The Individual, Organizational and Social Contexts of Teleworking and Technostress during Covid-19 Pandemic: A Holistic Analysis based on JD-R Model

Nuray AKAR[1], Tayfun YÖRÜK[2], Kasım SUBAŞI[3], Marco VALERI[4]

1. Assoc. Prof. Dr., Akdeniz University, nurayyapici@akdeniz.edu.tr, https://orcid.org/0000-0003-2444-1233

2. Assoc. Prof. Dr., Akdeniz University, tayfun@akdeniz.edu.tr, https://orcid.org/0000-0002-4900-5705

3. PhD(c), Akdeniz University, kasimsubasi@gmail.com, https://orcid.org/0000-0002-7871-6055

4. Assoc. Prof. Dr., Niccolò Cusano University, marco.valeri@unicusano.it, https://orcid.org/0000-0002-9744-506X

Abstract

The purpose of this study is to reveal the researches that deal with teleworking and technostress together with their individual, organizational and social dimensions in a holistic way within the framework of the Job Demands-Resources (JD-R) Model. In this study, a review was carried out on the Web of Science (WoS) and the Scopus databases with the assistance of bibliometric analysis techniques and the PRISMA method. The thematic content analysis method was used to reveal on which dimensions of technostress associated with teleworking and on which methods the focuses were. It can be stated that the results of the relationship analysis based on keyword frequency, performance analysis and thematic content analysis carried out within the scope of the research are consistent with each other. At this point, the findings of the research have revealed that technostress poses a dark side to teleworking as an organizational behavior challenge stemming from the COVID-19 pandemic. The current study found that teleworking-related technostress significantly affects employee well-being, with important impacts on the ISO 45003:2021 standard, and the Sustainable Development Goal 3. On the basis of being such a comprehensive and comparative research on the subject, it contributes to the relevant literature and practice.

Keywords: Teleworking, Technostress, JD-R Model, Employee Well-Being, SDG 3.

Article Type	Application Date	Admission Date
Research Article	February 27, 2024	September 29, 2024

1. INTRODUCTION

Teleworking was proposed in the 1970s as an alternative way of organizing work independent of space and time using information and communication technologies. In this respect, it has been seen as a win-win strategy that is a solution to individual, organizational and social problems. It is noted that teleworking, which is described as an application that provides flexibility for employees because it eliminates workplace dependence and reduces transportation problems, has positive effects on job satisfaction, motivation, and work-family balance. In terms of business management, advantages such as saving space, reducing employment costs, reducing general expenses, minimizing personnel problems such as absenteeism, and increasing efficiency and profitability are emphasized. On the basis of its location-independent nature of work, the potential to reduce traffic, air pollution, and dependence on fossil fuels; to create a new employment area for women and disabled people who have difficulties in accessing the normal labor market; with the claims that it can be applied as a business continuity tool in extraordinary situations that create strict restrictions such as the COVID-19 pandemic, its potential to contribute to environmental, social and economic sustainability are highlighted (Gálvez et al., 2020; Madsen, 2003; Moglia et al., 2021).

The 2030 Sustainable Development Agenda (SDA), adopted by all United Nations (UN) Member States in 2015; consists of 17 Sustainable Development Goals (SDGs) based on origins such as combating poverty, hunger, inequality, and climate change, improving health and education, ensuring gender equality, promoting decent work and economic growth (https://sdgs.un.org/goals). From a working life perspective, it is seen that at least 6 (SDG 5: gender equality, SDG 8: decent work and economic growth, SDG 9: industry, innovation, and infrastructure, SDG 10: reduced inequalities, SDG 11: sustainable cities and communities, and SDG 12: responsible consumption and production) of the 17 targets are focused on improving employee well-being and business organizations. In this context, teleworking, which has become widespread with the COVID-19 pandemic, is also considered as an opportunity-creating practice, starting from the focus of organization and management, to help achieve sustainable development goals (Gálvez et al., 2020). Because flexible and remote working models such as teleworking can encourage the creation and maintenance of healthy, safe, and decent working conditions. Thus, they can provide employees with the experience of meaning at work (Elrayah, 2021).

On the other hand, the presence of findings pointing to the paradoxical nature of teleworking in the context of the dark side of organizational behavior is also remarkable. In this context, weakening of organizational communication and integration due to social isolation (Allen et al., 2015; Morganson et al., 2010); burnout (Kasemy et al., 2022; Singh et al., 2022); well-being problems (Arslan et al., 2022; Molino et al., 2020); health complaints (Elizalde, 2021; Wöhrmann and Ebner, 2021); work-family conflict (Golden et al., 2006; Lapierre & Allen, 2006); and technostress (Camacho & Barrios, 2022; Jaiswal et al., 2022) are often seen as the main challenges of teleworking. Therefore, while being able to work from anywhere with the information systems infrastructure, sharing with colleagues in real-

time, and accessing information quickly and easily is one aspect of this dichotomy, on the other side of this dichotomy, it should not be ignored that there are issues pointing to technostress such as the fact that being in constant contact blurs the home and work contexts, being trapped in multitasking, having to respond to work-related demands in real-time, being distracted by the constant flow of information, and lack of time for thinking and creative analysis (Tarafdar et al., 2011). It is important not to ignore practices such as change management, leadership support, a supportive organizational culture, user experience design, and end-user training to reduce the negative effects of the dark side of digital workplace technologies, such as overload, distraction, addiction, stress, anxiety, phobia, exhaustion, and burnout (Marsh et al., 2022). At this point, creating a social culture that prioritizes emotional social support, fosters mutual aid, and supports employees' emotional well-being should not be overlooked, even as organizational support strategies that prioritize a culture of continuous learning and strengthening employees technically are being developed (Khedhaouria et al., 2024).

At this point, rather than focusing on whether teleworking is an advantageous job design method with an approach that prioritizes only organizational and managerial interests, it is thought that it is necessary to focus on how to design, organize and implement teleworking based on a win-win strategy for all parties of the employment relationship, with an approach that also considers employee interests. In addition, such an approach is expected to reveal critical implications for the effectiveness of hybrid working arrangements, which are predicted to be the dominant model for the future of work with the impact of both the digital transformation in the age of Industry 4.0 and the COVID-19 pandemic and are based on the discourses of employers that it is built on the basis of combining the advantageous aspects of teleworking and office work, and that it is considered important in terms of sustainable development. With this perspective, this study aims to examine the researches that deal with teleworking and technostress together with their individual, organizational and social dimensions in a holistic way and to discuss them in the context of organizational behavior.

2. THEORETICAL FRAMEWORK

2.1. Teleworking

Teleworking is a broad and complex phenomenon with no single, widely accepted definition. Works made from places other than a traditional office space are called telework, telecommuting, virtual work, home-based teleworking, mobile telework, remote work, etc. (Nakrošienė et al., 2019). In this context, teleworking is defined as performing work outside the employer's premises by using information and communication technologies such as desktop computers, laptops, tablets and smartphones (Eurofound and the International Labor Office, 2017). In other words, teleworking is the ability of employees to access their business activities from outside the office through information and communication technologies (Nilles, 1997). Teleworking is not a new type of work in comparative law. In this context, it is emphasized that in the transition to teleworking and working in the workplace, an agreement should be reached between the employee and the employer on the basis of "volunteerism".

With this principle, the employee's individual approval is required for teleworking. However, in the extraordinary conditions that emerged with the COVID-19 pandemic, it has inevitably turned into a necessity for the workers who fulfill their work debt in the ordinary period to the remote working model (Baycık et al., 2021). In such a challenging period, information and communication technologies have played a central role in facilitating the transition to teleworking and its rapid spread. The practicality provided by information and communication technologies in conducting teleworking operations has provided strong links by many employers that this working model will be the new normal and has forced them to produce active policies for a more sustainable teleworking model (Jaiswal et al., 2022).

