) linked home-based work with enhanced job satisfaction, organisational commitment, and performance. This backdrop informs our study into how higher education institutions can continue to support staff working from home post-pandemic.

Several scholarly endeavours have researched WFH during the pandemic. Chirico et al. (2021) discerned through their systematic review the physical and mental impacts associated with WFH, calling on organisations to actively promote well-being in the context of WFH. Aligning with this, James et al. (2022) emphasised the pivotal role of flexibility, proactive communication, and adept use of online tools, not just for academic delivery but also in nurturing student belonging. These tenets could very well be the blueprint for educators navigating the remote working landscape.

The systematic review by Becker and Fisher (2022) focused on telework impacts on employee's wellbeing, yielding the development of a conceptual framework that explains the process of how telework might impact the health and wellbeing of employees. Watson et al. (2022) called universities to adopt policies that encapsulate work-life balance and mitigate the inherent challenges of WFH during the pandemic. Meanwhile, Rudolph et al. (2021) raised the call for continuous evolution in online delivery and curricular designs, insisting on the active engagement of every stakeholder. The overarching theme that emerges is the essentiality of counselling support for the educators, reaffirming the critical need to address and prioritise well-being while academics work from home.

Examining 58 studies on psychological well-being and impacts of working from home, Crawford (2022) identified potential short-term benefits of telework for employees' psychological well-being. This points towards the possibility of flexible and proactive work designs that cater to mental health. In a similar systematic review, Anakpo et al. (2023) identified various factors, such as the

nature of work and the home environment, playing a significant role in determining WFH productivity. They suggested technology and information (IT) training to improve WFH practices.

While these investigations and systematic reviews offer an overview of WFH, the nuances specific to higher education demand focused attention. Our research attempts to fill this gap, leveraging a systematic literature review to distil the challenges and opportunities prevalent to higher education's WFH scenario during the pandemic. We aim to guide higher education institutions in their transition and evolution in the post-pandemic landscape, ensuring that educators can seamlessly adapt to remote work without compromising on productivity, job satisfaction, and overall well-being.

This study reviewed the literature on working from home and support provided to higher education teachers while working from home during the pandemic, using a systematic literature review research method. Its purpose was to identify challenges and opportunities to reimagine educational management in higher education after the pandemic, guiding decisions related to work location. The study is guided by the following research questions:

1. What were the challenges associated with working from home in higher education during the COVID-19 pandemic?
2. Based on the reviewed literature, how can higher education institutions enhance working-from-home practices?

Theoretical Framework

The Job Demands-Resources (JD-R) Model, developed by Demerouti, Bakker, Nachreiner, and Schaufeli (2001) explains the relationship between job characteristics, employee well-being, and work-related outcomes. The model suggests that job characteristics can be categorised into two distinct types: job demands and job resources. Job demands refer to the physical, psychological, social, or organizational aspects of work that require sustained effort and energy expenditure from employees (Demerouti et al., 2001). These demands can include time pressure, workload, emotional demands, role ambiguity, and conflicting job responsibilities. Job demands, if excessive or unmanageable, can lead to strain, burnout, and negative health outcomes (Bakker et al., 2003; Siltaloppi et al., 2009). On the other hand, job resources are the aspects of the job that support employees in their work tasks, reduce job demands and facilitate growth, learning, and achievement (Demerouti et al., 2001). Job resources can include social support from colleagues and supervisors, feedback, autonomy, opportunities for skill development and a positive work environment. These resources are believed to buffer the impact of job demands and foster employee engagement, motivation and well-being (Hakanen et al., 2006; Xanthopoulou et al., 2007).

According to the JD-R Model, the presence of high job demands, coupled with a lack of job resources, increases the likelihood of burnout, turnover intention, and poor job performance (Crawford et al., 2010). Conversely, when employees have access to sufficient job resources like social support and performance feedback, it leads to positive outcomes such as work engagement, job satisfaction and better physical and mental health (Schaufeli & Bakker, 2004).

The model has been widely supported by empirical research across various occupational settings. It is useful to identify and address job demands and resources to optimise employee well-being and organisational outcomes. This is achieved by focusing on reducing excessive job demands and providing adequate job resources, organisations can promote employee engagement, motivation, and sustainable performance.

working from home can introduce unique job demands. Employees may face increased workload due to the blurring of boundaries between work and personal life (Crawford, 2022; Golden et al., 2008). They may experience challenges in managing their time, dealing with technology issues, or experiencing feelings of isolation and lack of social support (Gajendran & Harrison, 2007). This can lead to increased stress and strain if not effectively managed.

