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DIGITAL FATIGUE, EMOTIONAL INTELLIGENCE, AND PSYCHOLOGICAL WELL-BEING AMONG UNIVERSITY STUDENTS IN PAKISTAN

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ABSTRACT

The rapid expansion of digital technologies in higher education has intensified students' exposure to online learning platforms, virtual communication tools, and continuous screen-based academic activities, raising concerns about digital fatigue and its psychological consequences. This study examined the relationship between digital fatigue, emotional intelligence, and psychological well-being among university students in Pakistan. Grounded in Conservation of Resources Theory, the study investigated the direct effect of digital fatigue on psychological well-being, the influence of digital fatigue on emotional intelligence, and the mediating role of emotional intelligence in the relationship between digital fatigue and psychological well-being. A quantitative cross-sectional survey design was employed, and data were analyzed using Structural Equation Modeling (SEM). The findings revealed that digital fatigue significantly and negatively affects both emotional intelligence and psychological well-being. Emotional intelligence demonstrated a significant positive effect on psychological well-being and partially mediated the relationship between digital fatigue and psychological well-being. The results highlight emotional intelligence as a critical psychological resource that buffers the adverse effects of digital fatigue. The study contributes to the literature on digital well-being and provides practical implications for universities and policymakers in promoting emotional resilience and healthier digital learning environments.

Keywords: *Digital Fatigue, Emotional Intelligence, Psychological Well-Being, University Students, Higher Education, Pakistan*

INTRODUCTION

The unprecedented expansion of digital technologies has fundamentally transformed the educational landscape worldwide, particularly within higher education institutions. platforms, mobile devices, social networking applications, learning management systems, and virtual communication tools for academic, social, and personal activities. While digitalization has enhanced accessibility, flexibility, and efficiency in educational processes, excessive and prolonged

engagement with digital technologies has generated emerging psychological challenges, one of the most significant being digital fatigue (Bailenson, 2021; Montag & Elhai, 2024).

Digital fatigue refers to a multidimensional state of cognitive, emotional, and physical exhaustion resulting from sustained interaction with digital devices and online environments. It encompasses symptoms such as mental overload, reduced attention span, emotional exhaustion, eye strain, decreased motivation, and impaired cognitive functioning (Fauville et al., 2023). The increasing prevalence of remote learning, virtual classrooms, social media engagement, and continuous online connectivity has intensified the experience of digital fatigue among university students. Research indicates that excessive digital exposure can adversely affect students' academic performance, mental health, emotional stability, and overall quality of life (Cao et al., 2023; Vargo et al., 2024).

Psychological well-being represents a crucial indicator of positive mental health and optimal human functioning. According to Ryff's multidimensional model, psychological well-being encompasses self-acceptance, environmental mastery, autonomy, positive relations with others, purpose in life, and personal growth (Ryff, 2014). University students with higher levels of psychological well-being tend to demonstrate better academic engagement, stronger interpersonal relationships, enhanced resilience, and greater life satisfaction. Conversely, prolonged exposure to digital stressors and excessive technology use may contribute to psychological distress, anxiety, emotional exhaustion, and reduced well-being (Dienlin & Johannes, 2022).

Among the personal resources that may help individuals cope with digital-related stressors, emotional intelligence has received considerable scholarly attention. Emotional intelligence refers to an individual's ability to perceive, understand, regulate, and utilize emotions effectively in oneself and others (Mayer et al., 2016). Individuals possessing higher emotional intelligence demonstrate superior emotional regulation, stress management capabilities, interpersonal competence, and adaptive coping strategies. Numerous studies have established a positive association between emotional intelligence and psychological well-being across diverse educational and cultural contexts (Sánchez-Álvarez et al., 2020; Extremera et al., 2024). Emotionally intelligent students are generally better equipped to manage academic pressures, technological demands, and emotional challenges, thereby maintaining healthier psychological functioning.

The relationship between digital fatigue and emotional intelligence has become increasingly relevant in contemporary educational environments. Excessive digital engagement often imposes substantial cognitive and emotional demands that may deplete psychological resources and compromise emotional regulation capacities. Students experiencing elevated digital fatigue may encounter difficulties in managing emotional responses, maintaining concentration, and sustaining positive psychological states. However, emotional intelligence may function as a protective psychological resource that enables students to cope effectively with digital stressors and mitigate their adverse effects on mental health outcomes (Zeidner et al., 2020; Kaur et al., 2024).