Facts such as knowledge management, which attracts great attention by organizational management in order to ensure sustainable competition today, innovative and result-oriented approaches based on high flexibility, lean and agile structures, and work-life balance also lead to the development of effective strategies for teleworking-style applications by reconsidering the traditional work context. At this point, it is underlined that the common emphasis of many definitions of teleworking based on different perspectives such as psychological, sociological, and political literature is "allowing employees to work wherever and whenever they want as long as it gives correct results" (Pigini & Staffolani, 2019). In addition to being evaluated as a working system that provides flexibility at the individual, organizational and social level since it is not limited by time and space, in terms of blurring of work and private life contexts, it is important for employees to fit teleworking norms and create a perception of harmony for the healthy growth of the remote working ecosystem based on strong foundations (Jaiswal et al., 2022).

In addition, the fact that the obligation to work in a teleworking relationship is mostly performed through information and communication technologies necessitates that some issues in terms of social security law should not be ignored. In this context, it is important to determine how the provisions on occupational accidents and diseases will be applied in a teleworking relationship. Because teleworking carries the risk of creating danger in terms of eye and body health and orthopedic disorders in employees based on the intensive use of technological communication tools. In addition, the increase in the frequency of mental work of employees, the pressure to always be reachable, the feeling of inadequacy that arises in keeping up with the constantly developing and changing technology, and the blurring of the boundary between home and work life can also bring about some mental and behavioral problems. In this context, determining the appropriate causal link in accepting occupational diseases in teleworking relationships and updating the list of occupational diseases on this basis constitutes a priority agenda (Çelebi Demir, 2023).

2.2. Technostress

It has been noted that the sudden intensification of the work model based on digital technologies during the COVID-19 pandemic, which brings great challenges for the workforce globally, creates more

technostress for employees than ever before (Chakraborty & Kar, 2021). In this sense, technostress is described as a "modern adaptation disease" and is considered as the stress caused by the inability to adapt and cope with information technologies in a healthy way (Wang et al., 2022). On the other hand, Tarafdar et al. (2007) based technostress on the basis of sociotechnical theory and role theory. Accordingly, organizations have two important dimensions as sociotechnical systems. The social dimension includes employees' abilities, attitudes, values, roles, reward systems and authority structures. The technical dimension, on the other hand, is task-oriented and includes jobs or job-related processes and technologies. Roles within the organization are determined in parallel with these two dimensions. In this direction, on the one hand, there are roles such as subordinate-superior relations depending on the social system of the employees. On the other side, there are task-oriented roles that are consistent with technical systems that regulate balances such as hierarchy, authority, coordination, and control. The changes that occur in these two basic systems give a dynamic quality to the organizational roles of the employees. Change in the social system is largely due to human relations. Change in the technical system often transforms individual roles more abruptly and more rapidly than the social dimension.

Advances in information and communication technologies inevitably transform organizational structures and processes, ways of doing jobs, and change individual roles. These role changes can cause stress in employees by causing role overloads and role conflicts (Türen et al., 2015). In this direction, the interaction of employees with information technologies can result in technophobia by creating negative psychological effects such as anxiety, tension and insecurity (Tarafdar et al., 2007). Tutar and Mutlu (2024) also designed a dynamic scale that would adapt to changes in digital behaviors, evolving technologies, and changing social norms by combining insights from psychology, human-computer interaction, and organizational studies. The digital fatigue scale they developed, based on existing literature on technology-related stress, information overload, and burnout, covers psychological, social, and technological dimensions. Thus, they revealed factors representing different aspects of digital fatigue, such as digital addiction, psychological fatigue, physical-mental fatigue, and psychosomatic problems, which result from prolonged exposure to the screen, cognitive load, emotional exhaustion, and blurring of boundaries between personal and digital life.

On the other hand, Tarafdar et al. (2011) collected technostress-creating conditions in five dimensions. These technostress dimensions are: Techno-overload, techno-invasion, techno-complexity, techno-uncertainty, and techno-insecurity. Techno-overload is felt when employees have to work harder and faster. This can lead to tension and fatigue due to information overload, interruptions, and multitasking. Techno-invasion is the frustration and stress experienced when accessibility and constant connection from anywhere and anytime interferes with personal time and places outside of work life. Work-related technology addiction invades the privacy of family and private life. Techno-complexity occurs when employees find the use of technology complex and feel inadequate about their technological skills. This feeling also creates stress as it takes more time and energy to understand the

technology. Techno-uncertainty is the discomfort with the ever-changing nature of information systems. Since the rate of change of technologies and applications is high, the existing knowledge of the employees is rapidly losing their validity. Although employees are initially enthusiastic about learning about innovations, the fact that they have to constantly update themselves is a cause for concern. Techno-insecurity reflects the tensions of employees to lose their jobs to other people who know the technology better than themselves. In other words, it describes the stress experienced under the threat of losing one's job. In this context, when the differentiated nature of teleworking from office work cannot be managed effectively, it is inevitable to create technostress-creating job demands for employees (Weinert et al., 2014).

2.3. The Job Demands-Resources (JD-R) Model

One of the comprehensive models used to evaluate the effects of different teleworking factors on the job outcomes is The Job Demands-Resources (JD-R) Model (Nakrošienė et al., 2019; Wang et al., 2022). Every work environment has its own unique job demands and job resources that have a significant impact on organizational outcomes. Job demands refer to the physical, social or organizational aspects of the job that require sustained physical or mental effort and are therefore associated with certain physiological and psychological costs. Factors such as physical workload, time pressure, recipient contact, physical environment, and shift work constitute job demands. Job resources, on the other hand, indicate opportunities and gains that reduce the physiological and psychological costs of job demands and enable employees to achieve successful results. Physical, psychological, social or organizational aspects, such as being functional in achieving job goals and promoting personal growth and development, fall within the scope of job resources. Factors such as feedback, rewards, job control, participation, job security, and supervisor support are examples of job resources. Extreme job demands, exhaustion, lack of job resources can cause disengagement. Therefore, it is claimed that the interaction between job demands and job resources plays an important role in the development of burnout (Demerouti et al., 2001). In this context, it is of great importance for organization managements to be aware of the potential of job resources to buffer the effects on job demands, in order to cope with stress reactions, including burnout (Bakker et al., 2004).

With the increasing use of technology in the business world, technology-related job demands increase. At this point, technology-related role ambiguity and role overload trigger the emergence of technostress (Akyol, 2023). Within the scope of teleworking, technostress can be considered as a job demands. This is because when employees perceive techno-stressing conditions such as techno-overload, techno-invasion, techno-complexity, techno-uncertainty, and techno-insecurity, they have to exert more physical and/or psychological effort to cope with this technology-related stressor (Wang et al., 2022). In addition, it has been observed that the sudden transition to teleworking, especially during the COVID-19 period, triggers technostress in employees who are accustomed to working in a traditional style. Because, for employees who are accustomed to working in an office environment,

having to adapt quickly to working from home technologies in such a challenging period has become an extra job demands and created stress. At this point, it is noteworthy that the technostress experienced by the employees at the individual level also causes negative effects in terms of organizational outcomes such as productivity, job satisfaction and organizational commitment (Chakraborty and Kar, 2021). In this research, which is based on such a theoretical framework, it is aimed to examine the studies that deal with teleworking and technostress together with their individual, organizational and social dimensions in a holistic way.