On the other hand, WFH also offers job resources that can support employees. Employees working from home can adopt flexible work schedules that are adjusted based on their family needs and social commitments (Hill et al., 2003). Additionally, they can also have the autonomy in managing tasks and access to technological tools and resources which can provide opportunities for skill development through online training (Parker & Deci, 2017).

Since the JD-R Model emphasises the importance of balancing job demands with job resources, organisations should strive to provide the necessary resources to support employees in managing the demands of remote work effectively (Amstad, et al., 2011). This could include technological support, access to relevant information and training, and opportunities for social connection and collaboration (ten Brummelhuis & Bakker, 2012). By promoting a healthy balance between job demands and resources, organisations can help mitigate the negative impact of remote work and foster employee well-being.

The JD-R Model suggests that when employees have access to sufficient job resources, such as autonomy and opportunities for growth, they are more likely to be engaged and motivated (Demerouti et al., 2001). Christian et al. (2011) found that engaged employees are more likely to maintain high levels of performance and job satisfaction. Therefore, Bal et al. (2013) urged organisations to enhance employee engagement and performance in remote work settings by providing the necessary resources and support.

This study adopts the JD-R Model in the context of WFH to guide the analysis and the interpretation of the literature on working from home during the COVID-19 pandemic. It is used to discuss the results and provide recommendations for higher education institutions regarding WFH in the post-pandemic era.

Method

The study adopted a systematic review research method because it can provide a transparent, replicable, comprehensive and structured approach to scrutinizing and synthesis the existing body of knowledge (Bearman et al., 2012; Petticrew & Roberts, 2006). This method allowed the identification of relevant research papers that address the research purpose and allowed systematic and explicit methods for reviewing the available literature (Snyder, 2019).

Search Strategy

To ensure good coverage and high-quality relevant studies, a virtual meeting was held by the research team to discuss and review the search strategy. The search was limited to peer-reviewed journal articles that were published during the pandemic (2020-2023). A search was carried out in two databases: Elsevier's abstract and citation database SCOPUS and Web of Science, using the following keywords search strings: ["working from home OR telecommuting OR remote working"] AND ["higher education" OR “university" or "college" or "tertiary education"] AND ["COVID-19"]. Journals were not restricted to education since research on the scholarship of teaching and learning (SoTL) and issues of higher education is available in discipline-specific journals.

Selection Criteria

Preferred Reporting Items for Systematic Reviews and Meta-Analyses statement (PRISMA) was used to present the search results and selection procedure (see Moher et al., 2009). Figure 1 presents the PRISMA diagram. This method was used because of its suitability for research in education and social sciences (Cavus et al., 2021). The bibliometric data of the records were imported into Microsoft Excel for screening. The first author checked the records and removed the duplicated records. Next, authors independently screened the titles and abstracts to ensure the manuscripts were (a) related to issues of WFH, (b) included recommendations for better WFH, and (c) related to teachers in higher education. Out of 103 articles screened, 43 manuscripts were selected for an in-depth review. Several meetings were held to discuss and finalise the full-text review. The final sample included for thematic analysis was 23 manuscripts. Table 1 provides an overview of the final sample.

