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A bibliometric analysis of psychological burnout and emotional exhaustion among remote employees during Covid-19

Maria Stathopoulou^{*}, Ioannis Antoniadis[†], Panagiotis Serdaris[‡]

Abstract

This study analyzed 165 scientific papers from Scopus spanning the years 2005 to 2023 to understand how remote work affects people's mental well-being. The researchers focused on keywords like Covid-19, Burnout, and Mental Health to guide their investigation. They found that research on remote work's impact has significantly increased following the Covid-19 pandemic, emphasizing how the global health crisis has worsened work burnout and emotional exhaustion. The study also considered various aspects of mental health, providing a comprehensive perspective. The report sheds light on the important contributions made by influential authors and institutions from different countries. The United States stands out in this area due to its significant influence in the global labor market and the widespread issue of psychological burnout in remote work. The researchers evaluated key publications, such as the work by Sardeshmukh et al. on telecommuting and job engagement, and conducted an analysis of research trends, types of papers, and citation patterns. They identified the Journal of Applied Psychology as a valuable source of information. Visual representations created with VOSviewer helped to simplify complex networks and themes, revealing patterns of co-citations and collaborative efforts. The study emphasizes the need for targeted measures to promote the mental well-being of remote workers, especially considering the amplifying effects of the Covid-19 pandemic. This comprehensive analysis aims to assist scholars, practitioners, and policymakers in developing strategies to build a resilient, satisfied, and productive remote workforce on a global scale.

JEL classifications: M10, I31

Keywords: Telework, work from home, burnout, emotional exhaustion, scopus

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1. Introduction

With the rise of remote employment, the modern work landscape has undergone fundamental changes, generating a surge in research on its implications for psychological well-being. This bibliometric study uses the VOSviewer program (Van Eck & Waltman, 2018) to methodically analyze 165 scientific papers collected from the Scopus database from 2005 to 2023.

Our findings reveal a clear increase in research on the topic of remote work burnout, especially after the Covid-19 pandemic. The complex interplay of these phrases emphasizes the multidimensional dynamics of remote work, psychological stress, and the complicated fabric of organizational systems. Notably, phrases directly associated with the Covid-19 phenomena are strongly linked to burnout and emotional tiredness, thus underscoring the pandemic's catalytic function in magnifying these frequent workplace concerns. Furthermore, the prominence of terms such as Mental Health and Well-Being indicates a broader breadth of scholarly investigation and a more comprehensive understanding of the diverse issues that remote employees face. In addition to constructing the theme landscape, this analysis highlights notable authors, institutions, and countries that make substantial contributions to the developing research landscape. These revelations go beyond simple statistical representations, shedding light on collaborative networks and the global distribution of scientific pursuits. At the same time, the dense web of citations reveals significant publications that have affected subsequent research trajectories, revealing the evolution of thought on this topic.

This bibliometric investigation highlights the United States' preeminence as a true powerhouse of research output in the subject, matching its broader role as a pioneer in labor dynamics. The ranking of nations with significant contributions attests to the global relevance of psychological burnout and emotional weariness in the context of distant work arrangements, emphasizing their importance for public health and worker productivity on a global scale. The study digs further into the most cited works on the subject, with Sardeshmukh, Sharma, and Golden's (2012) piece titled "Impact of telework on exhaustion and job engagement: A job demands and job resources model" emerging as an important work that has attracted significant attention. This finding demonstrates the importance of shaping the debate on remote worker burnout. Furthermore, the analysis provides insights into the evolution of research output by year, the wide range of document types that contribute to this discourse, and complicated citation patterns across several sources. The Journal of Applied Psychology has emerged as a cornerstone, with papers frequently cited in scholarly discourse.

Our study includes visuals produced by the VOSviewer program, which makes complex interactions and networks understandable. These graphs illustrate co-citation patterns, collaborative networks, and theme clusters, allowing for a more nuanced perspective of the scientific landscape. Finally, this extensive bibliometric study provides a full picture of the numerous characteristics of psychological burnout and emotional tiredness in the context of distant labor. The findings highlight the importance of targeted interventions and support mechanisms in addressing the mental health difficulties faced by remote workers, with the Covid-19 epidemic acting as a magnifying factor. As remote work

paradigms evolve, this analysis may serve as a comprehensive resource for scholars, practitioners, and policymakers seeking to develop strategies to support remote employee well-being and to create a resilient, happy, and productive remote workforce on a global scale.

2. Related and background work

Teleworking is a recent working practice that has changed employees' working habits and had negative effects on their well-being, such as physical ailments like back pain, eye strain, and reduced social interaction. Conversely, it has also been acknowledged as a means of reducing face-to-face contact, stress, and anxiety among workers while improving their output (Kakar, et al, 2023). Furthermore, according to Costin A, et al. (2023), working remotely led to employees feeling less connected with their organization and colleagues, which resulted in social isolation. However, engaging in decision-making fostered feelings of control and reduced burnout. Additionally, remote work intensified tensions between work and life balance during the COVID-19 pandemic. Recent studies suggest that employees' response to job demands is influenced by the resources available to them. If employees experience increased job demands without receiving the expected level of support, they are more likely to experience burnout and have a higher intention to leave (Afshari et al., 2022). Additionally, recent research has shown that organizational support can increase job satisfaction and reduce burnout, withdrawal, and turnover intention.