3. METHODOLOGY

In this study, bibliometric analysis techniques were used to examine the research topic discussed in the introduction section. The reason why these techniques are preferred is that bibliometric analyzes provide a systematic, transparent, and repeatable review process based on the statistical measurement of scientists or scientific activities (Broadus, 1987; Diodato & Gellatly, 2013). This method, which is very effective in revealing the performance of articles and journals in academic studies, also provides important information on issues such as collaborations, trends, and the discovery of an intellectual structure specific to a field (Donthu et al., 2021). Thus, in addition to a performance analysis that examines the descriptive components of studies (Ramos-Rodríguez & Ruíz-Navarro, 2004), a science mapping is also performed that deals with the structural connections and intellectual interactions between studies (Baker et al., 2020). When the studies conducted in recent years are examined, it is seen that bibliometric analysis is preferred in many fields from social sciences to engineering (Anuar et al., 2022; Cavalcante et al., 2021; Guo et al., 2019; Homberg and Vogel, 2016; Izzo et al., 2022; Kuzior and Sira, 2022; Liao et al., 2018; Piwowar-Sulej et al., 2022; Shah et al., 2019; Singh et al., 2021; Tamala et al., 2022; Zakaria et al., 2021; Zhang et al., 2022). When the methodological literature of bibliometric analysis is examined, it is seen that there are five different techniques (Zupic and Čater, 2015). It is possible to list these techniques with titles such as (1) Citation analysis, where the most influential publications are identified; (2) Co-citation analysis, in which the relations between the cited publications are examined; (3) Bibliographic coupling, in which the relations between the citing publications are examined; (4) Co-word analysis, in which existing or predicted relationships are explored by focusing on the written content of publications; (5) Co-authorship analysis, in which the social interactions or relationships between authors and their institutions are examined. In this study, co-word analysis was preferred since the content of the publications will also be examined with thematic analysis. Co-word analysis works differently from citation analysis, co-citation analysis, and bibliographic coupling analysis, by examining the actual content of the publication itself. At this point, the main focus of these three techniques is on publications, while the analysis unit of the co-word analysis preferred in the present study is words (Baker et al., 2020; Burton et al., 2020; Emich et al., 2020). Expressing the content and especially the keywords of the publication pool examined within the scope of the study in groups is very important in terms of revealing the relationships and visualizing the areas where the

publications are concentrated (Jotabá et al., 2022). In this study, a software named VOSviewer was used to visualize the relationships of the publications based on keywords (Van Eck et al., 2010). In this application, (1) Co-occurrence and then (2) Author keywords were selected from the application options in order to analyze which keywords the publications focus on.

In the process up to the realization of the analysis and in the next processes, the steps of bibliometric analysis: (1) research design in which the study subject is determined, (2) data compilation in which the filtering process is done by selecting the publication pool, (3) analysis in which the data is grouped through software, (4) visualization in which the groupings are illustrated, and (5) interpretation in which the data is explained and interpreted were used (Zupic & Čater, 2015).

In addition to the processes mentioned above, since this study focuses on the effects of teleworking on technostress, the thematic content analysis method was also used to examine the publications obtained in this field. The thematic content analysis enabled the teleworking effects discussed in the publications to be revealed in the context of technostress by re-reading all the studies in the publication database (Braun & Clarke, 2006). Thus, researchers had the opportunity to obtain conceptual and in-depth insights.

3.1. Compilation of Study Data

The PRISMA technique, first announced in 2009 and revised and updated in 2020, was used to guide the choosing and analyzing of sources of data and records, ensuring that the process is transparent, complete, and adds to the value of the research (Moher et al., 2010). Under the "Methods" topic of The PRISMA statement, a flow diagram was developed depending on the checklist's "eligibility criteria" and "information sources" headings, and comprehensive explanations were made under the headings "search strategy", "selection process", "data collection process", "data items", and "synthesis methods".

Web of Science (WoS) and Scopus databases were chosen to create the publication pool in the research. Since these two databases have their own search methods, two sets of query sentences were created separately for both databases. The reason why the query sentences are in the form of "sets" is to avoid leaving any unexamined publications as a result of the query. Because in the literature, "teleworking" can take names such as "remote working", "flexible working", and "homeworking". Similarly, the expression "technostress" can be referred to as "technophobia" in publications. Basically, the words technostress and teleworking, together with all their other names in the literature, were queried in the aforementioned databases by cross-over method, considering all possibilities. The queries were searched in the "TITLE-ABS-KEY" section in the Scopus database and in the "Topic Search (TS)" section in the WoS database. This field corresponds to the "TITLE-ABS-KEY" field in the Scopus database. The necessity of making the queries specific to this field is to choose keyword analysis as the analysis unit of the research. The crossover patterns of the keywords used in both databases are shown in Figure 1.

**Figure 1.** Keyword Sets Used in Query Sentences
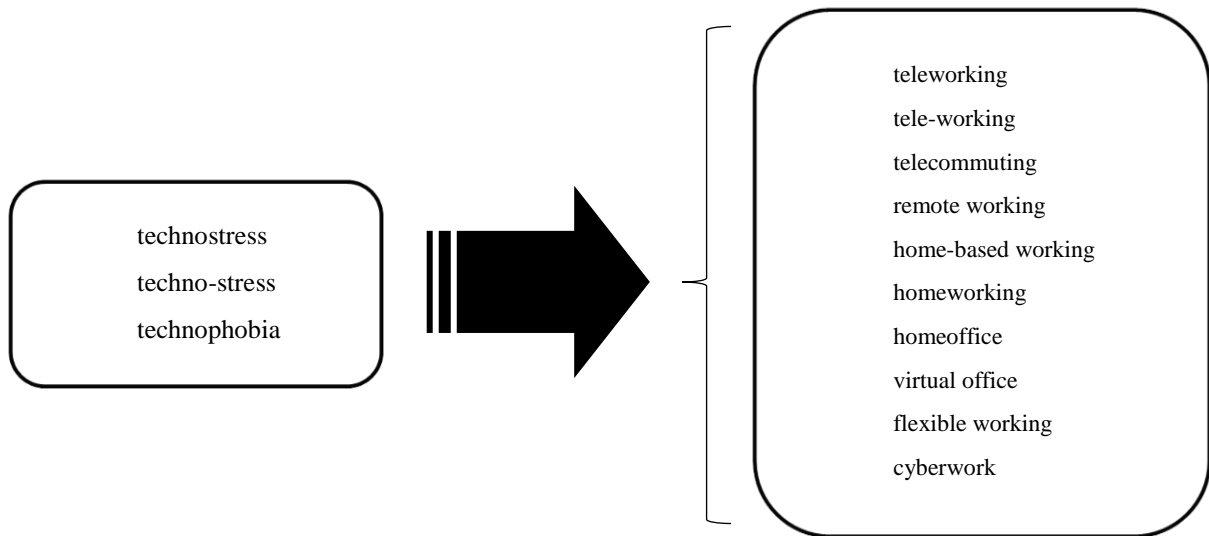
As can be seen from the figure above, the keywords in each set were subjected to an "AND" operation with each keyword in the opposite set, and all the resulting queries were combined with an "OR" operation. An example query sentence for both databases is given below:

For WoS Database: TS=("technostress" AND "teleworking") OR TS=("technostress" AND "teleworking")

For Scopus Database: TITLE-ABS-KEY("techno-stress" AND "teleworking") OR TITLE-ABS-KEY("techno-stress"AND "telecommuting")

As it can be understood from the query sentences, no time interval was included in the search criteria in order to reach all studies. As a result of the search, 31 publications in the WoS database and 30 publications in the Scopus database were obtained. After removing duplicate publications among these publications, it was seen that 32 publications constituted the publication pool of the research. Figure 2 depicts the PRISMA flow diagram.

