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AI Fatigue and Mental Health Implications: A Comprehensive Literature Review

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ABSTRACT

Introduction. The quick use of artificial intelligence (AI) in healthcare, technology, and businesses brings benefits like faster work and helpful decision support. However, it also creates new problems, causing worse mental health, burnout, and something called "AI fatigue". This means workers feel stressed by the technology, overwhelmed by too much information, anxious about AI capabilities, and tired from constantly having to adapt to new systems.

Materials and methods. This review summarizes 22 studies published between March 2025 and March 2026. The researchers used different methods, such as surveys of hundreds of people, interviews, and advanced data models. The studies included many types of workers, such as doctors, technology professionals, factory workers, and office employees.

Literature review. The studies show that AI can sometimes help workers, for example, by saving doctors time on paperwork. But often, poorly designed AI makes stress worse. The biggest reason for AI fatigue is that it increases the workload, creating new tasks like monitoring the system instead of removing work. Other major problems include a lack of help from managers, confusing AI systems, and not enough training. Conversely, workers feel much better when their company supports them, when they are trained well, and when the AI is clear and easy to understand. Keeping human control over the AI is also very important for reducing stress and protecting professional independence.

Summary and Conclusions. AI fatigue is a serious and measurable problem, but it can be managed with the right approach. The review clearly shows that preventing this fatigue is the responsibility of companies and AI designers, not the individual workers. To successfully use AI, organizations must treat it as a major workplace change. They must protect their employees' well-being and not just focus on making them work faster.

Keywords: AI fatigue; artificial intelligence; mental health; burnout; technostress; cognitive overload; workplace stress; clinician burnout; human-computer interaction

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1. Introduction

The rapid integration of artificial intelligence in healthcare, technology, and organizational workflows has generated considerable interest in understanding its psychological and occupational consequences. While AI offers benefits such as greater efficiency, automation of routine tasks, and better decision support, research suggests that implementation challenges, workload redistribution, and technology-related stressors may paradoxically contribute to mental health decline, burnout, and what has been termed "AI fatigue." This phenomenon refers to technology stress, cognitive overload, anxiety about AI capabilities and job security, and exhaustion from continuous adaptation to AI-augmented work environments [1-3].

Between March 2025 and March 2026, a growing number of studies examined AI's dual impact on mental health across diverse populations, including physicians, operating room professionals, technology workers, and employees in manufacturing and service sectors. This literature review synthesizes findings from 30 studies to address three key questions: (1) How does AI implementation affect clinician burnout? (2) What are the mechanisms linking AI use to user well-being and career outcomes? (3) What organizational factors and design interventions can reduce AI-related stress and fatigue?

The review analyzes the drivers, protective factors, and evidence-based interventions, with particular attention to quantitative effect sizes, odds ratios, and β coefficients that enable precise understanding of relationships between AI exposure and mental health outcomes.

2. Background and Theoretical Foundations

AI fatigue and technology-induced stress are understood within broader frameworks of technostress, occupational burnout, and human-computer interaction. Technostress theory suggests that digital technologies can cause through techno-overload (excessive workload), techno-invasion (blurred work-life boundaries), techno-complexity (difficulty mastering systems), techno-insecurity (job loss fears), and techno-uncertainty (constant system changes) [4]. AI introduces additional stressors beyond traditional IT, including a lack of transparency in algorithmic decision-making, concerns about autonomous decision-making, and ethical dilemmas regarding human oversight [5-6].

Burnout, as defined in occupational health psychology, consists of three components: emotional exhaustion, depersonalization, and reduced personal accomplishment. In healthcare, burnout is associated with lower quality of care, medical errors, and staff turnover. [1, 7]. The introduction of AI into clinical workflows interacts with existing burnout drivers - particularly documentation burden and administrative overload - and can either relieve or worsen burnout, depending on how well AI is implemented [1, 8].

Recent research distinguishes between AI-stressors and traditional technology, highlighting the role of perceived autonomy loss, trust in AI systems, and cognitive alignment between AI recommendations and clinical reasoning [4, 9]. Studies increasingly show that AI's impact on mental health is mediated by organizational factors (support, training, transparency) and individual factors (technological awareness, self-efficacy) rather than being a direct consequence of AI adoption [2, 10].

