

Exploring the Impact of Remote Work on Productivity: A Systematic Review

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Abstract

Digitization has strengthened human connectivity with technology, transitioning office work to the home and influencing productivity, particularly for women. This paper systematically examines the impact of remote work on productivity across professions through a PRISMA-model literature review of studies from Scopus and Web of Science (2018–2023), with 46 papers selected after removing duplicates. Vocational psychology research initially showed enhanced work efficiency and reduced distractions at home, though later findings revealed mixed productivity outcomes. While flexibility, shorter commutes, and autonomy boosted productivity, employees with children at home faced declines. Key findings highlight that isolation, burnout, and digital illiteracy during COVID-19 further hindered productivity, with professors also experiencing cyberbullying from students. This review emphasizes productivity determinants for remote workers, though psychological impacts of working from home remain unaddressed.

Keywords: work from home, telecommuting, systematic review, PRISMA

JEL classification: J22, J16, O33, M54, I12

Introduction

According to Russo et al. (2021), the interconnection of humans with machines has been seen to increase in the era of digitalization. This has been a contributing factor in the movement in work culture away from the conventional office space and towards the culture of individuals working from home. As a result of the pandemic, the prevalence of distant work habits has grown. Employees and employers alike have been looking for alternate work arrangements as a consequence of this, particularly in light of the fast-paced conditions surrounding COVID-19. As a result of the COVID-19 outbreak, the broad adoption of remote work operations on a global scale was expedited. As a result of lockdowns, social distancing measures, and the requirement to protect employee safety, several companies have used remote work solutions. People's perspectives have been altered as a result of the rapid change in the working environment, which has had an effect on the amount of work that is accomplished by people of different genders. Despite the fact that working from home is not a novel notion, there has been a growth in study in this field since the COVID-19 outbreak.

Offices have begun to implement telecommuting as an alternative work arrangement, which enables employees to do their jobs from the comfort of their own homes. It has been reported by that the number of people working remotely in the United States has significantly increased by 159% between the years 2005 and 2017 (FlexJobs, 2019). The findings of a study that was conducted by Gartner in April 2020 revealed that seventy-four percent of chief financial officers (CFOs) had plans to permanently move a portion of their personnel to work remotely. According to the results of the study an astounding 98% of respondents indicated that they have a strong inclinedness to continue working remotely for the whole of their careers, but with some degree of flexibility (Buffer, 2020). According to Abujarour et al. (2021), organisations will apply a variety of techniques in order to improve the productivity of their employees and to provide a positive working environment. On the other hand, there are not many management practices that are geared towards the effectiveness and productivity of workers who work remotely or telecommute. One of the most important factors that has contributed to the success of remote work is the development of technology, namely the advent of collaboration platforms such as Zoom, Microsoft Teams, and Slack. When it comes to preserving productivity and connection among teams that are located in different parts of the world, cloud-based services and digital communication technologies are very necessary. There has been a convergence of difficulties and advantages brought about by the adoption of remote work. The challenges included problems with communication and teamwork, as well as difficulties striking a good balance between work and personal life. Increased flexibility, financial benefits for both companies and employees, and access to a larger pool of skilled personnel are some of the good aspects of this arrangement. Many companies are contemplating the implementation of hybrid work arrangements, which provide workers with the opportunity to do their jobs both from home and in the office. The purpose of this method was to achieve a condition of equilibrium and harmony between the benefits of working remotely and the advantages of working together in person.

Previous studies that have been conducted to determine the effect that working remotely has on productivity have frequently been restricted in their scope or methodology, highlighting the importance of conducting a comprehensive and up-to-date investigation. There are a lot of assessments that are already out there, but they could have a restricted scope since they concentrate on particular fields, areas, or time periods. As a result, they do not adequately reflect the wider and ever-changing world of remote work that the Internet has brought about. Due to the continuous advancement of both technology and work processes, it is necessary to conduct a more up-to-date analysis, which may be lacking in earlier evaluations. In previous evaluations, there may have been a lack of suitable organised methods, which may have led to an inadequate

understanding of the various elements that influence production in distant places. The purpose of the proposed systematic review is to rectify these deficiencies and provide a complete and up-to-date synthesis of the investigations that have already been conducted. The extensive and increased usage of remote work during the COVID-19 epidemic gives us a unique chance to examine the influence that it has on productivity. The purpose of this study is to provide a more thorough and nuanced understanding of the complicated link that exists between distant work and productivity.