Figure 2. PRISMA Flow Diagram
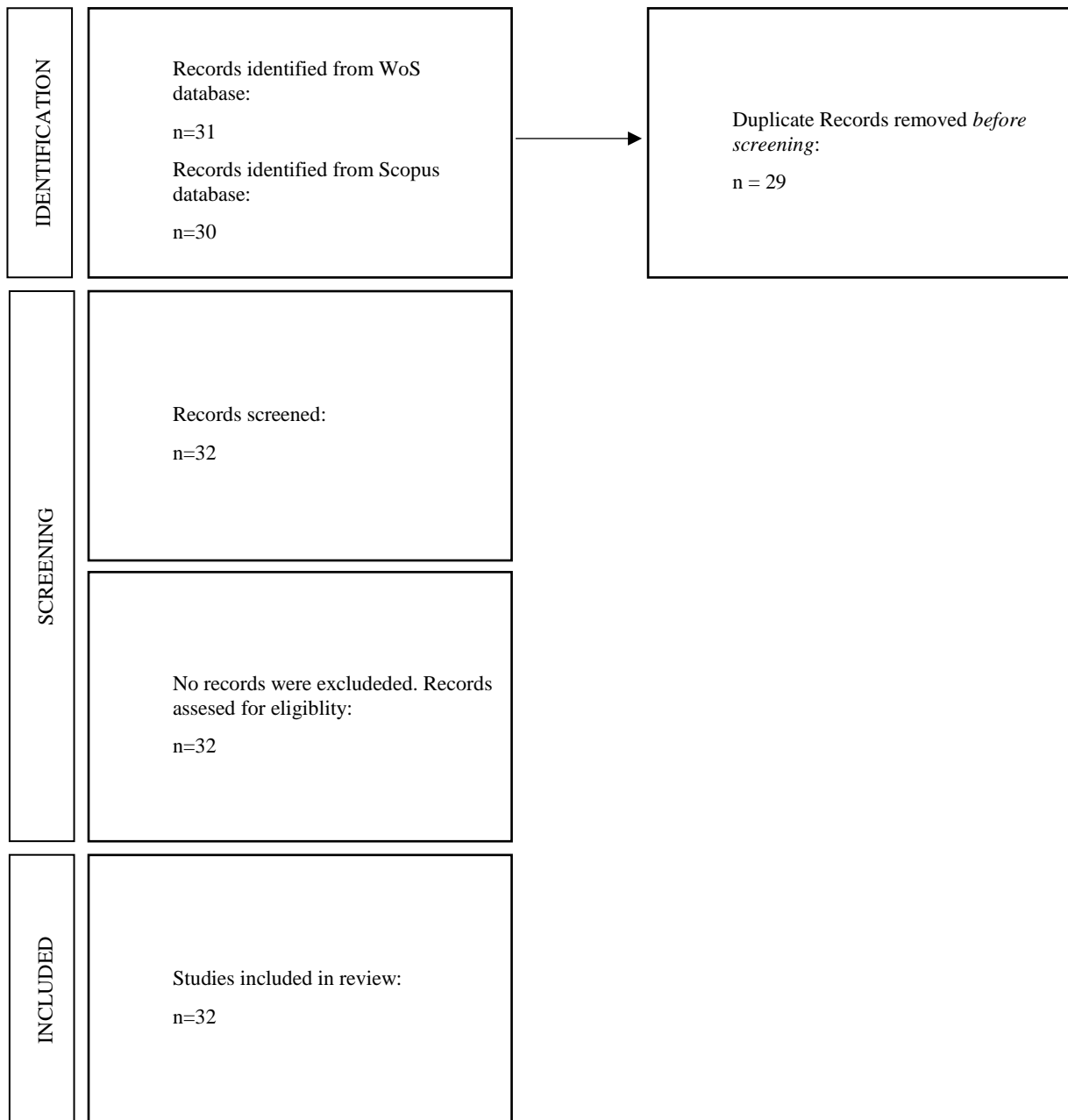
4. FINDINGS

4.1. Performance Analysis

Within the scope of this analysis, the years in which the studies were published and the citations they received, the research methods used in the studies, and the theories and models on which the studies were based were examined. In addition, another issue addressed in various details is the technostress dimensions of these studies that are examined in connection with the purpose of the current research and the contexts in which these dimensions are discussed.

Table 1. Distribution of Publications by Years

Publication Year	Total Publications (f)	Total Citations (f)
2022	15	42
2021	11	171
2020	6	268
Total	**32**	**481**

When Table 1 is examined, it is possible to say that the publications started to take their place in the literature as of 2020 and reached the highest level in 2022 with an increasing research trend. In addition, considering the increase in data, there is a possibility that studies in this field will increase in the coming years. This situation can be associated with the pandemic that emerged all over the world in November 2019. As it is known, the curfews that came with the pandemic and the following understanding of teleworking have led to the emergence of the concept of teleworking in society.

Table 2. Distribution of Publications According to Research Methods Used

Research Method	Total Publications (f)
Quantitative	22
Literature Review	4
Qualitative	3
Mixed	2
Experimental	1
Total	**32**

According to the data in Table 2, it is seen that the most preferred method in publications belongs to the quantitative discipline. Another remarkable finding is that there is a very important difference between the other methods and the number of quantitative method preferences.

Table 3. Distribution of Publications by Theory or Model

The Underlying Theory or Model	Total Publications (f)
No Theory or Model	18
Job Demands-Resources (JD-R) Model	7
Stressor-Strain-Outcome Model	2
Boundary Theory	1
Conservation of Resources Theory	1
Person-Environment Fit Theory	1
Social Exchange Theory	1
Stress Adaptation Theory	1
Transactional Model of Stress and Coping	1
Total	**33**

The findings in Table 3 provide information about the theories and models on which the reviewed studies are based. According to the table, while no model or theory was adopted in 18

publications, the JD-R Model was taken as the basis in seven of the studies. According to this finding, it is possible to say that the JD-R Model is the most referenced model in studies.

4.2. Thematic Content Analysis

With this analysis, the contents of the studies were examined with detailed readings, and answers were tried to be found through these readings. The thematic content analysis for studies examining teleworking and technostress together has been deepened in the focus of individual, organizational and social contexts, based on JD-R Model of Demerouti et al. (2001) and technostress dimensions of Tarafdar et al. (2011).

Table 4. Sub-themes Related to the Individual Context Theme

Individual Context	
Job Demands	Techno-complexity
	Techno-insecurity
Sub-total	14
Job Resources	Information Technology and Teleworking Experience
	Coping with Covid-19 Anxiety
	Psychological Resilience
	Information Technology Awareness
Sub-total	16
Outcomes	Techno-fatigue
	Strain
	Unwell-being
	Mental Health Problems
	Physiological Health Problems
	Burnout
	Workaholism
	Techno-addiction
Sub-total	62
Total	**92**

In Table 4, the classification that emerged as a result of grouping the dimensions revealed in the scope of job demands, job resources, and outcomes on the individual context is given. As a result of this classification, it is possible to say that the frequency of the dimensions handled in the individual context from the publications in the database created for this study is 92.