3. Methods and Approaches in the Literature

The 30 reviewed studies used a variety of research methods, reflecting the complexity of AI fatigue research. Scoping reviews synthesized evidence on AI's role in physician burnout and AI-based interventions for managing occupational stress [1, 11-12]. Cross-sectional surveys were the most common research design, with samples ranging from 200 to 683 participants drawn from technology professionals, healthcare workers, and general employees [2-3, 5, 10, 13].

Quantitative studies used structural equation modeling (SEM) to examine the pathways linking AI use to stress, burnout, and turnover intentions [2-3]. Machine learning techniques, including SHAP (SHapley Additive exPlanations) analysis, were applied to identify the most important factors predicting AI-induced burnout [3]. Qualitative approaches, such as semi-structured interviews with general practitioners and physicians, explored how clinicians perceive generative AI tools and their impact on workload and professional identity [14-15].

Study populations varied widely. Clinical studies focused on physicians, operating room professionals, and mental health providers [1, 5, 10, 16-17]. Technology sector studies examined young tech professionals (aged 21-35), software engineers, and IT workers [2-3]. Organizational studies included manufacturing workers, general employees in Indonesia, and healthcare administrators [13, 18]. This diversity allows for comparisons across different occupational contexts and helps identify sector-specific risk factors and protective mechanisms. Studies used validated measurement tools, including burnout scales (e.g., Maslach Burnout Inventory components), technology stress perception scales, AI anxiety inventories, and patient safety attitude questionnaires [5, 10]. Several studies also developed new measures specifically designed for AI-related stressors, such as AI-induced workload scales and AI transparency perception indices [3, 13].

4. Key Findings and Comparative Analysis

4.1 Clinician Burnout

AI's impact on clinician burnout demonstrates a nuanced pattern in which implementation quality and task alignment determine whether AI alleviates or exacerbates occupational stress. A scoping review of eight studies on AI and physician burnout found potential for AI to reduce burnout by decreasing documentation time, improving physician-patient interactions, and improving clinical workflow efficiency [1]. However, the same review identified key challenges: overreliance on AI and insufficient familiarity with technology may lead to misinformation or misuse, potentially canceling out any well-being benefits [1].

Evidence for AI's protective role comes from studies on ambient AI documentation tools. Research on ambient AI notes showed measurable reductions in documentation burden, with physicians reporting improved workflow efficiency and more time for patient interaction [8]. These findings align with theoretical predictions that reducing administrative load - a primary burnout driver - should improve clinician well-being [1].

Technological awareness emerged as a key mediating factor. A cross-sectional study of 350 doctors in Pakistan found that technological awareness significantly mediated the relationship

between AI implementation and psychological well-being [10]. Doctors with higher technological awareness experienced greater well-being benefits from AI adoption, suggesting that training and familiarity are essential for AI to have protective effect [10]. This highlights that AI tools alone are not enough; clinician preparedness and system usability determine outcomes.

Conversely, poorly designed or inadequately supported AI systems can become sources of stress. A qualitative study of UK general practitioners revealed mixed perceptions of generative AI, with concerns about accuracy, accountability, and the risk that AI-generated content may cause errors or harm the physician-patient relationship [14]. Physicians emphasized the need for strong human oversight, noting that all AI-generated drafts require review and editing to ensure accuracy and maintain professional accountability [14].

Trust in AI systems also influences burnout outcomes. Research on trust dynamics found that low trust in AI predictions, particularly when combined with high workload, increased clinician stress and decision-making burden [19]. This suggests that transparency, explainability, and demonstrated reliability are necessary conditions for AI to reduce burnout rather than add to it [9, 19].

4.2 User Well-Being in Technical and Non-Clinical Populations

Among technology workers and non-clinical employees, AI adoption demonstrates a clear pathway from technology stress to career burnout and turnover intentions. The strongest quantitative evidence comes from a structural equation modeling study of 683 young tech professionals (aged 21-35), which identified a chain mediation effect [2]. Use of generative AI tools positively affected technology stress perception ($\beta = .36, p < .001$), which in turn contributed to career burnout ($\beta = .53, p < .001$), subsequently increasing turnover intention ($\beta = .49, p < .001$) [2]. The chain mediation effect was statistically significant (indirect effect = .094, 95% CI [.071, .124]), explaining 67.1% of the total effect of AI usage on turnover intention [2]. This pathway shows that AI's impact on workforce retention operates primarily through psychological mechanisms of stress and burnout rather than direct effects.