2.1 Most cited articles on remote workers' burn out

Interest in teleworking burnout has recently increased notably due to the rise in teleworking resulting from the pandemic. The impact of a publication is determined by its number of reports. To comprehend the intellectual dynamics of the field, we analyze the most influential publications in a research field. Table 1 discloses the articles with the most citations from the collection. The outcomes indicate that the article of the highest impact is Sardeshmukh, Sharma, and Golden's (2012) piece titled "Impact of telework on exhaustion and job engagement: A job demands and job resources model" emerging as an important work that has attracted significant attention, reached 230 citations. This finding demonstrates the importance of shaping the debate on remote worker burnout.

Based on highly cited articles, it is estimated that Sardeshmukh, Sharma, and Golden's (2012) research primarily focused on examining the impact of work demands and resources in order to comprehend the mechanisms by which teleworking influences teleworker exhaustion and engagement. Furthermore, Chong et al, (2020) investigated how teleworking employees respond to complex demands and regulate their work conduct while working from home. Based on Hobfoll's (1989) conservation of resources (COR) theory, they propose a moderated mediation model with two stages, positing that daily COVID-19 task setbacks act as stressors that would initiate a resource depletion process and, hence, are positively associated with the employee's end-of-day emotional exhaustion. Work engagement reduces the perception of work-life imbalance. Remote working has led

to increased work-related fatigue and may result in physical and emotional exhaustion for home-based teleworkers. Palumbo's (2020) article explores the impact of remote working on work-life balance, with a specific focus on the mediating effects of work engagement and work-related fatigue. The rest of the articles mentioned above refer to the relationship between remote working, emotional exhaustion and burnout, how it is caused and how it is treated.

Table 1: Most cited articles on remote workers' burn out

DocumentTitle	Authors	Journal Title	TotalCitations
Impact of telework on exhaustion and job engagement: A job demands and job resources model	Sardeshmukh S.R., Sharma D., Golden T.D.	New Technology, Work and Employment	230
Supporting interdependent telework employees: A moderated-mediation model linking daily COVID-19 task setbacks to next-day work withdrawal.	Chong S., Huang Y., Chang C.-H.D.	Journal of Applied Psychology	172
Let me go to the office! An investigation into the side effects of working from home on work-life balance	Palumbo R.	International Journal of Public Sector Management	148
Coping With Stress and Burnout Associated With Telecommunication and Online Learning	Mheidly N., Fares M.Y., Fares J.	Frontiers in Public Health	108
Not Extent of Telecommuting, but Job Characteristics as Proximal Predictors of Work-Related Well-Being	Vander Elst T., Verhoogen R., Sercu M., Van Den Broeck A., Baillien E., Godderis L.	Journal of Occupational and Environmental Medicine	90
Pandemic burnout is rampant in academia	Gewin V.	Nature	77
Involuntary vs. voluntary flexible work: insights for scholars and stakeholders	Kaduk A., Genadek K., Kelly E.L., Moen P.	Community, Work and Family	71
Psychological impacts of the new ways of working (NWW): A systematic review	Kotera Y., Vione K.C.	International Journal of Environmental Research and Public Health	54
The role of leisure crafting for emotional	Abdel Hadi S.,	Anxiety, Stress	50

exhaustion in telework during the COVID-19 pandemic	Bakker A.B., Hausser J.A.	and Coping	
Challenges for work–life balance during COVID-19 induced nationwide lockdown: exploring gender difference in emotional exhaustion in the Indian setting	Bhumika, B.	Gender in Management	49

3. Material and method

Bibliometric analysis is a popular and accurate approach for inspecting and analyzing vast amounts of scientific data. This method is aimed to comprehend the interconnection of journal citations and summarize the existing situation in terms of a current or emerging research subject.

Scopus is used in the research to retrieve data for bibliometric analysis. The Visualization of Similarities (VOS) viewer, which attempts to make it simple to create and visualize bibliometric maps, is gaining prominence in bibliometric research. This strategy enables us to collect literature more efficiently and to establish the interrelationships between selected articles inside the alternatives.

Data for this study were gathered from the Scopus database by searching for the terms: Covid-19, Burnout, Telework, Emotional Exhaustion, Work from Home, Mental Health, Teleworking, Telecommuting, and Well-Being in three areas: article title, abstract, and keywords. During the 2005 to 2023 research period, the search results identified a total of 165 documents in the Scopus database.

The following keywords were searched: (TITLE-ABS-KEY ("telework*" AND "burnout") OR TITLE-ABS-KEY ("distant work*" AND burnout) OR TITLE-ABS-KEY ("work from home" AND burnout) OR TITLE-ABS-KEY (telecommut* AND burnout) OR TITLE-ABS-KEY ("telework*" AND "emotional exhaustion") OR TITLE-ABS-KEY ("work from home" AND "emotional exhaustion") OR TITLE-ABS-KEY (telecommut* AND "emotional exhaustion")) AND (EXCLUDE (SUBJAREA , "PHYS") OR EXCLUDE (SUBJAREA , "DENT") OR EXCLUDE (SUBJAREA , "BIOC") OR EXCLUDE (SUBJAREA , "MATH") OR EXCLUDE (SUBJAREA , "PHAR")).

The received results were downloaded in CSV format and processed with VOSviewer to visualize and evaluate the trends in bibliometric form. VOSviewer allows the production of country maps based on a network (co-citation), develops a keyword map based on shared networks, and creates maps with many objects. The VOSviewer software can be used to perform data mining, mapping, and grouping of articles extracted from the database. These visualizations aid in interpreting bibliometric data, enabling clearer communication of findings to a wider audience, including scholars, practitioners, and policymakers.