Table 5. Sub-themes Related to the Organizational Context Theme

| Organizational Context	
Job Demands	Techno-overload Techno-uncertainty
Sub-total	25
Job Resources	Providing Information Technology Infrastructure and Training Support to Teleworkers Effective e-Leadership Family-responsive Human Resource (HR) Policies Flexible Organizational Culture that Supports Teleworking Providing Organizational Support to Establish a Safety and Healthy Workspace for Teleworking Autonomous Job Design for Teleworking Healthy Intra-organizational Communication in Teleworking Providing Organizational Support for the Development of Teleworkers' Sustainable Change, Time and Stress Management Skills Organizational Justice in Performance, Reward and Career Management for Teleworking Satisfactory Pay and Benefits for Teleworking
Sub-total	60
Outcomes	Job Satisfaction Problems Performance and Productivity Problems Decreasing Intention to Continue Teleworking and Increasing Turnover Intention Increasing Counterproductive Work Behaviors Organizational Problems related to Career Uncertainty Organizational Commitment Problems
Sub-total	33
Total	**118**

Table 5 shows the classification formed by bringing together the dimensions of technostress associated with teleworking, which form the basis of this study, in the organizational context. In this direction, it has been determined that the frequency of dimensions in the organizational context is 118 in the aforementioned publications. This result is also interesting in that it is higher than both the individual context and the social context as will be indicated in the next table. It can be said that the focus of the studies included in the publication database of this study on the dimensions of technostress associated with teleworking is mostly on the organizational dimension.

Table 6. Sub-themes Related to the Social Context Theme

Social Context	
Job Demands	Techno-complexity
Sub-total	16
Job Resources	Social Policies to Provide Work-Family-Life Balance Social Policies to Provide Women, Youth and the Elderly with the Necessary Support to Improve Their Teleworking Experience Social Policies to Prevent Techno-stressors
Sub-total	7
Outcomes	Work-Family-Life Conflict Decreasing Social Support and Life Satisfaction as a Result of Social Isolation Experiences due to COVID-19 Increasing Role Conflicts in Society Unhealthy Social Communication, Relationships and Decision Making
Sub-total	25
Total	**48**

Table 6 provides information on the placement of dimensions of technostress associated with teleworking within the scope of job demands, job resources, and outcomes under the heading of social context. The frequency of the relevant dimensions in the social context was found to be 48.

Figure 3. VOSviewer Output of Relationships Between Publications Based on Keywords
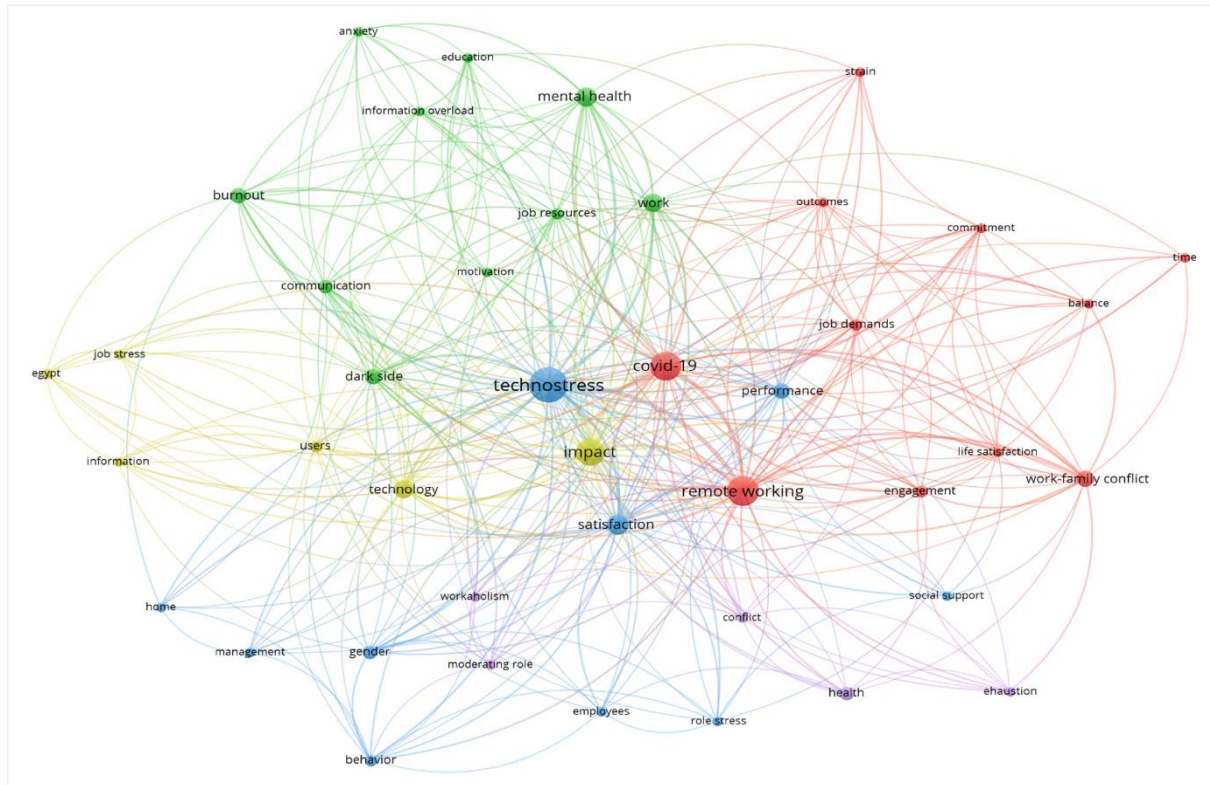
The visual in Figure 3, obtained from the VOSviewer software (version 1.6.18, 2022) and showing the relationships based on keyword frequency between the publications, supports the findings of the study. The image shows the circles with the most frequently highlighted keywords relatively larger than the other circles. Accordingly, it is observed that the keywords technostress, teleworking, impact, Covid-19, satisfaction, mental health, work-family conflict, performance, technology, dark side, and burnout are the most frequently studied for these studies. This finding obtained from the image supports the findings obtained from both performance analysis and thematic content analysis. In addition, another remarkable finding is that studies on job resources, job demands, and outcomes keywords are less common than other keywords. From this finding, it can be concluded that it is an appropriate approach to address the outcomes of teleworking on technostress under the headings of job resources and demands in individual, organizational and social contexts in this study.

5. DISCUSSION AND CONCLUSION

Understanding the dynamics of teleworking, which has attracted great interest in terms of ensuring business sustainability in the recent Covid-19 pandemic, is of critical importance on both theoretical and practical basis, due to its potential to be an integral part of the digital working model of the future. In this study, researches examining teleworking and technostress together were reviewed and

integrated in a multi-level manner from the perspective of OB. As a result of the analysis, a holistic analysis with individual, organizational and social contexts was revealed in parallel with the interrelated micro, meso and macro analysis levels within the framework of the JD-R Model.

Before proceeding to the general evaluation of the research results, it should be underlined that no restrictions such as year, country, sector, profession, theory, and research method are placed in the search carried out on the relevant databases for the purpose. As a result of scanning with sets of query sentences on the basis of keywords, it was seen that the publications within the data set cover the COVID-19 pandemic period and beyond. It has been determined that quantitative methods are mostly used in the mentioned publications. In addition, in the examination made in terms of the theoretical foundations of the publications, it was noted that the model with the highest frequency was the JD-R Model. It can be said that this finding is in line with the findings of researchers such as Nakrošienė et al. (2019) and Wang et al. (2022), who pointed out that the JD-R Model is the most common model used to evaluate the effects of teleworking.

The thematic content analysis for studies examining teleworking and technostress together has been deepened in the focus of individual, organizational and social contexts, based on JD-R Model of Demerouti et al. (2001) and technostress dimensions of Tarafdar et al. (2011). In this context, it has been seen that technostress dimensions come to the fore as job demands. This finding is consistent with the findings of Califf et al. (2020) and Wang et al. (2017). Among the five dimensions of technostress, techno-complexity on the basis of lack of technological skills and techno-insecurity on the basis of the employee's anxiety of losing their job to someone who knows technology better than themselves create job demands reflecting individual tendencies. Techno-overload dimension that creates the feeling of working harder and faster, and the techno-uncertainty experienced due to the high rate of change in technologies are organizational-based job demands. Techno-invasion dimension of technostress, which violates the work-family boundaries, is the social-based job demands.