A parallel study of 200 professionals in technical and managerial roles used SHAP-based machine learning to identify key predictors of AI-induced burnout [3]. The analysis found that working more than 50 hours per week was the strongest predictor (OR = 4.87), followed by lack of managerial support and poor transparency in AI-based performance evaluation [3]. Notably, fear of job loss was not a significant predictor, challenging the common assumption

that AI anxiety is primarily driven by job security concerns [3]. Instead, the evidence points to workload intensification and insufficient organizational support as the main drivers [3].

AI anxiety manifests differently across professional contexts. A cross-sectional study of 200 operating room professionals in Turkey measured AI anxiety using a validated scale and found differences by gender (higher in males) and education level (higher among those with postgraduate degrees) [5]. However, AI anxiety did not correlate with patient safety attitudes in this sample, suggesting that professional anxiety about AI may be separate from concerns about clinical outcomes [5]. This finding indicates that AI anxiety is multidimensional and context-dependent, requiring tailored assessment and intervention approaches.

The psychological costs of AI adoption go beyond anxiety and stress. A study examining the dual impact of AI on employee stress and mental health found that while AI can reduce certain task-related stressors through automation, it also introduces new psychological costs related to adaptation demands, concerns about being replaced and reduced autonomy [20]. This dual impact framework highlights the need for balanced implementation strategies that maximize benefits while actively reducing psychological costs [20].

In Indonesian employees ($n = 257$), AI use did not directly impact health harm but demonstrated a significant positive relationship with workload ($\beta = 0.490$), which in turn strongly correlated with health harm ($\beta = 0.819$) [13]. This establishes workload as a full mediator, meaning that adverse health effects linked to AI integration are indirectly channeled through intensified workload rather than being directly caused by the technology itself [13]. This finding has important implications for intervention design, suggesting that workload management is the critical leverage point for protecting employee health in AI-augmented environments.

4.3 Organizational Stress and Workplace Impacts

Organizational factors play a key role in determining whether AI adoption causes or reduces stress, with support structures, transparency, and change management practices acting as critical moderators. A study of manufacturing workplaces found that organizational support and employees' confidence in using technology reduced technostress and burnout during AI transitions [18]. Organizations that provided comprehensive training, clear communication about AI's role, and ongoing technical support reported lower rates of AI-related stress compared to those with minimal support [18].

Transparency in AI operations proved to be a consistent protective factor across multiple studies. Research on AI-enabled performance evaluation found that transparency in how AI systems assess employee performance significantly reduced stress and job anxiety [21]. Making AI

decision-making processes understandable to affected employees was identified as an effective way to reduce AI-induced stress [21]. This aligns with broader human-computer interaction (HCI) principles, which emphasize the importance of explainability and user understanding in AI system design [9].

An HCI-guided intervention study developed and pilot-tested a model combining explainable AI diagnostics with wellness hints and workload management tools [3]. The intervention targeted three levels: individual (stress awareness and coping resources), team (peer support and communication), and organizational (policy changes and workload redistribution). Pilot testing reported a 25% reduction in perceived stress, demonstrating the viability and potential effectiveness of multi-level, design-informed interventions [3]. The study emphasized that HCI principles should guide AI implementation to minimize psychological harm [3].

Inadequate training and poor integration can turn AI from a potential relief tool into a new source of stress. Multiple studies documented that when AI systems are introduced without sufficient training, clear role definitions, or proper integration with existing workflows, they create confusion, increase cognitive load, and generate resistance [1, 3, 11]. This highlights that technological solutions alone are not enough. Strategic rollout, staff preparation, and ongoing support are essential for positive outcomes [1, 3].

The role of managerial support extends beyond technical training to include emotional support, workload monitoring, and advocacy for employee well-being during technological transitions. Studies consistently found that employees who perceived strong managerial support experienced lower technology stress and burnout, even when facing similar levels of AI-related change [2-3, 18]. This suggests that leadership practices and organizational culture are as important as technical design features in shaping AI's mental health impacts.

5. Drivers of AI Fatigue and Mental Health Decline

A review of all 30 studies reveals a consistent set of factors that increase the risk of AI fatigue and mental health decline:

Workload Intensification: The most consistent predictor across studies is increased workload associated with AI adoption. Working more than 50 hours per week showed the strongest association with AI-induced burnout (OR = 4.87) [3]. AI use significantly increased perceived workload ($\beta = 0.490$), which fully mediated the relationship between AI adoption and health harm ($\beta = 0.819$) [13]. This pattern suggests that AI often redistributes rather than eliminates work, creating new demands for monitoring, verifying outputs, and system management that compound existing responsibilities.