The sudden shift, which was prompted by worries about the state of global health, poses a challenge to conventional ideas about the dynamics of the job market. An inadequate grasp of the many elements that impact productivity in distant locations is the root cause of the research gap that has been identified. Occasionally, the study that is currently being conducted does not provide a comprehensive examination of the numerous aspects that are involved. These factors include technical infrastructure, organisational policy, and the well-being of staff. In order to fill this void, the purpose of this systematic review is to synthesise the research that has already been done, detect trends, and evaluate potential study techniques. In order to fill the gap in research, the purpose of this study is to offer insightful information to enterprises, governments, and academic institutions that are struggling to keep up with the ever-changing dynamics of remote labour. Following the epidemic, they will be able to adopt a more educated and deliberate approach to the professional context as a result of this.

Now the main question arises: what is the impact of remote working on the work productivity of employees? The current study aims to analyse the results published on SCOPUS and the WoS databases on work-from-home productivity and its associated factors.

Method

The present systematic review followed the guidelines outlined by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA).

1 Search Strategy

In order to conduct a thorough investigation, a search strategy was formulated to identify pertinent scholarly literature.

The search technique was modified to focus on two databases, namely Scopus and Web of Science (WoS), and the following search terms were implemented to conduct the search: "Work from home" OR "remote working" OR "telework*" AND productivity* OR efficiency* limited to Title and abstract of the articles." "Work from home" OR "remote working" OR "telework*". All searches spanned from the year 2018 to 2023, and the selection criteria for the study encompassed scholarly articles and review papers that were exclusively published in the English language.

2 Inclusion and Exclusion criteria

The PRISMA Declaration 2020 served as the foundation for the criteria used in the selection process. The primary objective of this study was to conduct a comprehensive review of the available literature pertaining to the work-from-home (WFH) arrangement and its influence on work productivity within the domains of social sciences, environmental sciences, business, and economics.

The search then limited the subject categories to multidisciplinary, social sciences, psychology, arts, and humanities fields. 2018 through 2023 were the scope of the search. Articles in the press were excluded, and the final papers published were selected for inclusion.

Only research papers and review papers in journals were included, and conference papers or trade journals were excluded due to a lack of peer review. Finally, papers in the English language were adopted as the final inclusion criteria for the selection of papers in the database, and papers in other languages were excluded.

3 Quality Assessment

The study is based on only original research papers and review papers. Out of 660 papers, 260 were included after filtration and exclusion criteria. In order to ensure the integrity of the review, a comprehensive examination was conducted to identify and eliminate any instances of duplication. A total of 12 duplicate files were eliminated from both databases. In order to uphold the standards of quality and pertinence in the evaluation procedure, a comprehensive examination and clarification of the abstract and title of the article were conducted.

Later, a thorough examination of the research paper was conducted. Non-peer-reviewed papers were removed due to a lack of verification of the information in these papers. Furthermore, after filtration of duplicate records, more papers were removed as they did not show relevant information on work efficiency or productivity in the remote working environment. 46 papers were finally selected after manual screening that were related to work productivity during the work-from-home scenario.