4. Results

The Covid-19 pandemic has highlighted new aspects in the field of teleworking, bringing to light the need for extensive research on its impact on job exhaustion and mental well-being of workers. The increase in exhaustion observed since the introduction of teleworking is not simply an individual issue, but is linked to complex interactions between teleworking, psychological stress and interaction with organisational systems designed for traditional workplaces.

Covid-19 has been closely linked to widespread burnout and emotional exhaustion as workers face the challenges of working from home, such as difficulty separating work from personal life and lack of physical social contact with colleagues and supervisors. These conditions have created a new work landscape where mental health and wellbeing require heightened attention and understanding.

In this context, the importance of the mental health and well-being of remote workers is highlighted as central issues that should be included in the corporate agenda. The need for research and development of support strategies is more urgent than ever, as remote working looks set to continue to be part of the 'new normal' in the post-pandemic world. Understanding and enhancing mental resilience, as well as embedding wellbeing into the culture of teleworking, is vital for the healthy and productive integration of this form of work into the work environment.

4.1 Number of publications by year on remote workers burnout

Table 2 presents the annual publication volumes from 2019 to 2023, demonstrating the changes in research output over these years. The number of publications has increased, with a significant surge observed during the period heavily impacted by the Covid-19 pandemic. This increase in research output reflects the heightened focus and urgency within the scientific community to comprehend and tackle the phenomena of telecommuting burnout and emotional exhaustion, which have become increasingly prevalent due to the sudden and widespread shift to remote work.

The data indicate that although there was a steady interest in the topic before the pandemic, the year 2022 was a turning point when research output reached its peak. This peak indicates that researchers and practitioners are increasingly aware of and concerned about the mental health challenges faced by remote workers. This is due to the prolonged nature of the pandemic and the resulting need to adapt to long-term remote working arrangements.

Furthermore, the table indicates that although there was a surge in reactive research during the initial years of the pandemic, subsequent years, including 2023, have maintained a robust level of scholarly activity, albeit with a slight decrease from the peak. This trend may indicate a shift from immediate crisis response to a more sustained, long-term interest in the implications of remote work on employee well-being. It also suggests an evolving research landscape where studies might be moving towards exploring long-term solutions, preventative strategies, and a deeper understanding of the complex dynamics between telecommuting, burnout, and mental health.

In conclusion, Table 2 not only quantifies the research response to telecommuting burnout during the pandemic years but also highlights a significant shift in the academic community's approach to remote work and mental health. This shift is marked by an increased focus on the sustained impacts of remote work and a broader exploration of strategies to mitigate associated challenges. It represents an important evolution in the field's priorities and perspectives.

Table 2: Number of publications by year on remote workers burnout

Year	Number of Publications
2019	1
2020	14
2021	39
2022	64
2023	41
Total	159

Figure 1 presents a visual representation of the academic interest in burnout and telecommuting from 2005 to 2019. The trend is relatively flat, indicating minimal engagement with the subject during this period. This negligible interest underscores a time when telecommuting was less prevalent and perhaps considered less impactful on the mental health of employees, reflecting the conventional work dynamics prevalent at the time.

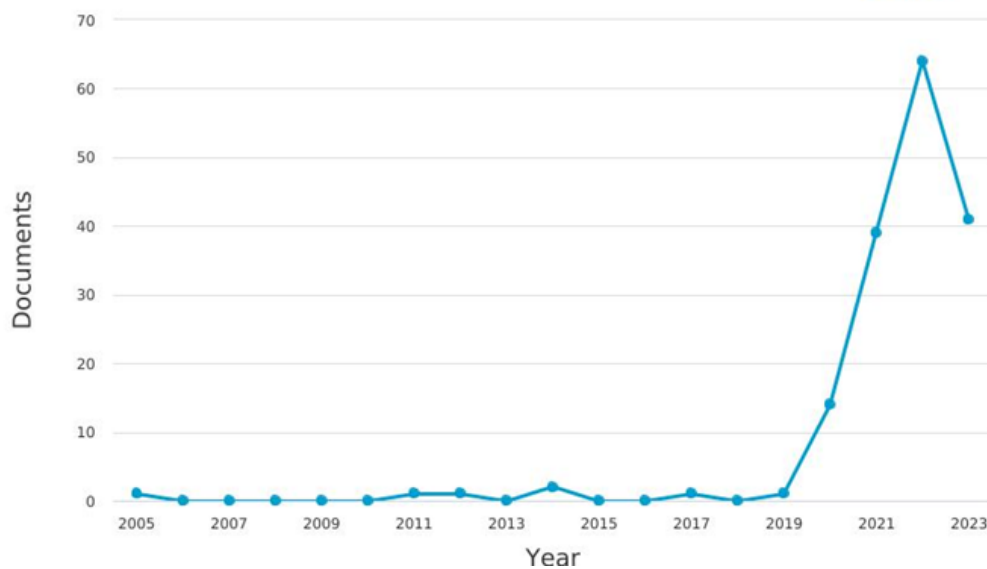
However, from 2019 onwards, the landscape shifted dramatically, as shown by a steep upward trajectory in the graph. This spike directly correlates with the global surge in telecommuting practices triggered by the COVID-19 pandemic. The sudden transition to remote work not only altered work dynamics but also raised new challenges related to employee mental health and well-being, particularly concerning burnout and emotional exhaustion.