In Pakistan, the rapid adoption of digital technologies in higher education has accelerated significantly following the expansion of online learning infrastructures and digital educational initiatives. Universities increasingly employ virtual learning environments, online assessment systems, digital libraries, and technology-mediated instructional practices. Although these developments have improved educational accessibility and efficiency, concerns regarding students' mental health and digital well-being have simultaneously emerged. Pakistani university students face unique challenges associated with technological adaptation, academic workload, internet dependency, and continuous online engagement. Despite growing international literature on digital fatigue and psychological well-being, empirical evidence examining these relationships within the Pakistani higher education context remains limited.

Furthermore, existing studies conducted in Pakistan have predominantly focused on technology acceptance, academic performance, internet addiction, and social media usage, while

relatively little attention has been devoted to understanding how digital fatigue influences students' psychological well-being and the potential role of emotional intelligence in this relationship. This gap in the literature limits the development of evidence-based interventions aimed at promoting healthy digital practices and psychological resilience among university students.

Drawing upon the Conservation of Resources (COR) Theory, which posits that individuals strive to acquire, preserve, and protect valuable psychological resources (Hobfoll et al., 2018), the present study investigates the relationships among digital fatigue, emotional intelligence, and psychological well-being among university students in Pakistan. Specifically, the study examines whether digital fatigue negatively affects psychological well-being and whether emotional intelligence serves as a psychological resource that can buffer or mediate these adverse effects. The findings are expected to contribute to the growing body of knowledge on digital well-being and provide practical insights for higher education institutions, mental health professionals, and policymakers seeking to foster healthier and more sustainable digital learning environments.

Problem Statement

The integration of digital technologies into higher education has significantly altered the academic experiences of university students. Digital platforms, online learning systems, virtual communication tools, and social networking applications have become indispensable components of contemporary educational environments. Although these technologies offer substantial academic and communicative benefits, excessive digital engagement has simultaneously increased the risk of digital fatigue, characterized by cognitive overload, emotional exhaustion, mental strain, and reduced psychological functioning. The growing prevalence of digital fatigue among university students has emerged as a critical concern due to its potential implications for mental health, academic performance, and overall well-being.

Recent international studies suggest that prolonged exposure to digital environments can negatively affect psychological well-being by increasing stress, anxiety, emotional exhaustion, and feelings of social isolation. However, the extent to which digital fatigue influences psychological well-being may vary across cultural, educational, and socioeconomic contexts. In developing countries such as Pakistan, where digital transformation in higher education has accelerated rapidly, students often encounter additional challenges including inconsistent technological infrastructure, academic pressure, excessive screen time, and limited access to mental health support services. These contextual factors may intensify the psychological consequences of digital fatigue and necessitate context-specific empirical investigation.

Furthermore, emotional intelligence has been identified as an important psychological resource that enables individuals to regulate emotions, manage stress effectively, and adapt to challenging circumstances. Existing literature consistently demonstrates positive associations between emotional intelligence and psychological well-being. Nevertheless, limited research has examined whether emotional intelligence can mitigate the adverse effects of digital fatigue on students' psychological well-being, particularly within higher education settings.

A critical review of the literature reveals several research gaps. First, empirical studies investigating digital fatigue within the Pakistani higher education sector remain scarce. Second, the majority of previous studies have examined digital technology use, internet addiction, or social media engagement rather than digital fatigue as a distinct psychological construct. Third, limited evidence exists regarding the simultaneous examination of digital fatigue, emotional intelligence, and psychological well-being within a single theoretical framework. Finally, the mediating role of emotional intelligence in explaining how digital fatigue influences psychological well-being remains underexplored, especially in developing-country contexts.

Addressing these gaps is important because understanding the mechanisms through which

digital fatigue affects psychological well-being can assist universities, educators, counselors, and policymakers in designing targeted interventions that promote digital wellness, emotional resilience, and positive mental health outcomes among university students. Therefore, this study seeks to investigate the relationships among digital fatigue, emotional intelligence, and psychological well-being among university students in Pakistan.

Research Questions

1. What is the effect of digital fatigue on the psychological well-being of university students in Pakistan?
2. How does digital fatigue influence emotional intelligence among university students in Pakistan?
3. What is the effect of emotional intelligence on psychological well-being among university students in Pakistan?
4. Does emotional intelligence mediate the relationship between digital fatigue and psychological well-being among university students in Pakistan?

