

Research Article

# Mapping the Impact: A Systematic Review of the Psychological and Social Repercussions of Technostress

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## Abstract

Technostress, a negative psychological state arising from an inability to cope with the demands of information and communication technologies (ICTs), has become a pervasive psychosocial challenge in the digital age. This systematic review synthesizes and critically evaluates the extant literature from 2015 to 2025 to provide a comprehensive analysis of the psychological and social aftermaths of technostress. The findings robustly link specific technostress creators, such as techno-overload, techno-invasion, and techno-uncertainty, to severe psychological consequences, including heightened anxiety, clinical depression, and professional burnout. Socially, technostress erodes relational and professional boundaries, significantly increasing work-family conflict and, paradoxically, fostering social isolation despite the hyper-connected nature of modern life. However, these outcomes are not uniform across populations; they are significantly moderated by demographic factors like age, gender, and socioeconomic status, as well as critical contextual factors such as digital literacy, organizational support cultures, and individual coping mechanisms. The review concludes that effectively mitigating technostress requires a multi-level, systemic approach. This approach must integrate individual coping strategies, organizational policies that proactively protect employee boundaries, and a fundamental shift towards ethical, human-centric technology design. Future research should prioritize longitudinal studies to establish causality, intervention-based research to test mitigation strategies, and explore the evolving nature of technostress in the context of emerging technologies like artificial intelligence and algorithmic management.

## Keywords

Technostress, Psychological Wellbeing, Burnout, Work-Family Conflict, Social Isolation, Systematic Review, Digital Literacy, AI

## 1. Introduction

The pervasive and accelerating digitalization of modern society has fundamentally altered the fabric of work, education, and social interaction [23, 24]. While technology offers undeniable benefits in efficiency, connectivity, and access to information, its constant and often intrusive use induces a significant negative psychological state known as "technostress." Originally conceptualized by Brod [1] as a modern

maladaptation to computer technology, technostress is now broadly defined as the stress experienced by individuals as a result of their inability to cope with the demands of ICTs in a healthy manner [32]. This phenomenon is characterized by specific, well-researched stressors: techno-overload (excessive workload and pace due to technology), techno-invasion (the blurring of boundaries between work and personal life),

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techno-complexity (the challenge of using complex systems), techno-uncertainty (the constant need to adapt to updates), and techno-insecurity (the fear of being replaced by technology) [17, 26, 35].

Over the past decade (2015–2025), research has undergone a significant shift. The focus has moved beyond merely identifying and defining technostress creators to rigorously quantifying its profound psychological and social aftermaths across diverse populations [16, 23]. The psychological consequences are severe and well-documented, with strong empirical links to anxiety, depression [9], burnout, and chronic emotional exhaustion [1, 11]. Socially, technostress acts as a corrosive force on interpersonal relationships and community cohesion. It increases work-family conflict [2, 18] and, ironically, can foster feelings of social isolation and loneliness by replacing deep, meaningful face-to-face interactions with superficial digital communication [16, 19].

Crucially, these outcomes are not uniform or deterministic. They are significantly moderated by key demographic and contextual factors. Age is a critical moderator; adolescents and young adults show heightened vulnerability to the negative mental health impacts of social media and addictive technology use [20], whereas older adults, while initially challenged by techno-complexity, can experience reduced social isolation and enhanced well-being through supported technology adoption [12, 22]. Gender also plays a nuanced role, with studies indicating varied impacts and coping mechanisms across different groups [7]. Furthermore, organizational context, leadership styles, and, most importantly, an individual's level of digital literacy and self-efficacy are pivotal moderating factors that can either exacerbate or buffer against the effects of technostress [12, 18]. Therefore, this review argues that the effective mitigation of technostress requires multi-level, systemic strategies. These strategies must include organizational policies that address its structural causes, individual training that enhances coping resources, and a fundamental re-evaluation of technology design principles to prioritize human well-being [27, 33].

## 2. Literature Review

The conceptual foundation of technostress was laid by Brod in his seminal work, which defined it as a modern adaptation disease stemming from an inability to cope healthily with new computer technologies. This foundational concept was later operationalized and refined within organizational settings by Tarafdar et al. [17, 21], who identified and validated five key techno-stressors: techno-overload, techno-invasion, techno-complexity, techno-uncertainty, and techno-insecurity. This robust framework has since enabled extensive empirical research into the negative outcomes associated with these stressors [16, 18]. Guided by this conceptualization, empirical studies have consistently showed that technostress, particularly stemming from techno-invasion and techno-overload contribute to significant adverse psychological outcomes.