The growing attention to this field is a direct response to the evolving work environment and the emerging needs of the workforce. As telecommuting became more prevalent, the impact on workers' mental health became a critical area of study. The pandemic has underscored the importance of addressing the psychological effects associated with remote work, such as isolation, blurred work-life boundaries, and constant connectivity, which can lead to burnout.

The increase in scholarly interest, as shown in Figure 1, indicates a change in how the academic and professional communities view and prioritize the study of burnout in the context of telecommuting. This change represents an important development in research priorities, emphasizing the necessity for effective strategies and interventions to manage and reduce the risks associated with remote working arrangements.

Figure 1 charts the historical interest in burnout related to telecommuting and acknowledges the complexities and challenges of modern work environments. The figure highlights the increasing significance of this research area, prompted by unprecedented global events and changing work practices, and marks a crucial step towards understanding and improving the mental health of the remote workforce.

Figure 1: Documents by year.



4.2 Publications by document type

The research examines various document types to provide a comprehensive perspective on the topic of emotional exhaustion and burnout related to remote work. Table 3 categorises these publications based on relevant keywords such as 'Covid-19', 'Burnout', 'Telework', 'Emotional Exhaustion', 'Work from Home', 'Mental Health', 'Teleworking', 'Telecommuting', and 'Well-Being', organising them by document type for a structured analysis. This categorisation helps to understand the distribution and focus of research within the field, providing insights into which aspects are receiving the most attention and how they are being discussed.

The statistics presented in Table 3 highlight a significant trend: the majority of the documents, accounting for 73%, are articles. The prevalence of in-depth studies and peer-reviewed articles in research on burnout and emotional exhaustion from remote work suggests a rigorous academic interest and the generation of new knowledge in this domain. Articles, which are typically peer-reviewed, are fundamental to advancing understanding, providing detailed analyses, and presenting empirical data. This dominance underscores the substantive research efforts being dedicated to these issues.

Reviews make up another 9% of the documents, indicating a considerable interest in synthesising existing research, drawing conclusions from collective findings, and identifying gaps in the literature. Reviews are important for summarising current understanding and proposing new directions for future

research. They indicate that the academic community is interested not only in contributing new data but also in consolidating existing knowledge on the impact of remote work on mental health.

The remaining publications, including letters, editorials, and other miscellaneous types, make up the rest of the percentage. Letters and editorials are important for disseminating ideas, responding to recent research, and expressing professional opinions or preliminary findings. They contribute to the broader discourse, allowing for a dynamic exchange of ideas and insights among researchers and practitioners.

In conclusion, Table 3 presents the distribution of research by document type and highlights the comprehensive approach taken by the scientific community to explore and understand the multifaceted impacts of remote work on mental health. The range of document types reflects a diverse and complex discussion, highlighting the extent and scope of research on emotional exhaustion, burnout, and the evolving paradigms of work during and after the Covid-19 pandemic.

Table 3: Publications by document type

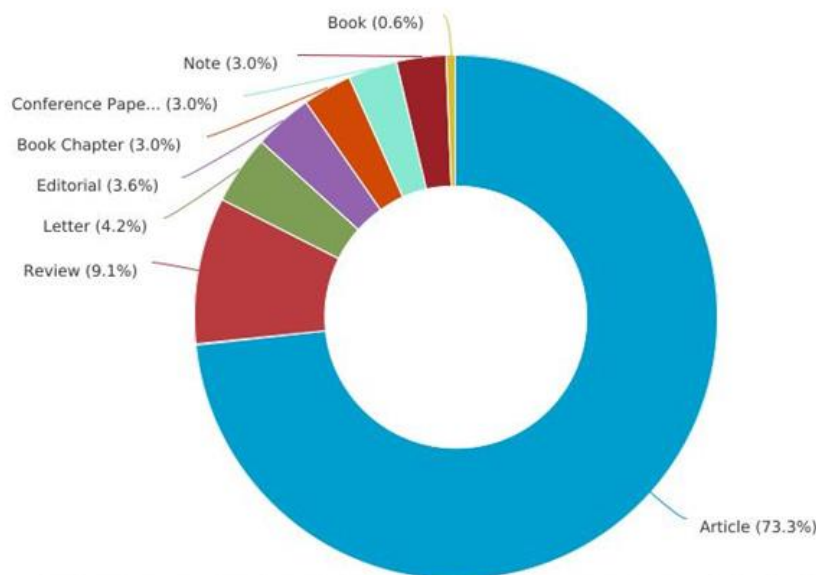
DocumentType	Number of Publications	Percentage of Total Publications (%)
Article	121	73
Review	15	9
Letter	7	4
Editorial	6	4
BookChapter	5	3
Conference Paper	5	3
Note	5	3
Book	1	1
Total	165	100

Figure 2 provides an overview of the distribution of publication types in research on emotional exhaustion and burnout caused by remote work. The pie chart shows that articles dominate the scholarly discourse, making up 73% of the total. The pie chart highlights that a significant proportion of the academic community prefers detailed, peer-reviewed articles as the primary mode of disseminating research findings and theoretical analyses in this field.

The remaining 27% of publications, represented by other colors in the chart, include various formats such as reviews, editorials, letters, conference papers, and book chapters. The variety of document types used in research indicates its multifaceted nature. Scholars not only present new empirical findings and insights through articles but also engage in discussions, critiques, and summaries through other types of documents.