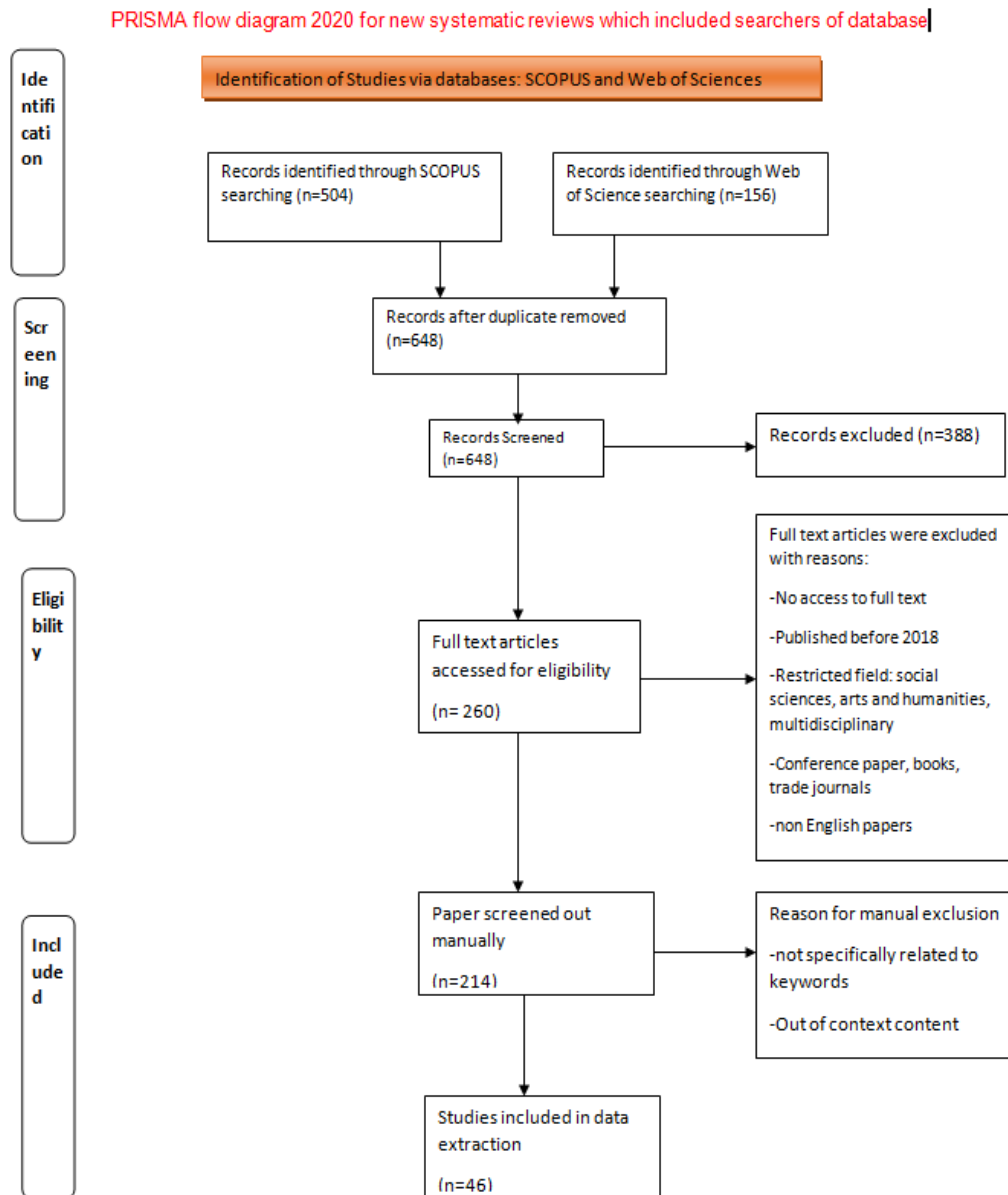


Fig. 1 shows the literature inclusion and exclusion at every stage (PRISMA statement).

Source: Author's compilation

4 Data extraction

During the data extraction phase, a total of 46 articles were selected for analysis. The relevant characteristics that were extracted from these articles were:

1. All articles must be either original research studies or reviews of previously published works. We did not include any published reports, conference papers, or trade publications in our analysis.
2. All of the articles must be written in English and pertain to some aspect of the arts, humanities, or social sciences.

3. The articles that were extracted for analysis were published within the time frame of 2018 to 2023.
4. The articles that were extracted were restricted to searching for keywords specifically in the Title and Abstract sections of the papers within the database.

Results

1 Study characteristics

One example of a visual depiction of the search results is shown in Figure 1. After deleting duplicates, the titles and abstracts of 660 records were evaluated to determine whether or not they were eligible, and each of the remaining 260 records was evaluated in its entirety to determine eligibility. For the purpose of data extraction, there were a total of forty-six studies, eight of which were qualitative and thirty-eight of which were quantitative. The information about filtered records that were released between the years 2018 and 2023 is displayed in Figure 2. The descriptive analysis of the works that fall under the ensuing topics is displayed in Figure 3. Although the remaining publications ($n = 26$) addressed both elements, 14 of these papers demonstrated the negative impact of work-from-home culture on work productivity, while 7 of these papers demonstrated the favourable impact of work-from-home culture on work productivity.