These include clinically relevant levels of anxiety, depressive symptoms, and the chronic depletion of mental resources leading to emotional exhaustion, a core dimension of burnout [9, 16]. In workplace contexts, technostress is a primary driver of burnout syndrome, which is characterized by emotional exhaustion, cynicism, and reduced personal accomplishment [11]. The "always-on" culture facilitated by mobile technology impedes necessary psychological detachment from work, creating a state of perpetual vigilance that prevents recovery and leads to chronic stress [3, 34].

Vulnerability to these psychological effects is not uniform and is significantly moderated by age. Adolescents are highly susceptible to negative mental health impacts, which are often mediated by problematic social media use and the pressures of online social comparison [20]. In contrast, older adults, though initially challenged by techno-complexity, often experience a net enhancement in well-being through reduced social isolation after successful technology adoption, highlighting the "gray digital divide" and its potential closure [12, 15].

The repercussions of technostress extend profoundly into the social domain. Here, techno-invasion is identified as a primary contributor to work-family conflict (WFC), where the constant intrusion of work-related communications into personal and family time strains domestic relationships and reduces overall life satisfaction [2, 5, 18, 29]. This boundary-blurring effect has been exacerbated by the global shift to remote work, making flexibility a potential stressor rather than a benefit [5]. Paradoxically, the very technologies designed for connectivity can foster social isolation and loneliness by promoting superficial online interactions at the expense of deeper, more nourishing face-to-face communication [14, 19]. On the other hand, the social impact is complex; for geographically or socially isolated populations, such as the elderly or individuals with mobility issues, these same technologies can be a lifeline, strengthening social ties and providing crucial support [16, 22]. Within organizations, technostress can erode trust and psychological safety, damaging the social fabric through the implementation of intrusive monitoring technologies and a culture that prizes constant connectivity over sustainable work practices [25].

The relationship between technostress and its aftermath is not universal but is moderated by a matrix of factors [30]. Beyond age, gender plays a nuanced role, with some studies indicating that women, particularly adolescent girls, may experience stronger negative effects related to social media and communication demands [7, 20]. Conversely, higher digital literacy, strong technology self-efficacy, and robust organizational and social support systems have been consistently shown to act as powerful buffers against the negative impacts of technostress [12, 18, 28]. The emerging research on mindfulness suggests that it can intervene between technostress creators and strain outcomes, helping individuals maintain focus and emotional regulation in the face of digital distractions [10, 13].

### 3. Methods

This paper was conducted to address a central research question: "To what extent does digital literacy reduce the negative psychological effects of technostress in the workplace?" To ensure a comprehensive and unbiased synthesis of the existing evidence, the review process was structured according to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. To achieve this, the investigation began with a systematic search of the literature across several major academic databases, including PubMed, Scopus, Web of Science, and Google Scholar. The search was designed to capture all relevant studies published between January 2015 and March 2025. To achieve this, a broad and inclusive search strategy was developed. This involved combining a set of keywords related to the core concept of "technostress", such as "digital stress," "ICT stress," and "technology-induced stress", with another set of terms describing psychological outcomes, including "anxiety," "depression," "burnout," and "emotional exhaustion." These terms were strategically linked using Boolean operators to maximize the retrieval of pertinent studies.

Concurrently, a clear set of criteria was established to determine which studies would be included in the final review. To be eligible, a study had to be a peer-reviewed academic article published in English within the specified date range. Furthermore, the study needed to present original research findings that directly examined the links between technostress and its psychological or social effects on human subjects. Articles that were purely theoretical, or that did not focus on these specific relationships, were excluded from consideration. With these criteria defined, the selection of studies proceeded in two distinct phases to ensure accuracy and consistency. The initial phase involved screening the titles and abstracts of all identified records against the inclusion criteria. In the second phase, the full text of every article that passed the first screening was retrieved and thoroughly examined to make a final judgment on its relevance. To enhance the reliability of this selection process and minimize potential bias, two reviewers independently performed these screenings. Additionally, for every study that met all the inclusion criteria, key information was systematically extracted using a standardized data collection form. This captured details such as full titles, journal names, publication year, research objectives, methodology, the main variables investigated, and the study's significant findings, particularly those relating to technostress outcomes and influencing factors like digital literacy. The findings from all the included studies were synthesized narratively, a process that integrated the diverse research findings to provide a consolidated perspective on the psychological impacts of technostress and how digital literacy may help to mitigate them.