The inclusion of reviews, which constitute 9% of the publications, highlights the academic community's efforts to synthesize and evaluate existing literature, offering comprehensive overviews of current knowledge and identifying gaps in the research. Editorials and letters, though less prevalent, play a crucial role in fostering scholarly debate and providing immediate responses to current trends or articles. Other types of documents, such as conference papers, provide opportunities for presenting initial findings and innovative ideas, promoting collaboration and discussion among researchers. Figure 2 not only illustrates the composition of research outputs in this critical area of study but also demonstrates the dynamic and collaborative nature of academic research. By presenting this information in a clear and visual format, the figure helps to understand the scholarly communication landscape on the impacts of remote work on mental health. It also provides insights into prevalent methodologies and approaches within the field.

Figure 2: Documents by type

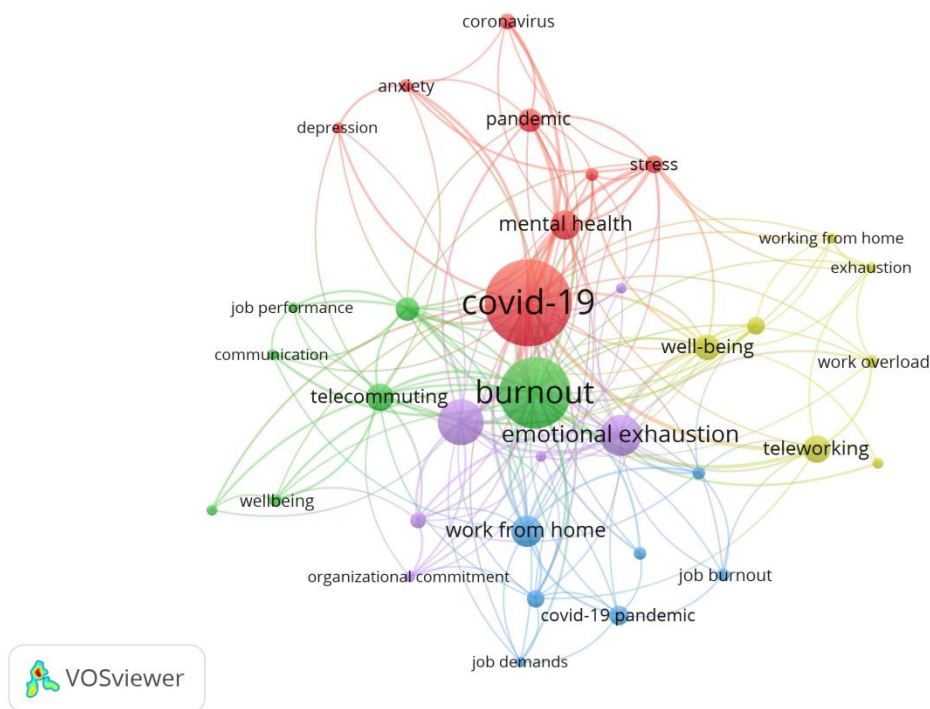


4.3 Visualization - the keywords of the articles under examination

Two distinct analysis approaches were co-occurrence mapping, which examines the relationship between keywords, and an evaluation of the contributing countries. The VOSviewer software conducts data mining, article mapping and grouping as part of bibliometric data analysis. The graphical analysis and visualization of research results provided by this software facilitate the creation of research groups. All keywords have been considered using the full counting method and as part of the analysis whilst performing co-occurrence mapping. The study also imposed specific constraints to enhance result accuracy. The selection of relevant keywords can be optimized by eliminating less significant terms (Van Eck & Waltman, 2018). We set a minimum threshold of five occurrences for the inclusion of a keyword.

To highlight the clusters, the clustering approach was utilized. Figure 3 depicts the network visualization that appeared in scholarly papers. The cloud map displays the amount of times the term appears in the article as well as the link between the keywords. Each term in the network is represented by a circle, with the size of the circle proportional to the number of publications in which the term appears. Each color symbolizes a cluster of terms, and the length of curved lines indicates the approximate connection of the term's repetition, while the thickness of ones indicates the strength of pairings of topic areas or keywords. The clusters reflect the link between two topics.

Figure 3: VOSviewer graph



Three clusters out of five, red, green, and purple ones, are more extensive than the rest. The red cluster encapsulates topics directly linked to Covid-19, mental health issues arising from the pandemic, and the broader implications on public and employee health. The prominence of this cluster emphasises the impact of the pandemic on mental health concerns. It highlights the awareness within academic and professional communities about the immediate and lasting effects of global crises on psychological well-being. The green cluster explores the concepts of 'Burnout', 'Telecommuting', and 'Well-Being', illustrating a clear interconnection between remote work conditions and employee health outcomes. This passage suggests that researchers are making a concentrated effort to understand how the shift to telecommuting has affected workers' mental and emotional states. It emphasizes the critical balance between work demands and personal well-being in the context of remote working environments.

The purple cluster focuses on 'Emotional Exhaustion' and 'Organizational Commitment', investigating how work stressors, particularly in remote settings, affect individuals' dedication and loyalty to their

organizations. This area of study reflects concerns about the sustainability of workforce engagement and morale in the face of ongoing challenges related to remote work. Covid-19, Burnout, Telework, Emotional, Exhaustion, Work from Home, Mental Health, Teleworking, Telecommuting, and Well-Being are high on the list of the most highly co-occurring keywords with occurrence weights (total link strength) of 283 (206), 207 (156), 123(93), 97 (79), 70(57), 63 (50), 56 (45), 51 (45), and 56(48). The software's computational analysis reveals the total link strengths and co-occurrences, providing a quantifiable measure of the interconnectedness of these themes. This indicates not only the volume of research attention each has received but also their interconnected nature.