Data Analysis

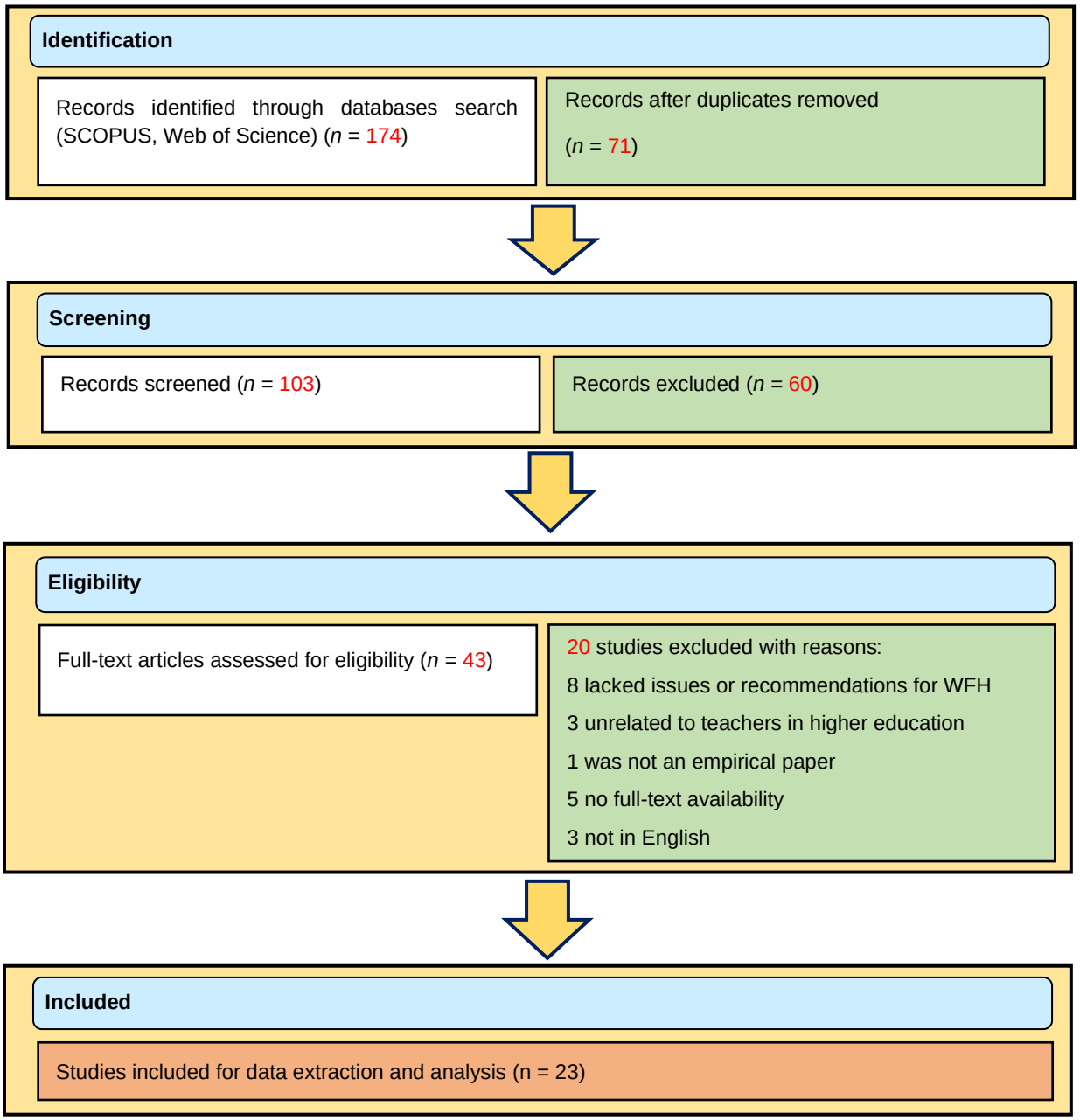
An MS Excel® spreadsheet was designed to facilitate organising and documenting data extraction from the final selection of articles (our data sample). A meeting was held to discuss and decide the categories for data extraction from each article, to be added to the spreadsheet. The final dataset listed for each article was: bibliometric data (title, authors, publication date, abstract, keywords), type of study, data collection methods and number of participants.

Deductive thematic analysis was used to analyse the data extracted from each article, following Braun and Clarke’s (2006) six steps: data familiarisation, coding data, searching for themes, reviewing themes, defining and naming themes and writing up. The authors familiarised themselves in the data through the title/abstract screening, the full-text screening and the virtual discussions of the manuscripts. The articles were allocated for independent coding of preliminary themes. Following a deductive approach, two main themes (*challenges of working from home* and *recommendations for enhancing working from home practices*) were directed at the data based on the aim of the study and the research questions. Both authors were involved in coding and themes identification. The second author consolidated the themes, taking into consideration discussion notes from the data extraction virtual meetings. To ensure rigour, reflexivity and inter-coder reliability, the authors discussed the emerging preliminary themes for revision and defined the final themes (Creswell & Miller, 2000; Tracy, 2010). Additionally, the study adopted “critical friend” method to ensure credibility and trustworthiness. A critical friend is a trusted friend who

critiques someone's work as a friend by providing reflection and analysis from different perspectives (Kember et al., 1997; Swaffield, 2004). The critical friend reflects and improves the quality of the study through "listening, prompting, and recording our insights throughout the process" (Milles & Gay, 2016, p. 575). A Ph.D. academic and researcher in education served as a critical friend, providing comments on data analysis and interpretation and manuscript write-up.

Figure 1

PRISMA Diagram



Results

Characteristics of the Studies

Most of the selected studies (*N*=17, 73.9%) followed quantitative research methods with only three studies (*N*= 3, 13%) adopting a mixed-method research method and qualitative research methods. Nineteen studies used surveys for data collection, two articles used interviews, one used focus group discussion and one used autoethnography. The number of participants varied, ranging from 5 to 2,029 individuals. These studies were conducted across diverse regions: seven in Europe, seven in Asia, three in Africa, two in North America, two in South America, and one in Australia and Europe.