### 4. Results

This section presents the findings of the systematic review,

beginning with a description of the study selection process and concluding with a thematic synthesis of the evidence. The synthesis is structured around five central themes that capture the current state of knowledge concerning technostress, reflecting both its well-established consequences and its rapidly evolving nature in the contemporary digital workplace.

#### 4.1. Study Selection Process

The initial database search yielded 588 records. After removing 97 duplicates and 39 records marked as ineligible by automation tools, 209 records underwent title and abstract screening. Of these, 101 were excluded for not meeting the inclusion criteria. The full texts of the remaining 108 reports were sought for retrieval, with 63 not being accessible. Forty-five full-text articles were assessed for eligibility, leading to the exclusion of 35 studies for reasons such as ineligible study design or population ( $n=23$ ), ineligible outcome data ( $n=9$ ), or insufficient methodological details ( $n=3$ ). A total of 10 studies met all inclusion criteria and were included in the final review. This process is detailed in the diagram below.

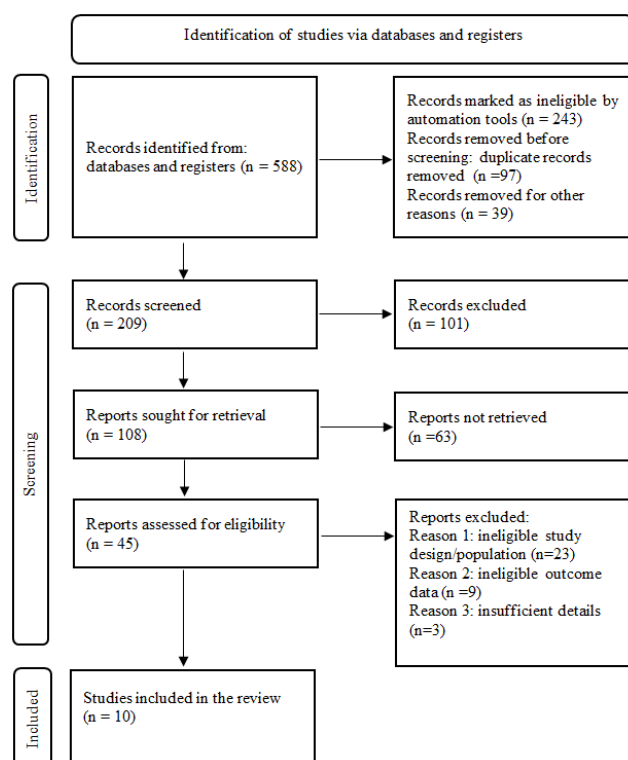


Figure 1. Prisma Flow Diagram.

#### 4.2. Thematic Synthesis of Findings

The 10 included studies, summarized in Table 1, provide a rich overview of the evolution of technostress research over the past decade. The synthesis of their findings reveals several core themes:

### 4.3. The Dual Nature of Technostress

Research has matured to recognize that technology can be both a challenge stressor (potentially motivating) and a hindrance stressor (unambiguously negative). Tarafdar et al. [18] explicitly proposed this "technostress trifecta," separating techno-eustress (positive) from techno-distress (negative) and emphasizing the critical role of system design in determining the user experience.

### 4.4. Confirmed Negative Outcomes

The link between technostress creators and negative outcomes is robustly confirmed, particularly through meta-analyses like Li and Wang [10]. These creators consistently correlate with reduced job performance, lower job satisfaction, and impaired psychological well-being, including anxiety, burnout, and depression.

### 4.5. Evolving Stressors

The landscape of technostress is dynamic. New dimensions

have emerged, such as "cyber-risk stress" (fear of security breaches and burden of protocols) and "AI-induced stress" stemming from the opacity, unpredictability, and perceived loss of control associated with AI systems and algorithmic management, as seen in the gig economy [4].

### 4.6. The Centrality of Boundaries

The invasion of work into personal life is a persistent and central theme. Studies on remote work [5] confirm that the blurring of boundaries is a major creator of conflict and burnout.

### 4.7. Effective Mitigation Strategies

Evidence points to the effectiveness of specific coping mechanisms. Meta-analyses indicate that problem-focused coping (e.g., acquiring new digital skills, time management) is generally more effective than emotion-focused coping (e.g., avoidance). Furthermore, individual traits like mindfulness [13] and organizational factors like support systems act as significant buffers.