The intricate mapping and statistical breakdown serve to underscore the complexity and multidimensional aspects of the issues at hand. The relationships between these clusters reveal a narrative that aligns with societal and organizational challenges faced during the pandemic. This highlights the importance of mental health, work environments, and organizational dynamics. It is crucial to address these areas of concern. The analysis provides a comprehensive overview of the current research landscape, emphasising the interrelated nature of these factors and the necessity of a holistic approach to tackling the challenges presented by telecommuting and mental health in the post-pandemic era.

Using VOSviewer, the analysis beyond Figure 3 offers a comprehensive understanding of the research landscape on emotional exhaustion and burnout among remote workers. Figure 4, with its overlay visualization, is a critical tool for revealing the chronological progression of this research domain. This visualization clearly shows the year-on-year changes in research priorities and focal points, possibly in response to the changing nature of remote work due to the pandemic. It provides a chronological perspective that is essential for understanding the historical context of burnout and emotional exhaustion research, as well as for identifying specific time frames that saw increased research activity. Furthermore, in Figure 5, a density visualization technique is used to highlight areas of concentrated research within the field, enriching our understanding. The varying intensities of color within this visualization signify the volume of research being conducted on particular themes associated with remote work and mental health. This method allows for easy identification of the most heavily researched areas, with darker shades indicating higher densities of research activity. The keywords 'Covid-19', 'Burnout', and 'Emotional Exhaustion' are prominent in this landscape, indicating their significance in the current discourse and highlighting where scholarly attention is focused.

These additional figures from the VOSviewer analysis complement the network visualization in Figure 3 and enhance our understanding of the extent and depth of research on emotional exhaustion and burnout among teleworkers. By combining temporal trends with research density, these visualisations offer a multifaceted view of the field. They provide insights into how external factors, such as the pandemic, have shaped research trajectories and thematic concentrations. This holistic approach facilitates a deeper understanding of the academic response to the challenges faced by remote workers and lays the groundwork for future investigations in this evolving field.

Table 4: Network Visualization - the keywords of the articles under examination

Keywords	Cluster Number	Links	TotalLink Strength	Occurrences
Covid-19	33 (red)	206	283	53
Burnout	32 (green)	156	207	41
Telework	22 (lime)	93	123	22
EmotionalExhaustion	16 (purple)	79	97	19
WorkfromHome	18 (blue)	57	70	13
Mental Health	15 (red)	50	63	12
Teleworking	16 (lime)	45	56	11
Telecommuting	17 (green)	45	51	11
WellBeing	27 (green)	48	56	10

Figure 4: Overlay visualization.

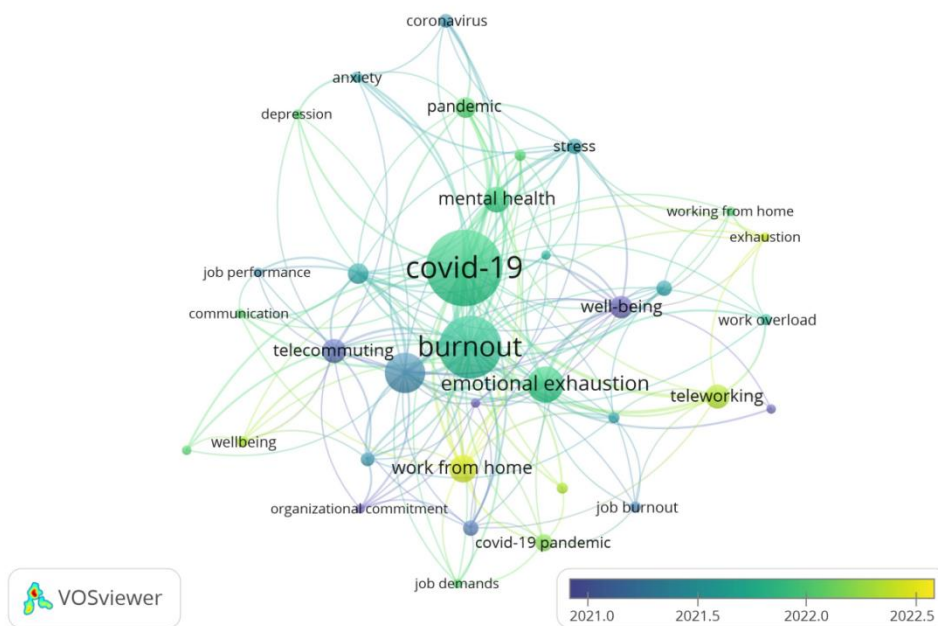
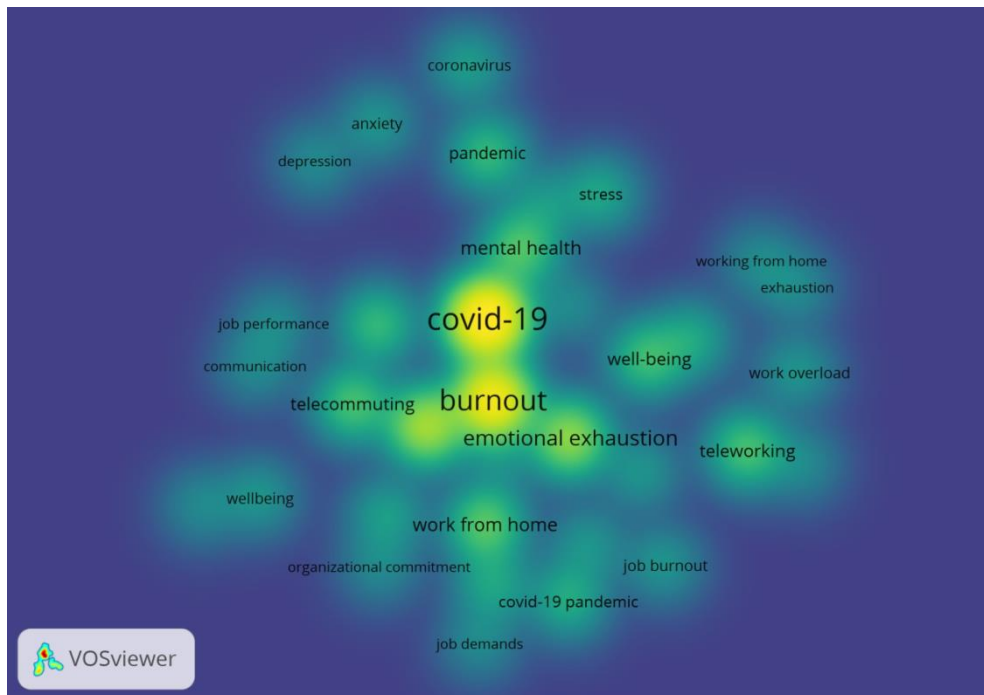