The main and sub-theme groupings at micro, meso and macro analysis levels of job resources that suppress the negative effects of teleworking and technostress are as follows: Four job resources have emerged at the individual level. These are (1) Information technology and teleworking experience, (2) Coping with Covid-19 anxiety, (3) Psychological resilience, and (4) Information technology awareness. At the organizational level, ten job resources have emerged. These are (1) Providing information technology infrastructure and training support to teleworkers, (2) Effective e-leadership, (3) Family-responsive human resource (HR) policies, (4) Flexible organizational culture that supports teleworking, (5) Providing organizational support to establish a safety and healthy workspace for teleworking, (6) Autonomous job design for teleworking, (7) Healthy intra-organizational communication in teleworking, (8) Providing organizational support for the development of teleworkers' sustainable change, time, and stress management skills, (9) Organizational justice in performance, reward, and career management for teleworking, and (10) Satisfactory pay and benefits

for teleworking. At the social level, three job resources emerged. These are (1) Social policies to provide work-family-life balance, (2) Social policies to provide women, youth, and the elderly with the necessary support to improve their teleworking experience, and (3) Social policies to prevent techno-stressors. At this point, Ollo-López et al. (2021), who examined the usefulness of teleworking on the basis of individual, organizational, and country level factors, emphasized that a participatory organizational culture encourages teleworking. They also stated that Science, Technology, Engineering, Mathematics (STEM) education applications for women can facilitate teleworking. On the other hand, they also drew attention to the importance of issues such as strengthening the information and communication technology infrastructure with both public and private sector investments, the transition to the fifth generation mobile network technologies, the provision of cyber security, the handling of technostress related to teleworking as an occupational health and safety risk, and the making of necessary public regulations regarding the issue in terms of dissemination of teleworking. Belzunegui-Eraso and Erro-Garcés (2020) also listed the factors explaining the teleworking application as individual (personality and situation), organizational (strategy and culture), job (nature and technology), home and family, and environmental (safety, and legal). On the other hand, in the study in which Afshari et al. (2022) used the JD-R Model, emphasizing that employees must cope with intense job demands in a rapidly changing environment due to serious resource losses experienced during the Covid-19 crisis, it was found that the mediating role of perceived organizational support mitigated the negative effects of job demands on employee outcomes. Engelsberger et al. (2022) also emphasized the importance of organizations creating an environment that encourages relational dynamics among employees in order to achieve strategic goals in the presence of virtual work environments such as telework and unpredictable work conditions.

The main and sub-theme groupings related to individual, organizational, and social outcomes of teleworking and technostress are determined as follows: There are eight outcomes at the individual level. These are (1) Techno-fatigue, (2) Strain, (3) Unwell-being, (4) Mental health problems, (5) Physiological health problems, (6) Burnout, (7) Workaholism, and (8) Techno-addiction. There are six outcomes at the organizational level. These are (1) Job satisfaction problems, (2) Performance and productivity problems, (3) Decreasing intention to continue teleworking and increasing turnover intention, (4) Increasing counterproductive work behaviors, (5) Organizational problems related to career uncertainty, and (6) Organizational commitment problems. At the social level, four outcomes were found. These are (1) Work-family-life conflict, (2) Decreasing social support and life satisfaction as a result of social isolation experiences due to Covid-19, (3) Increasing role conflicts in society, and (4) Unhealthy social communication, relationships, and decision making. The main findings of the study by Erro-Garcés et al. (2022), in which the effect of telework experience on well-being through structural equation modeling, both directly and through work-life balance, and job satisfaction confirm the impact of a positive telework experience on perceived well-being only indirectly through work-life balance.

López Peláez et al. (2021) also emphasized that occupational risks of psychosocial nature should be faced especially for employee well-being by drawing attention to factors such as stress, mental health, ergonomics and workload within the scope of occupational risks of teleworking. The study also underlined the critical importance of understanding the social challenges arising from the increase in teleworking practices in terms of business sustainability and employee health and safety.

In summary, it can be stated that the results of the relationship analysis based on keyword frequency, performance analysis and thematic content analysis carried out within the scope of the current research are consistent with each other. At this point, the findings of the research have revealed that technostress poses a dark side to teleworking as an OB challenge stemming from the Covid-19 pandemic. This study contributes to the relevant literature and practice both in this aspect and on the basis of being such a comprehensive and comparative research on the subject. On the other hand, the fact that the data set of the research consists of 32 publications can be seen as a limitation. However, despite the fact that no year, country, industry, profession, theory, or research method limitations were set in the search made on the WoS and the Scopus databases, such a result was encountered due to the fact that the technostress issue of teleworking, which was focused on, was relatively new on the basis of its widespread use with the Covid-19 pandemic. In addition, within the scope of the thematic content analysis, 32 publications were examined one by one with meticulous effort. Therefore, it can be said that the number of related publications is ideal. In future studies, other databases can be searched to present comparative perspectives. In addition to the quantitative trend seen in research trends, integrated mixed method studies including qualitative designs can be carried out in order to present more in-depth inferences on the subject. Moreover, more empirical research is needed, more specifically from the perspectives of employees, due to the critical importance of teleworking applications increasing with the Covid-19 pandemic in future work style scenarios based on digitalization trends in business life. In this context, the potential of the increasing use of digital technology to facilitate and threaten decent work can be revealed through research conducted with different types of digital workers (Nash et al., 2018), such as gig workers and digital nomads. Thus, the aspects of technology that enable and constrain decent digital work can be evaluated based on their effects on different types of digital workers.

In terms of practical implications, teleworking designs should be designed considering that sustainable work in the digital age requires innovative and digital skills. In this context, priority should be given to issues such as investing in teleworking technologies and equipment and providing organizational support during the design of employees' home environments as workspaces. In addition, offering individualized teleworking arrangements to highly skilled creative personnel through idiosyncratic deals (i-deals) (Rousseau, 2005) will be a human resources practice that will encourage the flexible and innovative working system of the 21st century. In addition to all these, there is a need to support technology literacy, digital skills training and digital citizenship with social policies in order to turn the teleworking application, which has become widespread on the basis of a threat perception

such as the Covid-19 pandemic, into an opportunity as the future working style. Moreover, it is important to include technostress connected to teleworking within the scope of occupational health and safety legislation, such as the ISO 45003:2021 "Occupational health and safety management - Psychological health and safety at work - Guidelines for managing psychosocial risks" standard, especially in the scope of SDG 3, in terms of outcomes for employee well-being. Thus, strategies and policies that will form the basis for the implementation of advancing OB innovations and interventions that care about employees will be able to be created in order to support the health of the workforce, especially in working environments that have become more stressful and challenging conditions due to the use of technology.

REFERENCES

Afshari, L., Hayat, A., Ramachandran, K. K., Bartram, T., and Balakrishnan, B. K. P. D. (2022). Threat or opportunity: Accelerated job demands during COVID-19 pandemic. *Personnel Review, 51*(9), 2482-2501.

Akyol, A. (2023). Çalışanların teknostres algıları ile işkoliklik düzeyleri arasındaki ilişkiler. *Üçüncü Sektör Sosyal Ekonomi Dergisi, 58*(2), 1635-1662.