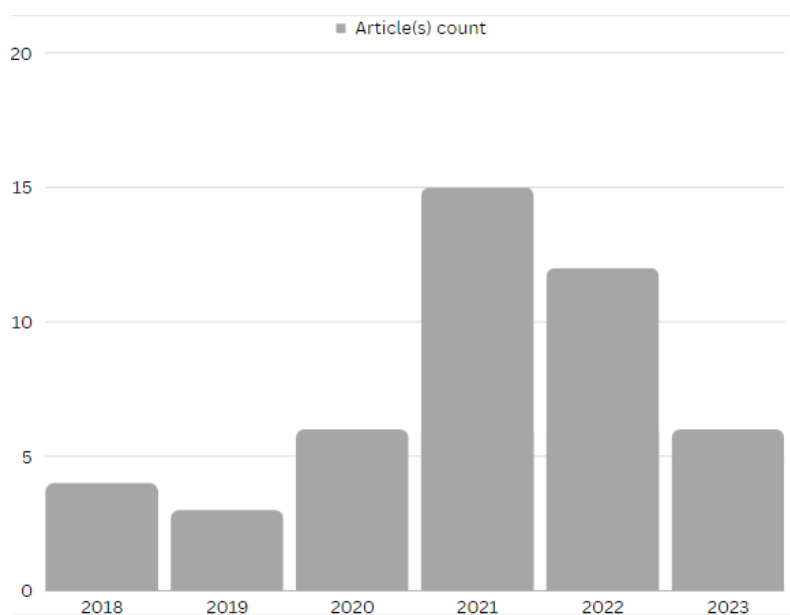


Fig. 2: Year wise distribution of articles

Source: Author's compilation

<i>Construct/variable</i>	COUNT of Cons
	0
Gender and Well-being	1
Managerial decisions and WFH	5
Online Education and productivity	7
Productivity comparison	12
Role of Gender diversity on productivity	4
well-being and productivity	13
Work environment and productivity	4
Grand Total	46

Fig. 3: Number of articles in subthemes derived from PRISMA

Source: Author's compilation

According to the findings of the research, working remotely has a mixed impact: it might improve organisational performance, but it could also reduce productivity at the group level. Managers are more likely to delegate tasks and have difficulties communicating. The satisfaction of faculty members increased with online education, but it was also plagued by cyberbullying. Distractions, stress, and gender discrepancies all contribute to a decrease in overall productivity while someone is working remotely. Those who are most affected are people who are mothers. Productivity is increased by variables that contribute to well-being, such as the work environment, flexible hours, and autonomy. It is true that working from home is a productivity enhancer for certain people, but that is not the case for everyone.

2 Managerial decision and remote work culture

In five separate studies, the influence of remote work on management decision-making was investigated, and the findings indicated both advantages and disadvantages. There were five articles that were relevant to the influence on the decisiveness of management during WFH, and these papers were finalised after being screened. According to the findings of the study (Choudhury et al., 2021), working remotely has resulted in a considerable improvement in the performance of the company. According to Okubo et al. (2021), although there was a decline in employee productivity at the group level, managers found that working from home may be beneficial. Effective remote workflow has been shown to have a beneficial impact, but technology-driven anxiety has been shown to have the opposite effect (Chow et al., 2022). According to Kumaresan et al. (2022), managers often exercise less power and delegate more tasks while dealing with pandemics. Before the downturn, communication channels and information technology platforms were able to tackle difficulties with productivity; however, problems with mutual trust, engagement, and motivation cannot be remedied remotely (Stoker et al., 2022). Nevertheless, managers are not the only ones who can make choices in the managerial realm. According to Kumaresan et al. (2022) and Okubo et al. (2021), it calls for prudence on the part of individuals, groups, and organisations together. The findings of this research, which was conducted with a sample size of 60 and a $p < .005$ when using PLS-SEM, reveal that working remotely has a substantial impact on the level of assistance provided by supervisors and the performance of employees (Mardianah et al., 2020).

