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The Digital Stress Triad Independent Effects of Technostress, Misinformation, and Information Overload on University Student Well-Being

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ABSTRACT

The pervasive integration of digital technologies in higher education has introduced significant psychological challenges for students. This study proposes the digital stress triad model, conceptualizing technostress, misinformation exposure, and information overload as key stressors affecting student well-being. Using structural equation modeling (SEM) on data from 407 students, results show strong independent effects: Technostress reduces mental well-being ($\beta = -0.50$, $p = .001$), while misinformation exposure ($\beta = 0.61$, $p = .001$) and information overload ($\beta = 0.56$, $p = .001$) increase psychological strain. Psychological strain shows a marginal negative effect on well-being ($\beta = -0.29$, $p = .096$). No significant interaction or moderation effects were found, supporting an additive model of digital stress. The findings provide an empirical foundation for the model and inform practical interventions, such as digital wellness tools and misinformation resilience strategies, to improve student well-being in digital learning environments.

KEYWORDS

Technostress, Misinformation Exposure, Information Overload, Digital Stress, Mental Well-Being, University Students, Structural Equation Modeling, Psychological Strain

INTRODUCTION

The rapid digitalization of higher education has introduced new psychological challenges for adult learners. Students now have instant access to course materials, learning platforms, and online collaboration tools (Valls Martínez et al., 2026). This shift accelerated after the COVID-19 pandemic, making tools like learning management systems and social media central to academic life (Mlambo, 2026). However, along with these benefits, there is growing evidence of psychological challenges (Mellati & Valizadeh, 2025; Zhang & Yu, 2025). Many students report anxiety, fatigue, and difficulty focusing due to constant digital demands (Mellati & Valizadeh, 2025), challenges that sit at the intersection of educational technology, cognitive psychology, and adult learning theory. This study addresses these challenges by examining how, collectively, three co-occurring digital stressors—technostress, misinformation exposure, and information overload—are associated with the psychological well-being of university students as adult learners. In doing so, it responds directly to

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calls within the adult education literature for empirical research on the psychological dimensions of technology-mediated learning environments (J. Li et al., 2025; Liu et al., 2025; Pham et al., 2025).

This study situates itself within the broader context of adult learning in higher education. University students, particularly those navigating increasingly digitalized academic environments, represent a core constituency of adult learners as defined by Knowles's (1980) andragogical framework. Unlike traditional pedagogical models, andragogy recognizes that adult learners bring self-directed motivations, accumulated life experience, and goal-oriented approaches to their educational engagement. When digital stressors disrupt these self-regulatory processes through technostress, misinformation exposure, or information overload, the consequences may extend beyond academic performance and are associated with the psychological foundations of adult learners' capacity for autonomous, self-directed study. Understanding these dynamics is therefore not only a matter of student well-being but a fundamental concern for the theory and practice of adult education in digital environments.

Previous research has often looked at these stressors separately. Technostress is linked to burnout (X. Li et al., 2025), misinformation to confusion and doubt (van der Linden, 2025), and overload to mental fatigue (Prasetyo et al., 2025). Nevertheless, in practice, students often face all three at once. A single study session can include platform switching, misleading content, and overwhelming information. To address this, we propose the digital stress triad model. This framework treats technostress, misinformation, and overload as separate but co-occurring stressors. Unlike past models, it focuses on their independent effects. As a result, we aim to understand how each stressor contributes to student strain and well-being. The paper aims to answer the following research question.

RQ: How are technostress, misinformation exposure, and information overload independently associated with university students' psychological strain and mental well-being, and what role does digital literacy play as a potential moderator?

To address this question, the study pursues the following objectives:

- to develop and validate the digital stress triad model as a framework for understanding the independent effects of technostress, misinformation exposure, and information overload on student mental well-being
- to assess the direct effects of these three digital stressors on psychological strain and mental well-being using structural equation modeling (SEM)
- to explore the moderating role of digital literacy in the relationship between misinformation exposure and psychological strain

To answer the research question, the study draws on three theories: technostress theory (Brod, 1984), cognitive load theory (Sweller, 1988), and the stress-diathesis model (Monroe & Simons, 1991), which posits that psychological outcomes result from the interaction between environmental stressors and individual vulnerability. We analyzed valid survey data from 407 university students and used SEM to test the model. Our findings offer practical insights that can help institutions design better systems and support tools that may help reduce digital strain. The digital stress triad model provides a foundation for improving student mental health in today's online academic world.

LITERATURE REVIEW AND THEORETICAL FOUNDATION

Digital technologies have expanded access to academic resources but also introduced new stressors. We review three key challenges—technostress, misinformation exposure, and information overload—and integrate them within a unified model.

Role of the Social Constructivist Theory, Andragogy, and Computer-Mediated Instruction (CMI) in Adult ESL Learning and Teaching Environments: How Students Transform Into Self-Directed Learners Through Mobile Technologies

Seda Khadimally (2021). *Research Anthology on Adult Education and the Development of Lifelong Learners (pp. 195-221).*
www.irma-international.org/chapter/role-of-the-social-constructivist-theory-andragogy-and-computer-mediated-instruction-cmi-in-adult-esl-learning-and-teaching-environments/279726