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REMOTE WORK AND DIGITAL TECHNOLOGIES IN HEALTHCARE: IMPLICATIONS FOR HEALTHCARE WORKERS' MENTAL WELLBEING – A NARRATIVE REVIEW

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ABSTRACT

The rapid expansion of remote work and digital technologies has significantly transformed healthcare systems, particularly following the COVID-19 pandemic. While telework and digital tools have enabled continuity of care and organisational flexibility, their implications for healthcare workers' mental wellbeing remain insufficiently synthesised. Healthcare workers constitute a professional group highly exposed to occupational stressors, including high workload, emotional demands, and moral distress, which may be exacerbated or alleviated by digitalised work arrangements. The aim of this narrative review is to synthesise current evidence on the impact of remote work, telemedicine, and digital mental health interventions on the psychological wellbeing of healthcare workers and to identify key moderating factors influencing these outcomes. A structured literature search was conducted in PubMed and the Cochrane Library, including systematic reviews, observational studies, and intervention trials published in English. Findings indicate that remote work and telemedicine may offer benefits such as increased job flexibility, reduced infection risk, and improved efficiency, which can positively affect mental wellbeing when appropriately implemented. However, adverse outcomes, including social isolation, digital fatigue, blurred work–life boundaries, and increased cognitive load, are frequently reported, particularly in contexts of inadequate organisational support. Digital mental health interventions show potential for reducing stress and improving coping skills, although evidence of long-term effectiveness remains limited. Overall, the psychological impact of digitalised work in healthcare is highly context-dependent. Organisational policies that prioritise autonomy, training, workload management, and supportive digital infrastructures are essential to maximise benefits and mitigate risks for healthcare workers' mental wellbeing.

KEYWORDS

Remote Work, Digital Technologies, Telemedicine, Healthcare Workers, Mental Wellbeing, Burnout

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1. Introduction

The digital transformation of work has emerged as one of the most significant organisational shifts of the twenty-first century, reshaping professional roles, communication patterns, and work environments across sectors. In healthcare, a field traditionally grounded in face-to-face interactions and physical presence, this transformation has been both rapid and profound. Advances in information and communication technologies (ICTs) have enabled an increasing number of healthcare-related tasks to be performed remotely, including clinical consultations, diagnostics, documentation, education, and administrative coordination.

This transformation was dramatically accelerated during the COVID-19 pandemic, when healthcare systems worldwide were forced to adopt remote work arrangements and digital health technologies to maintain continuity of care while reducing the risk of infection. Telemedicine, virtual multidisciplinary meetings, and remote administrative work became essential components of healthcare delivery rather than optional innovations. Although many of these changes were implemented as emergency measures, they have persisted beyond the acute phase of the pandemic and are increasingly viewed as integral to future healthcare models.

Healthcare workers (HCWs) represent a professional group uniquely exposed to occupational stressors. High workload, time pressure, emotional labour, responsibility for patient outcomes, and exposure to suffering and ethical dilemmas place healthcare professionals at elevated risk of psychological distress and burnout. Even prior to the pandemic, burnout was widely recognised as a systemic problem in healthcare systems. Meta-analytic evidence indicates high prevalence rates of anxiety, depression, insomnia, and emotional exhaustion among HCWs compared with the general population, with particularly high rates observed during public health crises (Pappa et al., 2020).

Against this background, remote work and digital technologies have been proposed as potential strategies to alleviate some occupational stressors in healthcare. Reduced commuting time, increased flexibility, and enhanced autonomy may support work–life balance and psychological wellbeing. Telemedicine may improve perceived safety and efficiency by limiting unnecessary in-person contacts. At the same time, however, digitalisation introduces new psychosocial risks. These include technostress, digital fatigue, cognitive overload, social isolation, and blurred boundaries between work and private life. Persistent digital connectivity may intensify work demands and hinder psychological recovery.

Despite a rapidly growing body of research, evidence on the mental health implications of remote work and digital technologies for healthcare workers remains fragmented. Studies differ widely in terms of professional groups, technologies examined, and outcome measures, and findings are often inconsistent. Moreover, the psychological impact of digitalised work appears to be highly context-dependent, shaped by organisational policies, job design, leadership, and individual differences.

Therefore, the aim of this narrative review is to synthesise current evidence from PubMed- and Cochrane-indexed literature on the impact of remote work, telemedicine, and digital mental health interventions on healthcare workers' mental wellbeing. Specifically, this review seeks to:

- (1) examine the potential benefits and risks of remote work arrangements in healthcare;
- (2) analyse the psychosocial implications of telemedicine and digital tools;
- (3) evaluate the effectiveness of digital mental health interventions targeting healthcare workers; and
- (4) identify key moderating factors influencing mental wellbeing outcomes and implications for organisational practice and future research.