Allen, T. D., Golden, T. D., and Shockley, K. M. (2015). How effective is telecommuting? Assessing the status of our scientific findings. *Psychological Science in the Public Interest, 16*(2), 40-68.

Anuar, A., Marwan, N. F., Smith, J., Siriyanun, S., and Sharif, A. (2022). Bibliometric analysis of immigration and environmental degradation: Evidence from past decades. *Environ Sci Pollut Res Int, 29*(9), 13729-13741. https://doi.org/10.1007/s11356-021-16470-1

Arslan, A., Yener, S., Korkmaz, F., and Alola, U. V. (2022). Caught unprepared: Consequences of getting full online during a pandemic. *Revista de Cercetare si Interventie Sociala, 77*, 66-88.

Baker, H. K., Kumar, S., and Pandey, N. (2020). A bibliometric analysis of managerial finance: A retrospective. *Managerial Finance, 46*(11), 1495-1517.

Baker, H. K., Pandey, N., Kumar, S., and Haldar, A. (2020). A bibliometric analysis of board diversity: Current status, development, and future research directions. *Journal of Business Research, 108*, 232-246.

Bakker, A. B., Demerouti, E., and Verbeke, W. (2004). Using the job demands-resources model to predict burnout and performance. *Human Resource Management: Published in Cooperation with the School of Business Administration, The University of Michigan and in alliance with the Society of Human Resources Management, 43*(1), 83-104.

Baycık, G., Yangın, D. D., Yay, O., and Doğan, S. (2021). COVID-19 pandemisinde uzaktan çalışma: Tespit ve öneriler. *Çalışma ve Toplum, 3*(70), 1683-1728.

Belzunegui-Eraso, A., and Erro-Garcés, A. (2020). Teleworking in the context of the COVID-19 crisis. *Sustainability, 12*(9), 3662.

Braun, V., and Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101.

Broadus, R. N. (1987). Toward a definition of "bibliometrics". *Scientometrics, 12*(5), 373-379. https://doi.org/10.1007/BF02016680

Burton, B., Kumar, S., and Pandey, N. (2020). Twenty-five years of The European Journal of Finance (EJF): A retrospective analysis. *The European Journal of Finance, 26*(18), 1817-1841.

Califf, C. B., Sarker, S., and Sarker, S. (2020). The bright and dark sides of technostress: A mixed-methods study involving healthcare IT. *MIS Quarterly, 44*(2).

Camacho, S., and Barrios, A. (2022). Teleworking and technostress: Early consequences of a COVID-19 lockdown. *Cognition, Technology & Work, 24*, 441-457.

Cavalcante, W. Q. D., Coelho, A., and Bairrada, C. M. (2021). Sustainability and tourism marketing: A bibliometric analysis of publications between 1997 and 2020 using VOSviewer software. *Sustainability, 13*(9), 4987. https://doi.org/10.3390/su13094987

Chakraborty, A., and Kar, A. K. (2021). How did COVID-19 impact working professionals-a typology of impacts focused on education sector. *The International Journal of Information and Learning Technology, 38*(3), 273-282.

Çelebi Demir, D. (2023). Uzaktan çalışma ilişkisinin sosyal güvenlik hukuku bakımından değerlendirilmesi. *Marmara Üniversitesi Hukuk Fakültesi Hukuk Araştırmaları Dergisi, 29*(1), 596-625.

Demerouti, E., Bakker, A. B., Nachreiner, F., and Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology, 86*(3), 499-512.

Diodato, V. P., and Gellatly, P. (2013). *Dictionary of bibliometrics.* Routledge.

Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., and Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research, 133*, 285-296. https://doi.org/https://doi.org/10.1016/j.jbusres.2021.04.070

Elizalde, R. R. (2021). Techno-stress: Damage caused by new emerging risks. *Laws, 10*(3), 67.

Elrayah, M. (2021). Using a decent working environment, international working practices, and advanced technologies to mitigate labor risk of COVID-19 pandemic. *International Journal of Research in Social Sciences, 11*(06), 20-32.

Emich, K. J., Kumar, S., Lu, L., Norder, K., and Pandey, N. (2020). Mapping 50 years of small group research through small group research. *Small Group Research, 51*(6), 659-699.

Engelsberger, A., Bartram, T., Cavanagh, J., Halvorsen, B., and Bogers, M. (2022). The role of collaborative human resource management in supporting open innovation: A multi-level model. *Human Resource Management Review, (ahead-of-print).* 100942.

Erro-Garcés, A., Urien, B., Čyras, G., and Janušauskienė, V. M. (2022). Telework in Baltic countries during the pandemic: Effects on wellbeing, job satisfaction, and work-life balance. *Sustainability, 14*(10), 5778.

Eurofound and the International Labour Office (2017). *Working anytime, anywhere: The effects on the world of work.* Publications Office of the European Union, Luxembourg, and the International Labour Office. Geneva. http://eurofound.link/ef1658

Gálvez, A., Tirado, F., and Martínez, M. J. (2020). Work-life balance, organizations and social sustainability: Analyzing female telework in Spain. *Sustainability, 12*(9), 3567.

Golden, T. D., Veiga, J. F., and Simsek, Z. (2006). Telecommuting's differential impact on work-family conflict: Is there no place like home? *Journal of Applied Psychology, 91*(6), 1340.

Guo, Y. M., Huang, Z. L., Guo, J., Li, H., Guo, X. R., and Nkeli, M. J. (2019). Bibliometric analysis on smart cities research. *Sustainability, 11*(13), 3606. https://doi.org/10.3390/su11133606

Homberg, F., and Vogel, R. (2016). Human resource management (HRM) and public service motivation (PSM): Where are we, and where do we go from here? *International Journal of Manpower, 37*(5), 746-763. https://doi.org/10.1108/Ijm-05-2016-0120

Izzo, F., Mele, S., and Mustilli, M. (2022). University to work transition: A literature review. *International Journal of Manpower, 14*. https://doi.org/10.1108/Ijm-07-2021-0398

Jaiswal, A., Sengupta, S., Panda, M., Hati, L., Prikshat, V., Patel, P., and Mohyuddin, S. (2022). Teleworking: Role of psychological well-being and technostress in the relationship between trust in management and

employee performance. *International Journal of Manpower, (ahead-of-print).* https://doi.org/10.1108/IJM-04-2022-0149

Jotabá, M. N., Fernandes, C. I., Gunkel, M., and Kraus, S. (2022). Innovation and human resource management: A systematic literature review. *European Journal of Innovation Management, 25*(6), 1-18.

Kasemy, Z. A., Sharif, A. F., Barakat, A. M., Abdelmohsen, S. R., Hassan, N. H., Hegazy, N. N., Sharfeldin, A. Y., El-Ma'doul, A. S., Alsawy, K. A., and Shereda, H. M. A. (2022). Technostress creators and outcomes among Egyptian medical staff and students: A multicenter cross-sectional study of remote working environment during COVID-19 pandemic. *Frontiers in Public Health, 10*, 796321.

Khedhaouria, A., Montani, F., Jamal, A., and Shah, M. H. (2024). Consequences of technostress for users in remote (home) work contexts during a time of crisis: The buffering role of emotional social support. *Technological Forecasting and Social Change, 199*, 123065.

Kuzior, A., and Sira, M. (2022). A bibliometric analysis of blockchain technology research using VOSviewer. *Sustainability, 14*(13), 8206. https://doi.org/10.3390/su14138206

Lapierre, L. M., and Allen, T. D. (2006). Work-supportive family, family-supportive supervision, use of organizational benefits, and problem-focused coping: Implications for work-family conflict and employee well-being. *Journal of Occupational Health Psychology, 11*(2), 169-181.