**Table 1.** Summary of the Included Studies.

| Study Title                                                                                                      | Year | Journal                                                           | Key Focus & Findings                                                                                                                                                  | Methodology                                             |
|------------------------------------------------------------------------------------------------------------------|------|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| The Technostress Trifecta: Techno-Eustress, Techno-Distress, and Design.                                         | 2019 | Information Systems Journal                                       | Proposes a dual nature of technostress: positive (eustress) and negative (distress). Emphasizes the critical role of system design in influencing user stress levels. | Conceptual Theory Building                              |
| Technostress Dark Side of Technology in the Workplace: A Scientometric Analysis.                                 | 2020 | International Journal of Environmental Research and Public Health | A follow-up review examining the evolution of technostress research, confirming its negative impact on job satisfaction, organizational commitment, and productivity. | Scientometric analysis of existing research literature. |
| Effects of conflicts and technostress on employees' job performance and satisfaction in a work-from-home scheme. | 2024 | International Journal of Academy and Industry Research            | Focuses on remote workers. Finds that the blurring of boundaries between work and home is a major technostress creator, leading to burnout.                           | Quantitative Study                                      |
| The Role of Mindfulness in Mitigating the Negative Consequences of Technostress                                  | 2022 | Information Systems Frontiers                                     | Empirical study showing that mindfulness acts as a buffer between technostress creators and resulting strain, reducing anxiety and improving focus.                   | Quantitative Study                                      |
| Technostress Creators and Job Performance Among Frontliners: Theorizing the Moderating Role of Self-Efficacy     | 2022 | Frontiers in Psychology                                           | Meta-analysis of 95 studies. Confirms that technostress creators (overload, complexity, etc.) negatively correlate with job performance and wellbeing.                | Quantitative Study                                      |
| The impact of technostress creators on academics' cybersecurity fatigue in South Africa                          | 2023 | Journal of Issues in Information Systems                          | Identifies a new dimension: "cyber-risk stress" stemming from the fear of breaches and the burden of complex security protocols (e.g., multi-factor authentication).  | Quantitative Study                                      |
| Exploring the Antecedents of Technostress at Work: A Meta-Analysis                                               | 2022 | Qualitative Research in Psychology                                | Longitudinal study showing that while technostressors generally harm well-being, they can sometimes lead to short-term per-                                           | Meta-Analysis                                           |

| Study Title                                                                                                             | Year | Journal                            | Key Focus & Findings                                                                                                                                                                                                                    | Methodology        |
|-------------------------------------------------------------------------------------------------------------------------|------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Coping with technostress in the software industry: Coping strategies and factors underlying their selection             | 2025 | Journal of Systems and Software    | performance gains (the challenge stressor effect).<br><br>Meta-analysis identifying effective coping mechanisms. Problem-focused coping (e.g., training, literacy) is more effective than emotion-focused coping (e.g., disconnecting). | Qualitative Study  |
| The dark side of AI-powered service interactions: exploring the process of co-destruction from the customer perspective | 2020 | The Service Industries Journal     | Finds that poorly implemented AI assistants can create new forms of technostress (e.g., uncertainty, opacity) that ironically reduce productivity.                                                                                      | Quantitative Study |
| Technostress Research: A Nurturing Ground for Measurement Pluralism.                                                    | 2017 | Qualitative Research in Psychology | Investigates platform-induced stress. Algorithmic management, constant performance monitoring, and rating systems are significant creators of technostress for gig workers.                                                             | Qualitative Study  |

## 5. Discussion

Technostress has unequivocally emerged as a defining psychosocial phenomenon of the digital age, representing the significant human cost of our increasingly interconnected and technology-saturated existence [32]. The evidence synthesized in this review paints a compelling and nuanced picture of technology's double-edged sword: while digital tools promise unprecedented efficiency, connectivity, and access to information, they simultaneously generate substantial psychological and social costs that permeate every aspect of modern life, from the workplace to the home. This complex interplay between relentless technological advancement and fundamental human wellbeing demands urgent and sustained scholarly and practical attention. [20, 31]. The findings robustly affirm that technostress is a significant psychosocial determinant affecting diverse populations across life domains. Its dual nature, functioning as both a potential challenge stressor that can, in rare circumstances, lead to short-term performance gains, and more commonly as a hindrance stressor that unambiguously damages health, is increasingly evident [4, 18]. Outcomes are shaped by a complex interplay of individual, organizational, and technological factors, consistent with a Transactional Model of Stress (TMS) [8]. Psychologically, technostress is strongly and consistently linked to anxiety, depression, and emotional exhaustion. This relationship is well-explained by the Conservation of Resources (COR) theory [6], where persistent digital demands, from constant notifications to the pressure to stay updated, lead to a chronic drain on an individual's mental and emotional resources, culminating in burnout and related conditions. The workplace remains a key epicenter for technostress, a situation exacerbated by "always-on" cultures that blur boundaries and prevent essential psychological detachment and recovery

[3]. The vulnerability of adolescents is particularly alarming, as their developmental stage intersects with addictive social media usage patterns, leading to poor mental health outcomes [20].