2. Methodology

2.1 Review Design

A narrative review methodology was selected to allow for a comprehensive and integrative synthesis of heterogeneous evidence across study designs, healthcare professions, and digital interventions. Narrative reviews are particularly suitable for emerging and multidisciplinary research areas, where conceptual frameworks are still evolving and where quantitative synthesis is limited by heterogeneity (Lyzwinski et al., 2024).

2.2 Literature Search Strategy

A structured literature search was conducted in **PubMed** and the **Cochrane Library**, two authoritative databases covering biomedical, psychological, and health services research. Searches included publications available up to early 2025. Search strings combined Medical Subject Headings (MeSH) and free-text terms related to healthcare workers, remote work, telemedicine, digital technologies, and mental health outcomes. Key terms included combinations of:

- “healthcare worker” OR “healthcare professional” OR “clinician” OR “nurse” OR “physician”;
- “remote work” OR “telework” OR “work from home”;
- “telemedicine” OR “telehealth” OR “digital health” OR “eHealth”;
- “mental health” OR “mental wellbeing” OR “burnout” OR “stress” OR “anxiety” OR “depression”.

Reference lists of relevant systematic reviews and key articles were also screened to identify additional studies.

2.3 Eligibility Criteria

Studies were eligible for inclusion if they:

- focused on healthcare workers or healthcare-related professional groups;
- examined remote work, telemedicine, digital tools, or digital mental health interventions;
- reported outcomes related to mental wellbeing, stress, burnout, or psychological health;
- employed quantitative, qualitative, or mixed-methods designs, including systematic reviews and intervention trials;
- were published in English and indexed in PubMed or the Cochrane Library.

Studies focusing exclusively on non-healthcare populations were excluded unless findings were clearly transferable to healthcare contexts.

2.4 Data Synthesis

Due to substantial heterogeneity in study designs, populations, interventions, and outcome measures, quantitative meta-analysis was not feasible. Instead, findings were synthesised narratively, with emphasis on identifying recurring themes, mechanisms, benefits, risks, and contextual factors influencing mental wellbeing outcomes.

3. Remote Work in Healthcare: Conceptual and Empirical Perspectives

3.1 Forms and Scope of Remote Work

Remote work in healthcare encompasses a broad spectrum of activities, ranging from teleconsultations and remote diagnostics to administrative tasks, documentation, education, research, and management. Hybrid work models, combining on-site and remote tasks, are increasingly common. However, the feasibility of remote work varies considerably across professional roles. Physicians, psychologists, radiologists, and administrative staff often have greater opportunities for telework compared with nurses, allied health professionals, and emergency care staff.

This variability has important implications for workload distribution, professional identity, and perceived fairness, which may indirectly affect mental wellbeing. Remote work should therefore be understood not as a uniform intervention but as a set of diverse practices embedded within specific organisational and professional contexts.

3.2 Potential Benefits for Mental Wellbeing

Empirical evidence suggests that remote work may offer several mental health benefits for healthcare workers when appropriately implemented. Reduced commuting time is consistently associated with lower fatigue and improved work–life balance (Oakman et al., 2020). Greater autonomy over work schedules and work pace may reduce emotional exhaustion and enhance job satisfaction, particularly among healthcare workers with caregiving responsibilities or chronic health conditions.

During the COVID-19 pandemic, remote work arrangements were also associated with reduced exposure to infectious diseases, which contributed to lower anxiety and improved perceived safety among healthcare staff (Kagiyama et al., 2022). For some professionals, telework facilitated better concentration and productivity by reducing interruptions commonly experienced in busy clinical environments.

3.3 Psychosocial Risks and Challenges

Despite these potential advantages, remote work introduces significant psychosocial challenges. Social isolation and reduced informal interaction with colleagues may undermine social support, a key protective factor against occupational stress. Qualitative studies describe feelings of loneliness, professional isolation, and reduced team cohesion among healthcare workers working remotely (Bodner et al., 2022).

Another major concern relates to blurred boundaries between work and private life. Persistent digital connectivity and expectations of constant availability may result in extended working hours and difficulty disengaging from work tasks. Such boundary blurring is associated with higher levels of stress, emotional exhaustion, and burnout (Shiri et al., 2022).

Importantly, negative effects appear more pronounced when remote work is involuntary, poorly structured, or inadequately supported. Lack of clear expectations, insufficient managerial support, and inadequate digital infrastructure exacerbate frustration and stress (Adegoke et al., 2025).

4. Digital Technologies and Telemedicine

4.1 Telemedicine as a Work Environment Transformation

Telemedicine has become a central component of modern healthcare delivery, enabling remote consultations, monitoring, and interdisciplinary collaboration. From the perspective of healthcare workers, telemedicine represents not only a clinical innovation but also a substantial transformation of the work environment.