Liao, H. C., Tang, M., Luo, L., Li, C. Y., Chiclana, F., and Zeng, X. J. (2018). A bibliometric analysis and visualization of medical big data research. *Sustainability, 10*(1), 166. https://doi.org/10.3390/su10010166

López Peláez, A., Erro-Garcés, A., Pinilla García, F. J., and Kiriakou, D. (2021). Working in the 21st century. The coronavirus crisis: A driver of digitalisation, teleworking, and innovation, with unintended social consequences. *Information, 12*(9), 377.

Madsen, S. R. (2003). The effects of home-based teleworking on work-family conflict. *Human Resource Development Quarterly, 14*(1), 35-58.

Marsh, E., Vallejos, E. P., and Spence, A. (2022). The digital workplace and its dark side: An integrative review. *Computers in Human Behavior, 128*, 107118.

Moglia, M., Hopkins, J., and Bardoel, A. (2021). Telework, hybrid work and the United Nation's Sustainable Development Goals: Towards policy coherence. *Sustainability, 13*(16), 9222.

Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., and Prisma Group. (2010). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *International Journal of Surgery, 8*(5), 336-341.

Molino, M., Ingusci, E., Signore, F., Manuti, A., Giancaspro, M. L., Russo, V., Zito, M., and Cortese, C. G. (2020). Wellbeing costs of technology use during COVID-19 remote working: An investigation using the Italian translation of the technostress creators scale. *Sustainability, 12*(15), 5911.

Morganson, V. J., Major, D. A., Oborn, K. L., Verive, J. M., and Heelan, M. P. (2010). Comparing telework locations and traditional work arrangements: Differences in work-life balance support, job satisfaction, and inclusion. *Journal of Managerial Psychology, 25*(6), 578-595.

Nakrošienė, A., Bučiūnienė, I., and Goštautaitė, B. (2019). Working from home: Characteristics and outcomes of telework. *International Journal of Manpower, 40*(1), 87-101.

Nash, C., Jarrahi, M. H., Sutherland, W., and Phillips, G. (2018, March). Digital nomads beyond the buzzword: Defining digital nomadic work and use of digital technologies. In *International conference on information* (pp. 207-217). Cham: Springer International Publishing.

Nilles, J. M. (1997). Telework: Enabling distributed organizations: Implications for IT managers. *Information Systems Management, 14*(4), 7-14.

Ollo-López, A., Goñi-Legaz, S., and Erro-Garcés, A. (2021). Home-based telework: Usefulness and facilitators. *International Journal of Manpower, 42*(4), 644-660.

Pigini, C., and Staffolani, S. (2019). Teleworkers in Italy: Who are they? Do they make more? *International Journal of Manpower, 40*(2), 265-285.

Piwowar-Sulej, K., Wawak, S., Tyranska, M., Zakrzewska, M., Jarosz, S., and Soltysik, M. (2022). Research trends in human resource management. A text-mining-based literature review. *International Journal of Manpower, 21*. https://doi.org/10.1108/Ijm-03-2021-0183

Ramos-Rodríguez, A. R., and Ruíz-Navarro, J. (2004). Changes in the intellectual structure of strategic management research: A bibliometric study of the Strategic Management Journal, 1980-2000. *Strategic Management Journal, 25*(10), 981-1004.

Rousseau D. M. (2005). *I-deals: Idiosyncratic deals employees bargain for themselves.* New York, NY: M. E. Sharpe.

Sustainable Development Goals (SDGs). United Nation. Retrieved on: 03.10.2022, from: https://sdgs.un.org/goals

Shah, S. H. H., Lei, S., Ali, M., Doronin, D., and Hussain, S. T. (2019). Prosumption: Bibliometric analysis using HistCite and VOSviewer. *Kybernetes, 49*(3), 1020-1045.

Singh, P., Bala, H., Dey, B. L., and Filieri, R. (2022). Enforced remote working: The impact of digital platform-induced stress and remote working experience on technology exhaustion and subjective wellbeing. *Journal of Business Research, 151*, 269-286.

Singh, V., Verma, S., and Chaurasia, S. (2021). Intellectual structure of multigenerational workforce and contextualizing work values across generations: A multistage analysis. *International Journal of Manpower, 42*(3), 470-487. https://doi.org/10.1108/Ijm-04-2019-0207

Tamala, J. K., Maramag, E. I., Simeon, K. A., and Ignacio, J. J. (2022). A bibliometric analysis of sustainable oil and gas production research using VOSviewer. *Cleaner Engineering and Technology, 7*, 100437.

Tarafdar, M., Tu, Q., Ragu-Nathan, B. S., and Ragu-Nathan, T. (2007). The impact of technostress on role stress and productivity. *Journal of Management Information Systems, 24*(1), 301-328.

Tarafdar, M., Tu, Q., Ragu-Nathan, T., and Ragu-Nathan, B. S. (2011). Crossing to the dark side: Examining creators, outcomes, and inhibitors of technostress. *Communications of the ACM, 54*(9), 113-120.

Türen, U., Erdem, H., and Kalkın, G. (2015). İş yerinde tekno-stres ölçeği: Havacılık ve bankacılık sektöründe bir araştırma. *Çalışma İlişkileri Dergisi, 6*(1), 1-19.

Tutar, H., and Mutlu, H. T. (2024). Dijital yorgunluk ölçeği (DİYÖ): Geçerlilik ve güvenirlik çalışması. *İletişim Kuram ve Araştırma Dergisi,* (67, Yaz), 56-74. https://doi.org/10.47998/ikad.1426571

Van Eck, N. J., Waltman, L., Dekker, R., and Van Den Berg, J. (2010). A comparison of two techniques for bibliometric mapping: Multidimensional scaling and VOS. *Journal of the American Society for Information Science and Technology, 61*(12), 2405-2416.

VOSviewer. Visualizing scientific landscapes [Internet]. VOSviewer version 1.6.18; January 24, 2022. Retrieved October 3, 2022, from https://www.vosviewer.com/

Wang, H., Ding, H., and Kong, X. (2022). Understanding technostress and employee well-being in digital work: The roles of work exhaustion and workplace knowledge diversity. *International Journal of Manpower, (ahead-of-print).* https://doi.org/10.1108/IJM-08-2021-0480

Wang, W., Kakhki, M. D., and Uppala, V. (2017). *The interaction effect of technostress and non-technological stress on employees' performance.* Twenty-third Americas Conference on Information Systems (AMCIS), Boston.

Weinert, C., Maier, C., Laumer, S., and Weitzel, T. (2014). *Does teleworking negatively influence IT professionals? An empirical analysis of IT personnel's telework-enabled stress.* In Proceedings of the 52nd ACM Conference on Computers and People Research, 139-147.

Wöhrmann, A. M., and Ebner, C. (2021). Understanding the bright side and the dark side of telework: An empirical analysis of working conditions and psychosomatic health complaints. *New Technology, Work and Employment, 36*(3), 348-370.

Zakaria, R., Ahmi, A., Ahmad, A. H., and Othman, Z. (2021). Worldwide melatonin research: A bibliometric analysis of the published literature between 2015 and 2019. *Chronobiology International, 38*(1), 27-37. https://www.tandfonline.com/doi/full/10.1080/07420528.2020.1838534

Zhang, P., Du, Y. J., Han, S. J., and Qiu, Q. G. (2022). Global progress in oil and gas well research using bibliometric analysis based on VOSviewer and CiteSpace. *Energies, 15*(15), 5447. https://doi.org/10.3390/en15155447

Zupic, I., and Čater, T. (2015). Bibliometric methods in management and organization. *Organizational research methods, 18*(3), 429-472.