Table 1

An Overview of the Included Studies

Author	Title	Study type	Method(s)	Number of participants	Country
Mosleh et al., 2022	The impact of online teaching on stress and burnout of academics during the transition to remote teaching from home	Quantitative	cross-sectional survey	278	United Arab Emirates
Karatuna et al., 2022	Job Demands, Resources, and Future Considerations: Academics' Experiences of Working from Home During the Coronavirus Disease 2019 (COVID-19) Pandemic	Qualitative	interviews	26	Sweden
Kyrönlahti et al., 2022	Perceived Work Ability during Enforced Working from Home Due to the COVID-19 Pandemic among Finnish Higher Educational Staff	Quantitative	web-based questionnaire	678	Finland
Afrianty et al., 2022	Working from home effectiveness during Covid-19: Evidence from university staff in Indonesia	Quantitative	cross-sectional survey	267	Indonesia
Clemmons et al. 2022	Impact of the COVID-19 pandemic on faculty at research-intensive United States schools/colleges of pharmacy	Quantitative	cross-sectional survey	279	United States
Watermeyer et al. 2022	Modelling academic delivery challenges during COVID-19: A binary logistic approach	Quantitative	cross-sectional survey	446	India, Malaysia, and the United Arab Emirates.
Walters et al. 2022	The impact of the pandemic-enforced lockdown on the scholarly productivity of women academics in South Africa	Quantitative	Cross-sectional survey	2029	South Africa
Irshad et al., 2022	Impact of Work-From-Home Human Resource Practices on the Performance of Online Teaching Faculty During Coronavirus Disease 2019	Quantitative	cross-sectional survey	709	Pakistan

Catană et al., 2022	The effects of the COVID-19 pandemic on teleworking and education in a Romanian higher education institution: An internal stakeholders' perspective	Mixed methods	Surveys, Interviews	39	Romania
Ahmadi et al., 2023	Job Satisfaction and Overcoming the Challenges of Teleworking in Times of COVID-19: A Pilot Study Among Iranian University Community	Quantitative	survey	196	Iran
Turner et al., 2023	Lessons learnt during COVID-19: making sense of Australian and Swedish university lecturers' experience	Qualitative	autoethnography	5	Australia and Sweden
Dockrell et al., 2023	Remote working during the COVID-19 pandemic: Computer-related musculoskeletal symptoms in university staff	Quantitative	survey	1045	Ireland
Portilla et al., 2023	Musculoskeletal discomfort associated with remote work conditions of professors during the COVID-19 confinement in Colombia	Mixed Methods	focus group, survey	170	Colombia
Al-Dmour et al., 2023	Integrated Model for the Factors Determining the Academic's Remote Working Productivity and Engagement: Empirical Study	Quantitative	survey	408	Jordan
Alsulami et al., 2023	Flexible Working Arrangements and Social Sustainability: Study on Women Academics Post-COVID-19	Qualitative	semi-structured interviews	59	Saudi Arabia
Matias et al., 2023	The COVID-19 pandemic and teachers' work: perceptions of teachers from a public university in the state of São Paulo, Brazil	Quantitative	online survey	17	Brazil
Badaru et al., 2022	Teaching in a Pandemic: An Exploratory Study into University Instructors' Perceptions of Work-from-Home Opportunities and Challenges during the COVID-19 Lockdown in South Africa	Quantitative	online survey	10	South Africa
Munobwa et al., 2022	Coping Methods and Satisfaction with Working from Home in Academic Settings during the COVID-19 Pandemic	Quantitative	online survey	674	Sweden
Harunavamwe & Ward, 2022	The influence of technostress, work–family conflict, and perceived organisational support on workplace flourishing amidst COVID-19	Quantitative	online survey	227	South Africa
Staniec, 2021	The nature of employee–organization relationships at polish universities under pandemic conditions	Quantitative	online survey	723	Poland
Irshad et al., 2021	Impact of Work-From-Home Human Resource Practices on the Performance	Quantitative	online survey	not mentioned	Pakistan

	of Online Teaching Faculty During Coronavirus Disease 2019				
Abujarour et al., 2021	How working from home during covid-19 affects academic productivity	Quantitative	online survey	221	USA
Littlejohn et al., 2021	Moving teaching online: Cultural barriers experienced by university teachers during covid-19	Mixed Methods	online survey, interview	412 questionnaire respondents and 32 interviews	UK

Working from Home: Challenges and Recommendations

The reviewed literature on WFH in higher education during the COVID-19 pandemic reported different challenges and provided some recommendations for better practices. Five sub-themes emerged from the dataset, explaining the issues of working from home: *health-related issues, home-related issues, institutional-related issues, technical-related issues, and personal issues*. Table 2 summarises the themes related to issues of WFH and provides some components of these themes.