Insufficient Organizational Support: Lack of managerial support emerged as a primary structural predictor of AI-related burnout [3]. Organizations that failed to provide adequate training, clear communication, and ongoing technical assistance experienced higher rates of technology stress and turnover intentions [2, 18]. The absence of support infrastructure leaves employees to navigate AI adoption independently, increasing cognitive load and stress.

Opacity and Lack of Transparency: Poor transparency in AI-enabled evaluation and decision-making processes consistently predicted higher stress and anxiety [3, 21]. When employees do not understand how AI systems assess their performance, make recommendations, or influence organizational decisions, they experience greater uncertainty and loss of control - core components of technostress [4, 21].

Inadequate Training and Technological Familiarity: Insufficient familiarity with AI technology limits the realization of potential benefits and may introduce risks of misuse or overreliance [1]. Studies found that technological awareness mediated the positive effects of AI on well-being, indicating that training deficits prevent employees from effectively leveraging AI tools [10]. In contrast, well-trained users experienced AI as a supportive resource rather than a stressor [10].

Techno-Complexity and Adaptation Demands: The complexity of AI systems and the continuous need to adapt to evolving capabilities create ongoing cognitive demands [4, 20]. Employees report exhaustion from constant learning requirements and the pressure to maintain competence with rapidly changing technologies [20]. This adaptation fatigue is distinct from traditional workload stress and requires specific interventions focused on learning support and system stability.

Perceived Autonomy Loss: AI systems that reduce employee autonomy or override professional judgment generate resistance and stress [6, 9]. Healthcare professionals, in particular, expressed concerns about AI undermining clinical autonomy and the physician-patient relationship [14-15]). Maintaining meaningful human control and decision-making authority is essential for psychological well-being in AI-augmented work [6, 9].

Job Insecurity and Skill Obsolescence Concerns: While fear of job loss was not a significant predictor in some studies [3], broader concerns about skill obsolescence and disruptions to career trajectories contribute to AI-related anxiety [20, 22]. Employees worry that AI will devalue their expertise or require skill sets they cannot develop, creating existential professional stress [20, 22].

6. Protective Factors and Moderators

The reviewed studies identify several protective factors that can buffer against AI fatigue and support mental health during technological transitions:

Technological Awareness and Self-Efficacy: Higher technological awareness significantly mediated the positive relationship between AI implementation and psychological well-being among physicians [10]. Technology self-efficacy - confidence in one's ability to use and master AI tools - attenuated technology stress and burnout in multiple studies [2, 18]. Organizations that invest in comprehensive, ongoing training programs enable employees to develop competence and confidence, transforming AI from a threat into a resource [10, 18].

Organizational Support: Strong organizational support consistently emerged as a protective factor across clinical and non-clinical settings [2-3, 18]. Support should cover multiple dimensions: technical assistance, emotional support from managers, clear communication about AI's role and limitations, and advocacy for employee well-being during transitions [2, 18]. Organizations that prioritize support infrastructure experience lower rates of technology stress, burnout, and turnover [2, 18].

Transparency and Explainability: Algorithmic transparency effectively reduces AI-induced stress and job anxiety [21]. When employees understand how AI systems function, what data they use, and how decisions are made, they experience greater sense of control and trust [21]. Explainable AI (XAI) approaches that make system reasoning visible and comprehensible are essential design features for mental health protection [3, 9, 21].

Workload Management and Redistribution: Strategic workload management prevents AI from becoming a source of intensification [13]. Organizations that actively monitor workload, redistribute tasks to capitalize on AI efficiencies, and prevent work creep experience better mental health outcomes [3, 13]. Workload management requires intentional organizational policies rather than assuming AI will automatically reduce burden [13].

Human Oversight and Autonomy Preservation: Maintaining strong human oversight and preserving professional autonomy protect against AI-related stress [14-15]. Healthcare professionals emphasized the importance of reviewing and editing AI-generated content, ensuring that AI serves as a decision support tool rather than a replacement for clinical judgment [14]. Design approaches that position AI as augmentation rather than automation support both effectiveness and well-being [9, 15].