3 Online education and productivity

The complexity of the influence that remote education has on productivity is shown by the fact that while certain aspects, such as time flexibility and work-life balance, contributed to an increase in faculty efficiency, other issues, such as cyberbullying and distractions, also played a role. During the pandemic, it was revealed that there is a significant correlation between participation in remote schooling and increased production. According to Aczel et al. (2021), academicians and faculty members had a limited amount of time to transition to alternative employment arrangements. In higher education institutions, a reduction in the amount of time spent commuting, an improvement in eating habits, and a better work-life balance (WLB) all contributed to an increase in job satisfaction and efficiency (Chapman & Thamrin, 2020). Based on the findings of a study conducted by Kawakubo and Arata in 2022, it was found that school management support and family work conflict had a favourable correlation with teachers' efficiency during pandemics. On the other hand, the research conducted by Drašler et al. in 2021 revealed that technology choice did not have any associations with better efficiency. In contrast to the previous finding, one study (Irshad et al., 2021) provides evidence that technology has a positive influence on the productivity of employees who work from home. Ipsen et al. (2021) found that increased instances of cyberbullying among students led to decreased levels of presenteeism and increased levels of burnout among instructors. According to the majority of articles, working from home has a negative influence on work productivity. This is mostly attributed to the distractions that arise from home needs, as stated by Shimura et al. (2021), Drašler et al. (2021), mental distortion (Seva et al., 2021), and poor motivational consequences (Martin et al., 2022). A recent study, which was carried out with a sample size of 403 and utilised structural equation modelling (SEM) analysis, discovered considerable evidence (P value $< .005$) that organisational, human, technical, and client-related elements had a significant and beneficial effect on academic productivity through staff participation. The significance of these findings lies in the fact that it is essential to take into account these interconnected factors in a comprehensive manner in order to improve productivity and engagement in academic work that is performed remotely (Al-Dmour et al., 2023).

4 Productivity Comparison

While the majority of studies on remote work productivity have found a decrease in productivity due to distractions, technology overload, and specific job types, some studies have highlighted benefits such as geographical flexibility and individual efficiency. This suggests that there is a nuanced picture with positive and negative aspects depending on individual and job-specific factors. The comparison of productivity is based on two different factors: the first factor is the time period before and after the pandemic ($n = 1$), and the second factor is the difference between work done on-site and work done off-site ($n = 11$). A number of studies have demonstrated that working remotely has a detrimental influence on job productivity. These studies include those conducted by Nguyen (2021), Chatterjee et al. (2022), Prodanova and Kocarev (2022), Hafermalz and Riemer (2021), Rietveld et al. (2022), Rožman et al. (2021), Williamson et al. (2022), and Zurcher (1821). According to Nguyen (2021), low work from home productivity was caused by a combination of factors, including emotional concerns, distractions, and a bad home environment. The researcher discovered that the sort of research work that they are performing has an effect on the amount of productivity that they have. According to Rietveld et al.'s research from 2022, the efficiency of data collecting and the exchanging of opinions among coworkers increased when they were away from the office, whereas the efficiency of literature reading and data analysis rose when they were at home. According to Rietveld et al. (2022) and Rožman et al. (2021), researchers who worked with toddlers demonstrated a decrease in output. According to Chatterjee et al. (2022), the use of

digital tools contributed to an excessive amount of information load, which in turn led to stress on the job and, as a result, decreased job productivity around the house. During this time, the amount of work that developers are able to do is directly proportional to the size of the project that they are working on (Hafermalz & Riemer 2021). There has been no gain in employee production at Work from Home (WFH), although Work from Anywhere (WFA) demonstrated a 4.3% rise in productivity (Toscano & Zappalà, 2020). Geographical flexibility is beneficial to individual work, but there has been no improvement at Work from Home. According to Williamson et al. (2022) and Zurcher et al. (2021), thirty-two percent of the working population saw a decline in their perceived productivity when they were working from home. According to Kuletto et al. (2021), vocational psychologists have seen that working from home leads to increased productivity and less distractions, which is in contrast to the findings of the research mentioned above. According to Okeke et al.'s research from 2021, employees with high wages and high levels of education had a relatively lesser decrease in their job productivity. Sixty-six percent of respondents said that working from home would be a great option in the future (Rietveld et al., 2022).

5 Role of Gender Diversity

Research conducted prior to the pandemic revealed that there was no gender difference in terms of job productivity. However, studies conducted during remote work revealed a substantial decline for women, particularly those who had children. This highlights a new gender disadvantage in the setting of working from home. Catană et al. (2022) did a study that suggested there was no substantial difference in work productivity between the sexes prior to the commencement of the pandemic. This research was completed before the epidemic began. On the other hand, a study of the relevant literature on this subject indicates that every single publication that was screened provides evidence that there is a considerable difference in the amount of work that is accomplished by men and women who work from home.

According to Catană et al. (2022) and Ferreira et al. (2021), women have reported decreased job productivity at home, and this might have a detrimental impact on their production when the number of hours they work increases. Compared to male authors, female authors are more likely to be impacted. According to Galanti et al. (2021) and Irshad et al. (2021), male authors who do not have children are found to be the least impacted, while female authors who have children are shown to be the most affected when they are writing from home.