Table 2

A Summary of Working from Home Issues

Theme	Example studies	Some examples of related issues
Health-related issues	Matias et al. (2023) Mosleh et al. (2022) Kyrönlahti, et al. (2022) Catană et al. (2022) Dockrell et al. (2023) Turner et al. (2023)	● High stress levels ● High burnout levels ● Low well-being levels ● Physical inactivity ● Musculoskeletal symptoms
Home- related issues	Dockrell et al. (2023) Mosleh et al. (2022) Clemmons et al. (2022) Karatuna et al. (2022) Watermeyer et al. (2022) Walters et al. (2022) Alsulami et al. (2023) Munobwa et al. (2022)	● Inappropriate home space ● Family/home responsibilities ● Child-care issues ● Work-home interference issues
Institutional-related issues	Matias et al. (2023) Badaru et al. (2022) Mosleh et al. (2022) Afrianty et al. (2022) Karatuna et al. (2022) Irshad et al. (2022) Walters et al. (2022) Munobwa et al. (2022) Harunavamwe & Ward, (2022)	● Increased workload ● Insufficient digital orientation ● Decreased training programmes ● Limited organisational and social support ● Difficulty in staff recruitment
Technical-related issues	Badaru et al. (2022) Clemmons et al. (2022) Matias et al. (2023) Catană et al. (2022) Harunavamwe & Ward (2022)	● Unreliable technologies ● Poor internet connectivity ● Overload platforms ● Lack of resources

	Abujarour et al. (2021) Turner et al. (2023)	
Personal issues	Abujarour et al. (2021) Badaru et al. (2022) Al-Dmour et al. (2023) Karatuna et. al. (2022) Watermeyer et al. (2022) Irshad et al. (2022) Catană et al. (2022)	• Lack of face-to-face communication • Inability to manage time • Loss of motivation • Increased internet and electricity costs • Lack of involvement

Health-Related Issues

The literature reported different health-related issues. Surveying 278 teachers in a college in UAE, Mosleh et al. (2022) reported moderate to high stress levels in online teaching during the pandemic. They reported some differences between stress levels and online teaching experience, with teachers with 7-10 years of online teaching experience experiencing higher stress levels than teachers with 4-6 years of online teaching experience (Mosleh et al., 2022). Following a similar data collection approach, but with four interval administrations of the survey, Kyrönlahti et al. (2022) categorised employees into six work capacity profiles, with 52% of the sample belonging to the "good-stable" profile. This group of employees demonstrated a good level of work profile during the pandemic at the four administrations of the survey. Regarding stress, the study found that high stress level was experienced by "moderate-stable" and "poor-stable and decreasing" work profiles of university academic staff. This indicates that stress explained the decrease in work capacity profile among teachers in later administrations of the survey. Matias et al. (2023) reported that working from home was linked to elevated stress levels, attributed to the increased workload from the shift to online teaching and challenges in establishing clear work-personal boundaries. In addition to stress levels, Catană et al. (2022) identified psychological well-being as a crucial factor influencing work from home and education. Teachers experienced different psychological well-being issues as they work from home during the COVID-19 pandemic, such as healthy self-esteem, psychological pressure and motivation and loneliness (Catană et al., 2022). Turner et al. (2023) claimed that demanding workload to migrate to online teaching while working from home impacted teachers' well-being. Mosleh et al. (2022) stated that many participants demonstrated a high level of burnout from working from home during the pandemic. For example, some of them experienced physical exhaustion and emotional drain, attributing these issues to lack of time and home environment issues compared to the number of tasks being required to do in the new online teaching and learning atmospheres (Mosleh et al., 2022). WFH was found to be associated with an increased occurrence of musculoskeletal symptoms, which resulted from the use of inadequate home workstations. These symptoms encompassed discomfort and stiffness in areas such as the neck, shoulders, elbows, wrists, upper back, lower back, knees, and feet/ankles (Dockrell et al., 2023, Turner et al., 2023).

Home-Related Issues

During the pandemic, WFH had a notable impact on family lifestyles, particularly affecting married teachers with larger families (Mosleh et al., 2022). Academics who transitioned to remote work faced difficulties in delineating boundaries between their professional and personal lives, which had adverse repercussions on their job satisfaction and productivity (Matias et al., 2023). Adapting

to online and remote work was more challenging when teachers' home working environment disrupted family life (Watermeyer et al., 2022). Karatuna et al. (2022) similarly identified the issue of work-home interference as a significant factor affecting the quality and quantity of remote work during the pandemic, leading to blurred lines between work and home. Additionally, Catană et al. (2022) observed that household responsibilities, such as caring for pets and handling household chores, presented challenges for teachers trying to effectively work from home. It was also noted that balancing work and family life proved more demanding and stressful for young academics and researchers who shared living spaces with their families (Munobwa et al., 2022).