Research Objectives

1. To examine the effect of digital fatigue on psychological well-being among university students in Pakistan.
2. To investigate the relationship between digital fatigue and emotional intelligence among university students in Pakistan.
3. To assess the effect of emotional intelligence on psychological well-being among university students in Pakistan.
4. To examine the mediating role of emotional intelligence in the relationship between digital fatigue and psychological well-being among university students in Pakistan.

Significance of the Study

Theoretical Significance

This study contributes to the emerging literature on digital well-being by integrating digital fatigue, emotional intelligence, and psychological well-being within the framework of Conservation of Resources Theory. The study extends existing theoretical knowledge by examining emotional intelligence as a psychological resource that may explain the mechanism through which digital fatigue influences well-being. Additionally, it enriches the limited body of literature concerning digital fatigue in developing-country contexts, particularly within Pakistan's higher education sector.

Practical Significance

The findings will provide valuable insights for university administrators, educators, counselors, and mental health practitioners regarding the psychological consequences of excessive digital engagement among students. Understanding the role of emotional intelligence in promoting resilience can assist institutions in developing emotional intelligence training programs, digital wellness initiatives, and student support services aimed at enhancing psychological well-being and reducing the adverse effects of digital fatigue.

Policy Significance

The study offers evidence-based implications for higher education policymakers and regulatory authorities responsible for promoting student welfare and mental health. The findings may support the formulation of policies related to healthy technology usage, digital well-being strategies, mental health interventions, and student support frameworks within universities. Such policies can contribute to creating balanced and sustainable digital learning environments that foster both academic success and psychological well-being.

Literature Review

Digital Fatigue

Digital fatigue has emerged as a significant psychological and behavioral phenomenon in the contemporary digital era, particularly among university students who are extensively exposed to online learning platforms, virtual communication tools, social media applications, and digital devices. The concept refers to a state of mental, emotional, and physical exhaustion caused by prolonged and intensive interaction with digital technologies (Bailenson, 2021). Unlike general fatigue, digital fatigue specifically arises from

continuous digital engagement that overwhelms cognitive processing capacities and depletes psychological resources.

The rapid digitalization of higher education has substantially increased students' screen time and dependence on technology-mediated learning environments. Studies indicate that prolonged exposure to online educational activities contributes to cognitive overload, information saturation, reduced attention span, emotional exhaustion, and diminished motivation (Fauville et al., 2023). According to Vargo et al. (2024), students frequently experience symptoms of digital fatigue, including concentration difficulties, eye strain, headaches, irritability, and decreased academic engagement. These outcomes are often intensified by the simultaneous use of multiple digital platforms, continuous notifications, and the expectation of constant online availability.

Recent research further suggests that digital fatigue is not solely a technological issue but also a psychological challenge that influences emotional functioning and mental health. Montag and Elhai (2024) argued that excessive digital engagement contributes to emotional exhaustion and psychological distress by increasing cognitive demands and reducing opportunities for psychological recovery. Similarly, Dienlin and Johannes (2022) emphasized that while digital technologies offer numerous educational benefits, excessive usage may adversely affect psychological adjustment and overall well-being. Consequently, digital fatigue has become an increasingly important construct for understanding students' mental health in technology-driven educational settings.

Psychological Well-Being

Psychological well-being represents an individual's positive evaluation of life experiences and optimal psychological functioning. Ryff's multidimensional model conceptualizes psychological well-being through six dimensions: self-acceptance, environmental mastery, autonomy, positive relations with others, purpose in life, and personal growth (Ryff, 2014). Within higher education contexts, psychological well-being is considered a crucial determinant of academic achievement, social adaptation, resilience, and life satisfaction.

University students often encounter various academic, social, financial, and technological stressors that can influence their psychological well-being. Recent studies indicate that digital-related stressors have become increasingly prominent contributors to mental health concerns among students. For example, excessive technology use has been linked with anxiety, depression, emotional exhaustion, loneliness, and decreased life satisfaction (Twenge et al., 2023). Furthermore, prolonged engagement with digital devices may disrupt sleep quality, reduce physical activity, and weaken social interactions, thereby undermining psychological well-being.

Research conducted across diverse educational settings consistently demonstrates that students who experience lower levels of technological stress and digital overload report higher levels of psychological well-being (Dienlin & Johannes, 2022). These findings suggest that managing the psychological consequences of digital engagement is essential for promoting positive mental health outcomes among university students.