Several studies report that telemedicine may enhance perceived efficiency and job satisfaction by reducing travel time and enabling more flexible scheduling (Zhao et al., 2022). Some clinicians perceive telemedicine as facilitating more focused patient interactions, particularly in follow-up care and mental health services.

4.2 Cognitive Load, Technostress, and Digital Fatigue

At the same time, digital tools may increase cognitive demands. Managing multiple digital platforms, electronic health records, and communication channels can contribute to cognitive overload and technostress. Healthcare workers frequently report frustration related to system usability, technical failures, and insufficient training (Ilola et al., 2024).

Digital fatigue, characterised by mental exhaustion resulting from prolonged screen use and digital communication, has emerged as an increasingly recognised phenomenon. These factors may negatively affect concentration, performance, and emotional wellbeing.

4.3 Digital Connectivity and Boundary Management

Persistent digital connectivity may foster a culture of constant availability. Research in occupational health psychology indicates that insufficient psychological detachment from work is associated with impaired recovery and higher stress levels (Griep et al., 2022). In healthcare settings, where responsibility for patient outcomes is high, this effect may be particularly pronounced.

5. Digital Mental Health Interventions

5.1 Types of Interventions

Digital mental health interventions targeting healthcare workers include online cognitive behavioural therapy (CBT), mindfulness-based programmes, stress-management training, resilience-building modules, and peer-support platforms. These interventions are attractive due to their scalability, flexibility, and potential to reduce stigma associated with seeking mental health support.

5.2 Evidence of Effectiveness

Randomised controlled trials and systematic reviews indicate that digital CBT and stress-management interventions may produce moderate reductions in stress, anxiety, and depressive symptoms among healthcare workers (Larsson et al., 2025). Cochrane reviews suggest short-term benefits, although evidence quality varies and effect sizes are modest (Pollock et al., 2020).

5.3 Limitations and Sustainability

Long-term effectiveness remains uncertain due to limited follow-up periods and high attrition rates. Engagement with digital interventions often declines over time, highlighting the importance of organisational support, integration into work routines, and tailoring interventions to user needs.

6. Moderating Factors Influencing Outcomes

6.1 Organisational Support and Leadership

Organisational factors play a central role in shaping the psychological impact of digitalised work. Supportive leadership, clear communication, and participatory implementation processes are associated with more positive mental wellbeing outcomes. Evidence suggests that organisational-level interventions are more effective than individual-level strategies alone in reducing burnout (West et al., 2016).

6.2 Job Design and Autonomy

Job design characteristics, such as autonomy, workload control, and task variety, moderate the effects of remote work and digital technologies. When healthcare workers perceive digitalisation as enhancing professional autonomy rather than increasing surveillance or workload, mental wellbeing outcomes are more favourable (Wang et al., 2024).

6.3 Individual Differences

Individual differences, including digital literacy, coping styles, and personal circumstances, influence experiences of remote work. Preferences for remote versus on-site work vary widely, underscoring the importance of flexible and hybrid work models.

7. Discussion

This narrative review highlights the complex and context-dependent relationship between remote work, digital technologies, and healthcare workers' mental wellbeing. Digitalisation offers substantial opportunities to enhance flexibility, safety, and efficiency, but also introduces new psychosocial risks that may exacerbate existing stressors if inadequately managed.

The findings emphasise that technology itself is not inherently beneficial or harmful. Rather, its impact depends on organisational context, job design, leadership, and worker involvement. Healthcare organisations that adopt participatory and supportive approaches to digital transformation are more likely to achieve positive mental wellbeing outcomes.

8. Implications for Practice and Policy

Healthcare organisations should adopt comprehensive strategies that integrate technological, organisational, and psychosocial considerations. Key recommendations include:

- involving healthcare workers in the design and implementation of digital tools;
- providing adequate training and technical support;
- promoting clear boundaries and right-to-disconnect policies;
- integrating digital mental health interventions into broader wellbeing strategies.

9. Limitations and Future Research

This review is limited by its narrative design and reliance on published literature. Future research should employ longitudinal and experimental designs to examine causal mechanisms and long-term effects. Greater attention should be paid to underrepresented professional groups and low-resource healthcare settings.

10. Conclusions

Remote work and digital technologies are reshaping healthcare work in profound ways. When thoughtfully implemented, they may support healthcare workers' mental wellbeing by enhancing flexibility and safety. However, without adequate organisational support, they risk intensifying stress and burnout. Sustainable digital transformation in healthcare must therefore prioritise healthcare workers' psychological wellbeing as a central outcome.

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Author Contributions

Conceptualization: J.M., P.D.;

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Writing – original draft: J.M.;

Writing – review and editing: P.D., A.M., P.S., R.P., M.G.;

Supervision: E.G.

All authors have read and agreed to the published version of the manuscript.

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