Institutional-Related Issues

Several institutional-related issues were reported in the included sample. The increased workload was an influential factor in working from home during the pandemic (Walters et al., 2022; Mosleh et al., 2022). Investigating the scholarly productivity of female academics in South African higher education, Walters et al. (2022) reported that the high administrative and academic workload had a negative impact on working from home environment which eventually redacted research productivity of female academics. The study rationalised the workload increase to be caused by online teaching demands that took most of academic's time while working from home (Walters et al., 2022). To illustrate, about half of the respondents (more than 1000 academics) reported that teaching online accommodated over 80% of their time, leaving insufficient time for performing other tasks (Walters et. al., 2022). In addition, the study reported different factors that contributed to the increased workload, impacting working from home during the pandemic, such as having children, children's ages; career stages; commuting conditions; and home working arrangements (Walters et al., 2022). Workload impact on working from home was also reported in Mosleh et al. (2022). They reported that teachers' workload increased during the pandemic which had a negative impact on teachers' stress and work-from-home burnout (Mosleh et al., 2022). Both Walters et al. (2022) and Mosleh et al. (2022) concluded that inexperienced teachers had more workload issues because of the time required from to shift to and administer online teaching. Likewise, Munobwa et al. (2022) indicated that young academics and young researchers found working from home more demanding and stressful.

Technical-Related Issues

Some technical issues were identified that hindered the effectiveness of telecommuting during the pandemic. Although a higher percentage of surveyed faculty members reported different issues that impacted their experience of working from home, about ten percent of pharmacy faculty members declared that the lack of necessary technology at home was a serious challenge for them to work from home (Clemmons et al., 2022; Tuner et al., 2023). Apart from the lack of technologies, Clemmons et al. (2022) and Abujarour et al. (2021) reported that faculty lacked access to reliable internet which negatively influenced their teaching from home. They also reported the unavailability of both hardware and software, which negatively impacted remote work. Likewise, Catană et al. (2022) identified four issues related to technology: sound interruption, image interruption, overload platforms and poor internet connectivity. Among these factors, Catană et al. (2022) found that overload platforms and weak internet connectivity impacted the educational process when teachers teach and administer classes from home. Finally, Watermeyer et al. (2022) found that teachers were not able to adapt to the new

technologies, which had a negative impact on the quality of WFH without physical technical support.

Personal Issues

The literature has also discussed a set of personal issues experienced by academicians due to working from home. Karatuna et. al. (2022) found that working from home led to the absence of an academic environment in which communication with colleagues and students and in-person meetings are crucial to maintaining the professional identity and academic organisational culture. With the absence of physical presence which aids the expression of non-verbal cues, teachers found it difficult to establish a social presence and engage in useful and uninterrupted communication with colleagues and students in virtual settings (Karatuna et. al., 2022). In addition, some teachers were not able to manage their time when working from home (Watermeyer et. al., 2022). Al-Dmour et al. (2023) reported that teachers' had an of task completion within time because of other personal and family commitments. Because of being at home, Catană et al. (2022) and Badaru et al. (2022) found that some teachers suffered from a lack of motivation to teach and work online, and their loneliness levels increased. Furthermore, working from home increased internet and electricity bills (Irshad et al., 2022). Cultural background, age and marital status of the participants involved in these studies should be acknowledged when interpreting these findings because these factors might have an influence on the experiences of academics while WFH.

Recommendations

Apart from reporting issues of working from home experienced by academics in higher education, the literature also provided possible solutions and recommendations for future working from home. For productive working-from-home practices, Mosleh et al. (2022) recommended that teachers and administrative staff should be trained on online pedagogies. Several studies called for the need for organisational support to enhance working from home. Professional training of teachers in online teaching skills and technical knowledge and skills were reported in several studies (Abujarour et al., 2021; Badaru et al., 2022; Dockrell et al., 2023Turner et al., 2023). In addition to focusing on online pedagogical approaches, some studies recommended the need for sustained training provisions in technical knowledge and skills to enhance the quantity and quality of WFH (Afrianty et al., 2022; Karatuna et. al., 2022; Matias et al., 2023; Mosleh et al., 2022). Training opportunities needs to be take into account the previously stated issues and address them in a context and cultural-sensitive manner.

organisational support may be realised through providing targeted IT infrastructure, such as software, video/audio recording gadgets, laptops and home internet access (Afrianty et al., 2022; Al-Dmour et al., 2023; Badaru et al., 2022; Clemmons et al., 2022; Watermeyer et al., 2022). Furthermore, an essential form of organisational support is to assess and consider the workload and timetables of the teaching staff when WFH (Afrianty et al., 2022; Alsulami et al., 2023; Clemmons et al., 2022). Family responsibilities needs to be considered when devising these policies and strategies.