Figure 5: Density visualization



4.4 Countries with the highest number of publications

Table 5 presents the top ten countries with the highest number of publications on the mental health of remote workers, highlighting the global concern in addressing psychological issues arising from remote working conditions. The United States leads the research efforts with an impressive 53 publications, demonstrating a comprehensive approach towards mitigating mental health challenges faced by remote workers. The United Kingdom is a significant contributor with 41 publications, highlighting its strong focus on mental health support and research for remote working populations.

Canada and India also contribute significantly, with 22 and 19 publications respectively, demonstrating their growing recognition and commitment to the mental wellbeing of remote workers. The research contributes to the global understanding of the issue and highlights the diverse approaches taken across different cultural contexts. Australia and Italy have demonstrated their commitment to the field with 13 and 12 publications respectively, exploring various aspects of remote work and its psychological impacts.

The Netherlands and Brazil both contributed 11 publications, offering valuable perspectives on the psychological effects of remote work in their respective regions. Their research adds depth to the global narrative, highlighting both the universal and localized aspects of remote work's impact on mental health. Spain and Belgium, with 10 and 9 publications respectively, are among the top contributors to research on the challenges faced by remote workers and their mental health and well-being. This table highlights the pressing and universal nature of mental health issues among remote

workers. The text reflects a global focus on understanding, mitigating, and providing solutions for the psychological challenges faced by remote workers. The research efforts' diverse geographic representation underscores the widespread recognition of remote work's impact on mental health and highlights the importance of international collaboration and knowledge exchange in addressing this issue.

Moreover, Figures 6 and 7 provide clear evidence of the United States' significant interest in researching emotional exhaustion and burnout among teleworkers compared to other countries. The figures demonstrate a notable disparity, with the United States leading by a considerable margin. This statement reflects the country's recognition of the severity and prevalence of workplace mental health issues among remote workers. The graphs show that the U.S. has published more studies on teleworking-related stress, indicating a qualitative focus on crucial aspects of the issue. This comparison demonstrates the differing levels of attention and resources that various countries allocate to understanding and mitigating the mental health challenges faced by remote workers.

Additionally, Figures 6 and 7 serve as a call to action for other countries to increase their research efforts in this field. The statement highlights the worldwide nature of the problem. It suggests that although the US is leading the research, burnout and emotional exhaustion among teleworkers is a concern that needs international collaboration and diverse cultural and regulatory perspectives to address effectively. These figures depict data and suggest a story of urgency, disparity, and the critical need for a broader, more inclusive approach to the mental health of teleworkers globally. Other nations are encouraged to reflect on their own research outputs and increase their investment in studies that can lead to better support systems and healthier work environments for remote employees.

Table 5: Top ten countries with the highest number of publications

COUNTRY/TERRITORY	Publications
United States	55
United Kingdom	15
Canada	11
India	9
Australia	8
Italy	7
Netherlands	7
Brazil	6
Spain	6
Belgium	5