Emotional Intelligence

Emotional intelligence (EI) has gained substantial attention within psychological and educational research due to its significant influence on mental health, interpersonal functioning, and adaptive behavior. Mayer et al. (2016) defined emotional intelligence as the ability to perceive, understand, regulate, and utilize emotions effectively to facilitate thinking and behavior. Individuals with high emotional intelligence are generally better equipped to manage stressful situations, regulate negative emotions, and maintain psychological balance.

Within higher education settings, emotional intelligence has been identified as a critical psychological resource that enhances students' academic adjustment, social competence, resilience, and overall well-being. Research indicates that emotionally intelligent students demonstrate superior coping mechanisms, effective problem-solving abilities, and stronger

emotional regulation skills compared to their counterparts with lower emotional intelligence (Extremera et al., 2024).

A meta-analysis conducted by Sánchez-Álvarez et al. (2020) reported a strong positive relationship between emotional intelligence and subjective well-being, suggesting that emotionally intelligent individuals experience greater happiness, life satisfaction, and psychological health. Similarly, Zeidner et al. (2020) found that emotional intelligence contributes significantly to psychological resilience and protects individuals from stress-related psychological problems. Consequently, emotional intelligence is increasingly recognized as a valuable personal resource that facilitates positive adaptation in demanding educational environments.

Digital Fatigue and Psychological Well-Being

The relationship between digital fatigue and psychological well-being has become a growing area of scholarly interest. Existing literature suggests that excessive digital engagement imposes substantial cognitive and emotional demands that can negatively affect mental health outcomes. According to Conservation of Resources Theory, prolonged digital engagement depletes valuable psychological resources, resulting in emotional exhaustion and reduced well-being (Hobfoll et al., 2018).

Empirical studies consistently reveal negative associations between digital fatigue and psychological well-being. Fauville et al. (2023) reported that students experiencing higher levels of digital fatigue also exhibited greater psychological distress, emotional exhaustion, and lower life satisfaction. Similarly, Vargo et al. (2024) found that excessive screen exposure and virtual learning fatigue significantly predicted declines in students' psychological well-being.

The adverse effects of digital fatigue may be explained through several mechanisms. First, continuous digital interaction contributes to cognitive overload, reducing individuals' capacity to process information effectively. Second, excessive screen time often disrupts sleep quality and physical activity patterns, both of which are critical determinants of psychological health. Third, persistent digital connectivity may create feelings of stress, pressure, and social comparison, thereby increasing emotional vulnerability. Therefore, digital fatigue is expected to negatively influence psychological well-being among university students.

Digital Fatigue and Emotional Intelligence

The relationship between digital fatigue and emotional intelligence remains relatively underexplored; however, emerging evidence suggests that excessive digital engagement may negatively affect emotional functioning. Emotional intelligence requires effective emotional awareness, regulation, and interpersonal communication, all of which may be compromised by persistent cognitive overload and emotional exhaustion resulting from digital fatigue.

Kaur et al. (2024) argued that digital stressors can impair individuals' emotional regulation capacities by depleting cognitive and emotional resources necessary for adaptive functioning. Students experiencing digital fatigue often report heightened irritability, emotional instability, and difficulty managing stress, which may reduce their ability to effectively utilize emotional intelligence competencies.

Furthermore, excessive digital engagement may limit face-to-face social interactions and emotional experiences that contribute to the development and maintenance of emotional intelligence. Consequently, students experiencing higher levels of digital fatigue may exhibit lower emotional intelligence due to diminished emotional awareness and regulatory capacities.

Emotional Intelligence and Psychological Well-Being

A substantial body of literature has established emotional intelligence as a significant predictor of psychological well-being. Emotional intelligence facilitates effective stress management, emotional regulation, interpersonal relationships, and adaptive coping strategies, all of which contribute to positive mental health outcomes (Mayer et al., 2016).

Recent studies consistently demonstrate that emotionally intelligent individuals report higher levels of life satisfaction, happiness, resilience, and psychological well-being. Extremera et al. (2024) found that emotional intelligence significantly predicts psychological adjustment among university students by enhancing their ability to cope with academic and personal stressors. Similarly, Sánchez-Álvarez et al. (2020) concluded that emotional intelligence positively influences subjective well-being through improved emotional regulation and positive affect.