Institutional readiness to allow teachers to work from home was discussed in the selected studies. This support can be realised by providing the IT infrastructure that teachers need to facilitate their

working-from-home environments, such as telecommunication and virtual conferences software and hardware (Afrianty et al., 2022). Also, allowing academic staff the flexibility to choose to work from home, provided a good working home environment can indicate institutional readiness (Karatuna et al., 2022). Dockrell et al. (2023) and Harunavamwe and Ward (2022) recommended that higher education policies should address workstations setups. Finally, childcare support facilities might also contribute to the success of working from home (Walters et al., 2022).

Walters et al. (2022) called on higher education institutions to continue their research initiatives into issues of working from home to regularly inform senior management deliberations. Similarly, Clemmons et al. (2022) suggested that institutions should explore the impact of personal responsibilities on the work performance of teachers when working from home. These endeavours might shape enhanced practices of working from home in higher education.

Discussion

The systematic literature review highlights several challenges faced by higher education teachers working from home during the COVID-19 pandemic. These challenges encompass various aspects, including health, home, institutional, technical, and personal factors. The sudden transition from face-to-face or blended learning to fully virtual instruction contributed to most of these issues. This rapid transition led to teachers and students lacking the necessary home infrastructure and expertise for effective virtual education (Crawford et al., 2020).

Based on the JD-R Model, the challenges related to WFH during the pandemic align with increased workload and role ambiguity. Teachers lacked pedagogical content knowledge of online teaching and faced technical issues, which increased the demands on their time and energy (Dhawan, 2020; Rapanta et al., 2020). The lack of faculty training and support further intensified job demands, as teachers struggled to adapt to the new teaching environment (Hartshorne et al., 2020). These challenges have contributed to increased stress levels and decreased well-being among teachers (Hafermalz et al., 2021; Staniec et al., 2022; Watson, et al., 2022). On the other hand, the identified challenges contributed to the lack of job resources in the working-from-home context. The literature indicated that teachers lacked infrastructure and human resources necessary to effectively manage virtual instruction and create quality work-from-home environments. This lack of resources, such as technical support and organisational preparedness, have hindered teachers' engagement, motivation, and productivity while working from home.

The JD-R Model suggests that a balance between job demands and resources is crucial for employee well-being and performance. In the context of working from home in higher education, the challenges identified reflect the imbalance between job demands (increased workload, technical issues) and job resources (lack of infrastructure, training, and support). This imbalance has contributed to decreased well-being and productivity among teachers.

To address these issues, higher education institutions should consider providing the necessary job resources to support teachers in managing the demands of virtual instruction at home. This includes offering pedagogical training, technical support, and emotional involvement from management (Staniec et al., 2022; Khong, et al., 2023). By addressing these resource deficiencies, institutions can mitigate the negative impact of job demands and promote employee well-being and effectiveness in the work-from-home settings.

It is important for higher education institutions to recognise and address the challenges and resource gaps identified during the pandemic to better prepare for future contingencies and support the successful implementation of working from home in the long term. The lack of infrastructure, technical support, and organisational preparedness, highlight the shortcomings of the existing work policies in higher education. The sudden shift to remote teaching during the pandemic exposed the need for policies that support effective virtual instruction and create quality work-from-home environments.

In terms of infrastructure, policies should be developed to ensure teachers' accessibility to necessary technology, hardware, and software for providing virtual instructional. Several research endeavours reported the need for revising polices related to technical resources provisions in higher education (Afrianty et al., 2022; Ashour et al., 2021; Molla & Cuthbert, 2023; Nguyen et al., 2023; Yembergenova, 2023). These resources not only include new gadgets and hardware, but also subscriptions to different audio/video development software and content creation software.

The lack of technical support emphasises the need for policies that address technical issues and provide ongoing assistance to teachers. For example, establishing support systems, help desks, or training programs can assist teachers in navigating technical challenges while working remotely (Rapanta et al., 2020). Research has shown that providing such support can help alleviate the burden on teachers and enhance their ability to effectively manage virtual instruction (Crawford et al., 2020). Ongoing assistance and guidance can also contribute to teachers' confidence and competence in using technology for remote teaching (Rapanta et al., 2020). Considering Mishra and Koehler's (2006) Technological Pedagogical Content Knowledge (TPACK) model, it becomes evident that focusing solely on the technological dimension is insufficient for effective online teaching. There is a pressing need to also foster the development of educators' pedagogical and content knowledge specific to online instruction. This can be achieved through conducting webinars that are grounded on transformative learning theory and emphasise critical reflection (Al-Naabi, 2023; Gegenfurtner et al., 2020).