Empathetic HCI Design: Human-computer interaction design that incorporates empathy, user-centered principles, and wellness considerations can significantly reduce AI-related stress [3]. An HCI-guided intervention combining explainable diagnostics, well-being hints, and peer

support mechanisms achieved a 25% reduction in perceived stress in pilot testing [3]. Design features that acknowledge user emotional states, provide supportive feedback, and facilitate human connection buffer against technology-induced isolation and stress [3].

Clear Communication and Change Management: Transparent communication about AI implementation plans, expected changes, and support resources reduces uncertainty and anxiety [18, 21]. Effective change management practices that involve employees in AI adoption decisions, gather feedback, and continuously improve systems based on user experience promote acceptance and reduce resistance [18].

Peer Support and Team Cohesion: Interventions that facilitate peer support and maintain team cohesion during AI transitions help employees process stress and develop collective coping strategies [3]. Social support from colleagues who share similar experiences with AI adoption provides emotional validation and practical problem-solving resources [3].

7. HCI-Guided Interventions and Design Recommendations

The reviewed literature provides evidence-based guidance for designing AI systems and implementation strategies that protect mental health and reduce fatigue:

Multi-Level Intervention Framework: The most comprehensive intervention model identified operates at individual, team, and organizational levels simultaneously [3]. Individual-level components include stress awareness tools, coping resources, and personalized wellness hints. Team-level components facilitate peer support, communication, and shared problem-solving. Organizational-level components address policy changes, workload redistribution, and structural support systems [3]. This multi-level approach recognizes that AI fatigue comes from interactions between individual, social, and organizational factors, requiring coordinated action across all levels [3].

Explainable AI (XAI) Integration: Incorporating explainability features that make AI reasoning transparent and comprehensible is a foundational design principle [3, 9, 21]. XAI approaches should provide users with understandable explanations of AI recommendations, highlight key factors influencing decisions, and enable users to interrogate system logic [9]. Explainability builds trust, supports learning, and enables users to identify and correct errors, reducing anxiety and increasing confidence [9, 21].

Cognitive Alignment Design: AI systems should be designed to align with users' cognitive processes and professional reasoning patterns rather than imposing alien logic [9]. In healthcare contexts, this means designing AI that "thinks with" clinicians by presenting information in formats consistent with clinical reasoning, highlighting relevant factors, and supporting rather

than replacing diagnostic processes [9]. Cognitive alignment reduces cognitive load and supports seamless integration into existing workflows [9].

Workload Monitoring and Adaptive Systems: AI systems should include built-in workload monitoring capabilities that detect when users are experiencing overload and adaptively adjust demands [3, 13]. Adaptive systems might reduce notification frequency, defer non-urgent tasks, or suggest breaks when stress indicators are elevated [3]. This requires AI systems to be designed with user well-being as an explicit objective, not just task efficiency [3].

Transparency in Performance Evaluation: When AI is used for performance evaluation, transparency about evaluation criteria, data sources, and decision processes is essential [3, 21]. Employees should have access to their AI-generated performance data, understand how metrics are calculated, and have mechanisms to contest or contextualize automated assessments [21]. Transparent evaluation systems reduce anxiety and perceptions of unfairness [21].

Training and Onboarding Programs: Comprehensive training programs should address not only technical skills but also conceptual understanding of AI capabilities and limitations, strategies for effective human-AI collaboration, and awareness of potential biases and errors [1, 10, 18]. Training should be ongoing rather than one-time, recognizing that AI systems evolve and users' needs change over time [10, 18].

Human-in-the-Loop Design: AI systems should be designed with meaningful human control points where users can override, modify, or reject AI recommendations [14-15]. In clinical contexts, this means ensuring that AI-generated documentation or diagnostic suggestions are always reviewed and approved by clinicians before being finalized [14]. Human-in-the-loop design preserves autonomy and professional responsibility while leveraging AI capabilities [14-15].

Wellness-Integrated Interfaces: Interface design should incorporate wellness features such as stress indicators, mindfulness prompts, and encouragement for breaks [3]. Rather than maximizing productivity at all costs, wellness-integrated interfaces balance efficiency with user well-being, recognizing that sustainable performance requires attention to mental health [3].

Participatory Design Processes: Involving end-users in AI system design and implementation decisions increases acceptance, identifies usability issues early, and ensures that systems meet actual user needs [18]. Participatory design processes empower users, reduce resistance, and create systems that genuinely support rather than burden workers [18].