6 Human well-being and productivity

A multifaceted role in remote work productivity is played by well-being, which encompasses elements like a nice work environment, flexible hours, and social connection. Well-being has an impact on different groups, including men, women, and specialised professions, in a variety of ways, with both positive and negative influences. According to Weitzer et al. (2021), the condition of being well and at peace with oneself is the definition of well-being. Productivity in the workplace is impacted by both physical and mental health. A better desk environment (Kazekami, 2020), suitable remote hours (Li et al., 2021), a feeling of belongingness (Nguyen, 2021), self-leadership, and autonomy (Giovanis, 2018) are some of the variables that contribute to the interconnection of aspects that improve human well-being. There are a number of factors that lead to low productivity at home, including psychological detachment (Awada et al., 2021), (Abujarour et al., 2021), occupational and parental stress (Bao et al., 2022), boredom and distraction (Mihalca et al., 2021), and boredom or distraction. Because they do not feel like they belong, men who do not have wives and children are more likely to experience burnout and stress while they are working from home (Awada et al., 2021). To the contrary, men in their middle years experience 96% less burnout than women do in their same age range. When it comes to home productivity, women in the information technology field experience higher

burnout than males in the field (Morikawa, 2022). A study conducted by Plaunova et al. (2021) found that a decrease in both physical and mental stress at home led to an increase in productivity for employees who worked from home. The stresses associated with working remotely have had a favourable impact on non-tourism academics; however, tourism scholars have not been influenced by these stressors (Seva et al., 2021). It is possible that the beneficial aspects of working remotely are connected to a number of different issues, such as organisational and work-related considerations, technological considerations, social considerations at home, and social considerations in the workplace. There are a number of factors that come into play, including individual and social factors, as well as organisational and work-related influences. 2021, according to Staniscuaski et al. Using an analysis of variance (ANOVA), recent research with a sample size of 150 and a P value of less than .005 has shown that implementing work-life balance approaches in an appropriate manner can have a positive affect on employee performance. An employee who is content will have the ability to accomplish their job with an innate motivation, in contrast to an employee who is unsatisfied and is having difficulty finding a balance between their career, their family, and their own personal well-being (H D & Lakawat, 2021).

7 Work environment and productivity

Despite the fact that the physical work environment and individual characteristics such as personality have an impact on remote productivity, variables such as having a healthy mental state, having flexible work arrangements, and having the ability to manage oneself may considerably enhance production. The individual's level of job productivity is directly proportional to the setting in which they are working. According to Tejero et al. (2021), the work environment is defined as the location where employees carry out their duties. The personality feature also has an effect on the amount of work that is accomplished. It was shown that both the processing of knowledge and the generation of new knowledge were negatively impacted, but the processing of information at home improved (Shimura et al., 2021). Both having a healthy mental state (Smite et al., 2022) and having flexible work arrangements have been demonstrated to have favourable effects on employees who work remotely (Klimova & Klimov, 2021). According to Klimov and Klimov (2021), essential characteristics that may be used to predict employee productivity include self-management strategies and an acceptable working environment for remote employees.

Discussion

This research addresses the underexplored impact of remote work on productivity, as past reviews have not systematically evaluated this topic. The study considers 46 documents, primarily focusing on productivity comparisons and employee well-being across different sectors. Findings suggest that remote work has led to decreased productivity, especially for women, with mothers disproportionately affected. Additionally, factors like ineffective human resource policies, overtime at home, and work-related damages negatively impacted productivity. While working remotely does aid in reducing physical stress, it does not necessarily enhance productivity, with issues like interwork conflict among married partners and social isolation reducing work efficiency. Most data reviewed pertain to the pandemic period, as pre-pandemic data is sparse, given limited publications on remote work before this period. The lack of focus on personality traits and age as moderating factors, despite their potential influence, further highlights gaps in existing literature.

Conclusion

This research underscores the need for improved remote work policies, as current arrangements inadequately support productivity, especially among women. While remote work reduces physical stress, it also brings new challenges, such as increased home responsibilities and social

isolation, that diminish productivity. In addition, this research highlights the importance of tailoring remote work policies to accommodate varying personal and professional needs, particularly for women balancing work and household responsibilities. Addressing digital skill gaps, reducing isolation, and fostering supportive virtual work environments may further enhance productivity and well-being among remote employees across sectors and regions. The study calls for further research considering socioeconomic variations, blue-collar versus white-collar work comparisons, and diverse geographical contexts to gain a comprehensive understanding of remote work's productivity impacts across various demographics and job types.

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