Figure 6: Documents by country of territory

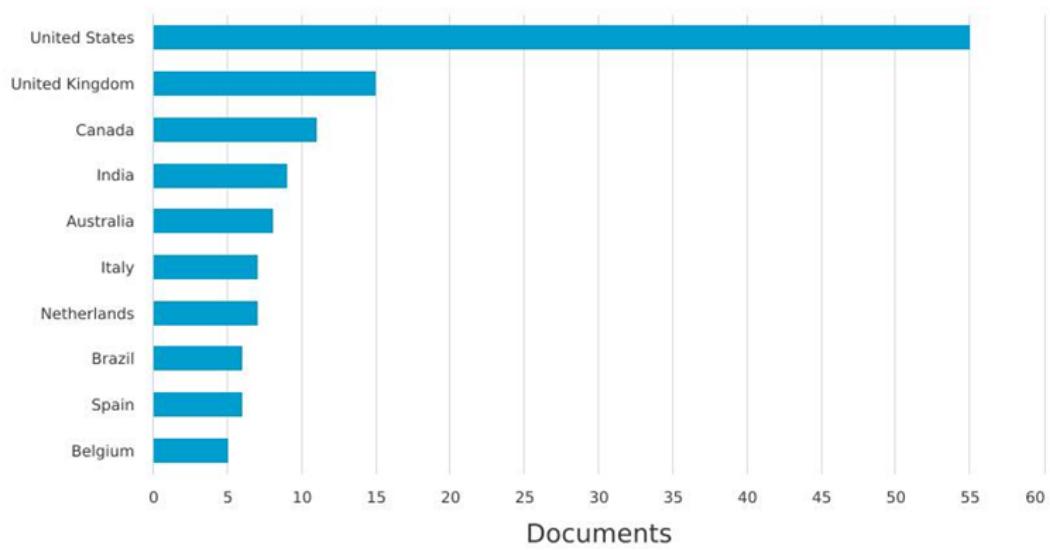
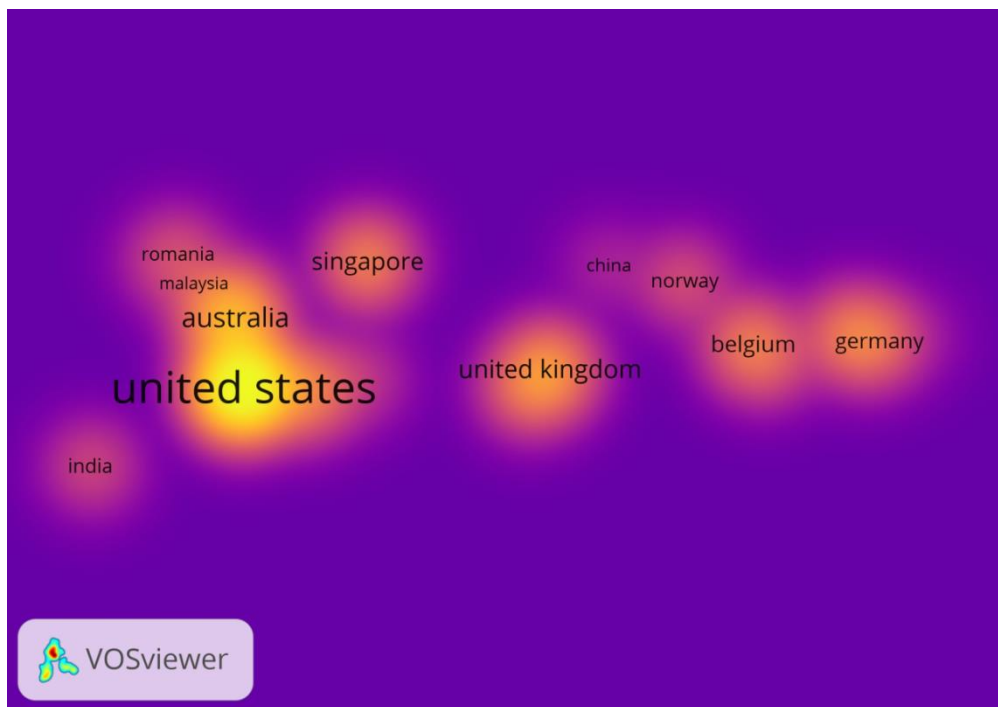


Figure 7: Density visualization – Countries analysis



5. Conclusions

Based on an extensive bibliometric analysis spanning from 2005 to 2023, this study revealed the profound changes in the work landscape brought about by the widespread adoption of teleworking, especially under the pressure of the Covid-19 pandemic. Using the VOSviewer tool for a methodical review of 165 scientific papers from the Scopus database, our research shone a spotlight on the increased academic focus on psychological well-being in remote work environments, with particular

emphasis on terms such as Covid-19, burnout and emotional exhaustion. However, it is important to note that this study is limited by the fact that the data was sourced solely from Scopus. Therefore, future studies should consider utilizing a variety of data sources, including the Web of Science.

The findings highlight a notable increase in research following the pandemic outbreak, signaling the increased importance of burnout among remote workers - a condition exacerbated by the rapid and sometimes abrupt transition to telecommuting. The study not only captures the breadth of academic research on this phenomenon, but also maps the complex web of its various dimensions, revealing how the psychological pressures of remote work intertwine with complex organizational systems.

In particular, the United States stands out in the analysis, confirming its status as a leader in research in examining the nuances of work dynamics, particularly in the context of remote work and its psychological effects. The nation's dominant position is complemented by significant contributions from the UK, Canada, India and other countries, which together illustrate the universal imperative to address the mental health challenges posed by distance work arrangements.

At the forefront is the seminal work of Sardeshmukh et al. (2012), which delves into the impact of telecommuting on burnout and work engagement - a piece that has not only shaped the discourse but has also garnered significant academic traction, as evidenced by the number of citations. Such pivotal studies pave the way for a deeper understanding of remote work burnout and its management.

In conclusion, this bibliometric study, offers important insights on the conducted research for strategizing interventions aimed at enhancing the well-being of remote workers. It highlights the criticality of developing support systems tailored to the unique challenges of remote working, especially in the shadow of the pandemic. As the contours of the traditional workplace continue to evolve, this research contributes in understanding and systematically examines the growing literature on the issues, providing insights on the research trends on the topic, for academics, industry practitioners, and policymakers to foster a resilient, satisfied, and effective remote workforce spanning the globe.

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