Feedback Mechanisms: AI systems should include strong feedback mechanisms that enable users to report problems, suggest improvements, and share experiences [18]. Organizations

should commit to continuous adjustment based on user feedback, demonstrating responsiveness to employee concerns and continuously improving system usability and supportiveness [18].

8. Discussion

8.1 Synthesis of Evidence

The evidence synthesized in this review reveals that AI's impact on mental health is neither uniformly positive nor negative but contingent on implementation quality, organizational support, and design features. Three key insights emerge from the comparative analysis:

First, AI fatigue operates through identifiable psychological pathways that can be measured and intervened upon. The chain mediation model: AI usage → technology stress → burnout → turnover intention. It provides a clear mechanistic understanding with quantified effect sizes [2]. This pathway indicates that interventions targeting technology stress (through training, support, and design improvements) can interrupt the cascade toward burnout and attrition [2].

Second, workload intensification is the primary mechanism linking AI adoption to adverse health outcomes, rather than direct effects of technology exposure [13]. AI systems often redistribute work, creating new demands for monitoring, verification, and system management that compound existing responsibilities [13]. This finding challenges assumptions that automation automatically reduces burden and highlights the need for intentional workload management strategies [13].

Third, protective factors are consistently organizational and design-related rather than individual-level. While individual factors like self-efficacy matter, the strongest protective effects come from organizational support, transparency, training, and HCI-informed design [2-3, 10, 18, 21]. This suggests that responsibility for preventing AI fatigue lies primarily with organizations and system designers rather than with individual employees' resilience or adaptation [2-3, 18].

The evidence also reveals important sector-specific patterns. In healthcare, AI's potential to reduce documentation burden offers a clear pathway to burnout mitigation, but only when systems are well-designed, integrated into workflows, and supported by training [1, 8]. Healthcare professionals emphasize the non-negotiable importance of human oversight and clinical autonomy [14-15]. In technology sectors, the rapid pace of AI evolution creates continuous adaptation demands that contribute to exhaustion, with workload and support deficits as primary stressors [2-3]. In general organizational contexts, transparency in AI-enabled evaluation and decision-making emerges as particularly critical for reducing anxiety and maintaining trust [21].

8.2 Limitations and Gaps

Several limitations and gaps in the current evidence base warrant attention:

Temporal Dynamics: Most studies employed cross-sectional designs, limiting understanding of how AI fatigue develops over time [2-3, 5, 10, 13]. Longitudinal research is needed to identify critical periods of vulnerability, track adaptation trajectories, and assess long-term mental health consequences of sustained AI exposure.

Intervention Effectiveness: While the HCI-guided intervention showed promising pilot results (25% stress reduction) [3], rigorous evaluation through randomized controlled trials is lacking. The evidence base would benefit from controlled studies comparing different intervention approaches and identifying which components are most effective.

Generalizability: Samples were often limited to specific geographic regions (e.g., Pakistan, Turkey, Indonesia, UK) or occupational groups, raising questions about generalizability across cultural contexts and sectors [5, 10, 13-14]. Cross-cultural research examining how cultural values and organizational norms moderate AI's mental health impacts would strengthen the evidence base.

Mechanism Specificity: While mediation pathways have been identified, the specific psychological mechanisms remain underspecified. For example, what cognitive and emotional processes link technology stress to burnout? How do different types of AI stressors (complexity, opacity, autonomy loss) differentially affect mental health outcomes?

Positive Outcomes: The literature focuses heavily on negative outcomes (stress, burnout, anxiety), with less attention to potential positive impacts such as increased job satisfaction, enhanced creativity, or improved work-life balance when AI successfully reduces burden. A more balanced examination of both costs and benefits would provide a fuller picture.

Individual Differences: While some studies examined subgroup differences (e.g., by gender, education level) [5], systematic investigation of individual difference moderators (personality traits, coping styles, prior technology experience) is limited. Understanding who is most vulnerable to AI fatigue could inform targeted interventions.

Measurement Standardization: The field lacks standardized, validated measures of AI-specific stressors and fatigue. Different studies used varied instruments, making cross-study comparison difficult. Development and validation of AI fatigue scales would advance the field.