Furthermore, the lack of organisational preparedness indicates the need for policies that prioritise faculty training and support in remote teaching. Institutions should develop policies that provide training opportunities, resources, and guidance to help teachers enhance their pedagogical content knowledge and adapt to the demands of online instruction (Al-Naabi, 2021; Das & Meredith, 2021; Rausch et al., 2022). Training opportunities should be centred around the TPACK model to ensure the coverage of technological, pedagogical and content dimensions of online teaching.

In the post-pandemic era, higher education institutions should review and revise their work policies to ensure they are equipped to support remote work and provide a sustainable and productive work environment. This may involve implementing flexible work arrangements that balance in-person and remote work, establishing guidelines for effective virtual instruction (Agyei & Voogt, 2020), and promoting a culture of continuous professional development for teachers (Al-Naabi, 2020; Rapanta et al., 2020). New work policies should also consider the importance of job resources, such as technological support, training opportunities, and organisational support, to foster teacher engagement, motivation, and well-being in the remote work setting. These policies

should aim to create a supportive and inclusive work environment that addresses the specific challenges and needs of teachers in the post-pandemic era.

It needs to be acknowledged herewith that some health and home issues will have a diminished negative impact on remote working in the post-pandemic era within the context of higher education. As higher education navigated through the pandemic, teachers have developed some technical and pedagogical skills of online teaching and remote working. This skills enhancement could contribute positively to remote working in the post-pandemic. Also, the continued integration of Learning Management Systems and synchronous conferencing platforms across higher education institutions lays the foundation for devising remote working plans and strategies. With the return to normal schooling and workplace routines for children and other family members, there is likely be a reduction of home responsibilities that might have previously hindered productivity in WFH.

It is important to acknowledge the influence of cultural, contextual and situational factors as the studies reviewed here came from diverse cultures. This diversity highlights the necessity of higher education institutions to deeply consider cultural and contextual factors when addressing and planning for working from home plans. This will ensure a cultural and contextual sensitive and adaptable policies and principles.

Conclusion

Following a systematic literature review, this study examined peer-reviewed articles on (WFH) in higher education during the COVID-19 pandemic, guided by the Job Demands-Resources (JD-R) Model. It reveals a mismatch between increased job demands, including workload and role ambiguity, and insufficient job resources like infrastructure, training, and support, leading to reduced teacher well-being and productivity.

To tackle these challenges, we recommend that higher education institutions prioritise the provision of job resources aimed at supporting teachers in effectively managing the demands of virtual instruction from their homes. Resources alone are not sufficient; policies need to be developed to guarantee access to essential technology, hardware, and software, coupled with the availability of continuous technical assistance. Training programs and support systems should also be implemented to assist teachers in navigating technical obstacles and augment their confidence and competence in remote teaching. Furthermore, faculty training and support in remote teaching, encompassing the enhancement of technical, pedagogical and content knowledge and adaptation to online instruction, should be prioritised. Offering opportunities for continuous professional development is instrumental in enabling teachers to enhance their skills in the post-pandemic era.

Institutions have time to navigate workplace changes for a post-pandemic era. Higher education institutions have opportunities to reassess and modify their work policies to effectively facilitate remote work, where it is beneficial. This entails introducing flexible work schedules to accommodate the unique demands of remote instruction, establishing clear guidelines that ensure successful virtual instruction, and fostering a culture that promotes continuous professional growth among teachers. By placing a concerted focus on job resources and cultivating a

supportive work environment, institutions can foster heightened levels of teacher engagement, motivation, and well-being within the remote work setting.

Adopting a PRISMA approach for the identification and selection of the studies is subject to limitations of subjectivity and coverage of the existing research. There is a possibility of missing some articles because of different keywords than the words we used in this search. Although the thematic analysis provided a structured and effective method for data extraction of the included manuscripts, it is also subject to subjectivity and saturation concerns. While the sample was relevant to the research purpose, it was small in nature. This was due to the scarcity of research output, which presents a limitation to this research but also provides a critique for scholarly endeavours in this area.

Conflict of Interests

We disclose no actual or perceived conflicts of interest. We disclose that we have not received any funding for this manuscript. We disclose that we have not used artificial intelligence in this research. We are grateful to Dr Jo-Anne Kelder for her invaluable support and meticulous manuscript revision.

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