Socially, technostress acts as a corrosive agent on interpersonal and organizational structures. Techno-invasion is a primary driver of work-family conflict, systematically eroding the critical line between professional obligations and personal life, which is essential for life satisfaction and healthy relationships [2]. The great paradox of the connected age is that technology designed to bring people together can simultaneously be a force for isolation, often replacing meaningful face-to-face interaction with less satisfying, superficial digital communication [19]. Within organizations, particularly those reliant on algorithmic management like the gig economy, technostress diminishes trust and psychological safety, creating environments of perpetual performance monitoring and pressure [25].

Demographic and contextual factors significantly moderate these effects. Age and gender influence susceptibility, while resources such as digital literacy, technology self-efficacy, mindfulness, and supportive organizational environments serve as critical protective buffers [12, 13, 18]. The emergence of new stressors, such as AI opacity and cyber-risk stress, clearly indicates that technostress is not a static phenomenon but continues to evolve, requiring ongoing and adaptive research. The collective evidence supports the necessity of multi-level interventions. These include enhancing digital literacy and mindfulness at the individual level; implementing "right to disconnect" policies and ethical technology design at the organizational level; and developing sophisticated public health strategies that look beyond simplistic screen-time metrics to address the quality and context of technology use.

## 6. Conclusion

Technostress has firmly established itself as a critical psychosocial challenge of the digital era. Over the past decade, research has matured from conceptualizing its antecedents to rigorously documenting its far-reaching psychological and social consequences across the globe. This systematic review consolidates a body of evidence demonstrating that technostress contributes significantly to a range of negative outcomes, including anxiety, depression, burnout, work-family conflict, and social fragmentation. Importantly, it also identifies key moderators such as age, gender, digital literacy, and organizational support, which help explain the varying individual experiences and determine resilience versus vulnerability. Nevertheless, the digital landscape continues to evolve at a rapid pace, characterized by the proliferation of artificial intelligence, pervasive algorithmic management, and intensified connectivity. This evolution suggests that technostress will remain a pervasive and dynamic issue. Its manifestations are likely to grow more complex and insidious, necessitating adaptive, proactive, and nuanced responses from individuals, organizations, and society at large. The findings of this review underscore the critical necessity of a holistic, multi-stakeholder approach to mitigation, one that seamlessly integrates individual skill-building (e.g., digital literacy, mindfulness), organizational responsibility (e.g., ethical policies, supportive cultures), and a fundamental commitment to human-centric technology design.

Future research must deliberately address persistent gaps in the literature. Longitudinal studies are urgently needed to move beyond correlations and establish clear causal pathways and long-term effects of chronic technostress. Intervention-based research should empirically test the efficacy of proposed mitigation strategies, from digital literacy programs to organizational policies like the "right to disconnect." Furthermore, an intersectional approach is critical to understanding how technostress compounds with other social and economic vulnerabilities, such as socioeconomic status, race, and disability. Ultimately, mitigating the negative aftermaths of technostress requires a collaborative effort among researchers, policymakers, organizational leaders, and technology designers. The shared goal must be to foster a digital environment that genuinely supports and enhances human well-being rather than diminishes it, ensuring that technology serves humanity, and not the reverse.

## Abbreviations

|        |                                                                    |
|--------|--------------------------------------------------------------------|
| ICT    | Information of Communication Technologies                          |
| AI     | Artificial Intelligence                                            |
| WFC    | Work-Family Conflict                                               |
| COR    | Conservation of Resources (Theory)                                 |
| PRISMA | Preferred Reporting Items for Systematic Reviews and Meta-Analyses |
| TMS    | Transactional Model of Stress                                      |

|       |                                  |
|-------|----------------------------------|
| IS    | Information Systems              |
| IT    | Information Technology           |
| RCT   | Randomized Controlled Trial      |
| JD-R  | Job Demands-Resources (Model)    |
| MIS   | Management Information Systems   |
| UI/UX | User Interface / User Experience |

## Author Contributions

**Ahmed Alanazi:** Conceptualization, Data curation, Formal Analysis, Project administration, Supervision, Validation, Writing – original draft

**Abdulmajeed Altukhys:** Formal Analysis, Investigation, Methodology, Resources, Visualization, Writing – review & editing

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## Conflicts of Interest

The authors declare no direct or indirect conflicts of interest of any kind.

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