9. Future Directions and Recommendations

Based on the evidence reviewed, several priorities arise for research, practice, and policy:

Research Priorities:

- Conduct longitudinal studies tracking AI fatigue development over months and years, identifying critical periods and long-term trajectories.
- Implement randomized controlled trials of HCI-guided interventions, comparing multi-level approaches to standard implementation practices.
- Develop and validate standardized measures of AI fatigue, AI-specific stressors, and AI-related well-being.
- Investigate positive outcomes and conditions under which AI enhances rather than diminishes well-being.
- Examine cultural and contextual moderators of AI's mental health impacts across diverse settings.
- Explore mechanisms linking specific AI design features to psychological outcomes, informing evidence-based design principles.

Practice Recommendations:

- For Organizations: Implement comprehensive support infrastructure including training, technical assistance, transparent communication, and workload monitoring. Treat AI adoption as a change management process requiring ongoing attention to employee well-being rather than a one-time technical implementation.
- For System Designers: Prioritize explainability, cognitive alignment, human oversight, and wellness integration in AI system design. Employ participatory design processes that involve end-users throughout development and refinement.
- For Healthcare Leaders: Focus AI implementation on high-burden administrative tasks (documentation, scheduling) where efficiency gains directly translate to clinician relief. Ensure strong human oversight protocols and preserve clinical autonomy. Invest in technological awareness training that builds both skills and conceptual understanding.
- For Technology Sector Leaders: Address workload intensification proactively through task redistribution and work redesign. Provide strong managerial support and create cultures that value sustainable performance over constant productivity maximization.

Policy Recommendations:

- Develop guidelines for ethical AI implementation that include mental health impact assessment as a standard component of AI adoption decisions.
- Establish transparency standards for AI-enabled performance evaluation and decision-making in employment contexts.
- Require training and support infrastructure as conditions for AI deployment in high-stakes settings like healthcare.
- Fund research on AI's mental health impacts and evidence-based intervention development.
- Create mechanisms for worker voice and participation in organizational AI adoption decisions.

Design Principles:

- Explainability First: Make AI reasoning transparent and comprehensible to users.
- Cognitive Alignment: Design AI that works with users' existing reasoning patterns rather than imposing alien logic.
- Preserve Autonomy: Ensure meaningful human control and override capabilities.
- Monitor Well-Being: Build workload and stress monitoring into AI systems with adaptive responses.
- Support Learning: Provide ongoing training and conceptual education, not just technical instruction.
- Facilitate Connection: Design for peer support and team cohesion rather than isolated human-AI interaction.
- Iterate Responsively: Create feedback mechanisms and commit to continuous refinement based on user experience.

10. Conclusion

The evidence from March 2025 to March 2026 demonstrates that AI fatigue and its mental health implications are significant, measurable, and can be addressed through intervention. AI adoption produces different outcomes depending on implementation quality: when well-designed and adequately supported, AI can reduce burden and improve well-being, particularly by alleviating documentation load in healthcare settings. However, poorly implemented AI systems generate technology stress that leads to burnout and turnover through measurable pathways.

The drivers of AI fatigue are clear: workload intensification (OR = 4.87 for >50 hours/week), insufficient organizational support, lack of transparency in AI operations, inadequate training,

and perceived loss of autonomy. Protective factors are equally well-established: technological awareness, organizational support, transparency, workload management, human oversight, and HCI-guided design. The 25% stress reduction achieved through multi-level, design-informed intervention demonstrates that evidence-based solutions are practical and achievable.

Responsibility for preventing AI fatigue lies primarily with organizations and system designers rather than individual workers. Moving forward requires treating AI adoption as a complex change management process that prioritizes human well-being alongside efficiency gains. By implementing the evidence-based recommendations outlined in this review - comprehensive support infrastructure, explainable and user-aligned design, workload monitoring, transparency in evaluation, and participatory implementation - employers can harness AI's benefits while safeguarding the mental health of the workforce.

As AI continues to expand across healthcare, technology, and organizational life, understanding and reducing its psychological costs becomes increasingly urgent. The evidence reviewed here provides a foundation for action, but continued research, vigilant monitoring, and commitment to human-centered design will be essential to ensure that technological progress serves rather than undermines human well-being.

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Author's contribution

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Declaration of the use of generative AI and AI-assisted technologies in the writing process:

During the preparation of this work, the author used generative AI to assist with grammar and stylistic editing to ensure appropriate academic language and for translation into English. After using this tool, the author reviewed and edited the content as needed and takes full responsibility for the final content of the manuscript.

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