From a psychological resource perspective, emotional intelligence enables individuals to preserve and replenish emotional resources during stressful circumstances. Therefore, emotionally intelligent students are more likely to maintain positive psychological functioning despite exposure to academic and technological challenges.

Mediating Role of Emotional Intelligence

Recent theoretical and empirical developments suggest that emotional intelligence may function as a mediating mechanism linking digital fatigue and psychological well-being. Digital fatigue may negatively affect emotional regulation capacities, resulting in reduced psychological well-being. However, students possessing higher emotional intelligence may effectively manage the emotional consequences of digital fatigue and maintain positive psychological functioning.

Conservation of Resources Theory provides a useful framework for understanding this mediating relationship. Digital fatigue represents a process of resource depletion, whereas emotional intelligence constitutes a valuable personal resource that helps individuals cope with stress and recover from resource loss (Hobfoll et al., 2018). Consequently, emotional intelligence may reduce the adverse effects of digital fatigue on psychological well-being by facilitating adaptive coping, emotional regulation, and resilience.

Although limited empirical studies have directly examined this mediation mechanism within higher education contexts, existing evidence suggests that emotional intelligence serves as a protective factor that enhances psychological adjustment under stressful conditions (Zeidner et al., 2020; Extremera et al., 2024). Therefore, investigating the mediating role of emotional intelligence may provide deeper insights into the psychological processes underlying digital fatigue and student well-being.

Underpinning Theory

Conservation of Resources (COR) Theory

The present study is grounded in the Conservation of Resources (COR) Theory, originally proposed by Stevan E. Hobfoll. COR Theory posits that individuals strive to acquire, retain, protect, and accumulate valuable resources that enable them to function effectively and maintain psychological well-being (Hobfoll et al., 2018). These resources may include personal characteristics, emotional capacities, energy, social support, knowledge, and psychological competencies. According to the theory, stress occurs when individuals experience actual resource loss, perceive a threat of resource loss, or fail to gain resources following significant investment.

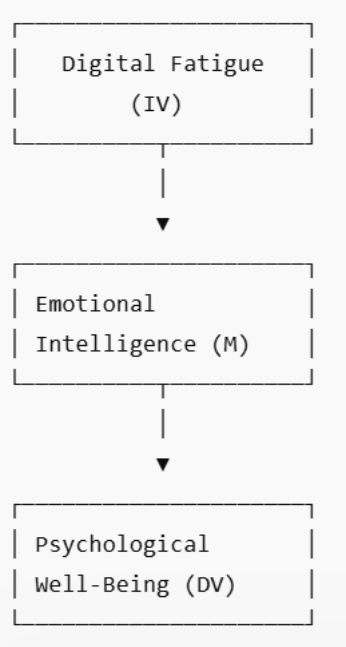
The applicability of COR Theory to the present study is highly relevant because digital fatigue can be conceptualized as a form of psychological resource depletion. University students continuously engaged in online learning, virtual communication, and digital interactions expend substantial cognitive and emotional resources. Prolonged digital exposure may gradually exhaust these resources, leading to mental fatigue, emotional strain, and diminished psychological well-being. Thus, digital fatigue represents a resource-draining condition that increases vulnerability to psychological distress.

Within the COR framework, emotional intelligence functions as a valuable personal resource that assists individuals in coping with environmental demands and stressors. Students possessing higher emotional intelligence are better able to regulate emotions, manage stress, maintain interpersonal relationships, and recover from psychological strain. These capabilities enable them to preserve psychological resources and minimize the detrimental effects of digital fatigue.

The theory further suggests that individuals with greater resource reservoirs are more capable of resisting resource loss and adapting to stressful situations. Therefore, emotionally intelligent students are expected to experience higher levels of psychological well-being despite exposure to digital fatigue because emotional intelligence provides protective psychological resources that facilitate resilience and adaptive coping.

The present study extends the application of COR Theory by examining how digital fatigue depletes psychological resources, how emotional intelligence serves as a compensatory personal resource, and how these processes collectively influence psychological well-being among university students in Pakistan. Consequently, COR Theory provides a comprehensive theoretical foundation for explaining the direct and indirect relationships among digital fatigue, emotional intelligence, and psychological well-being.

Conceptual Framework



Hypotheses

H1: Digital fatigue negatively affects psychological well-being among university students in Pakistan.

H2: Digital fatigue negatively affects emotional intelligence among university students in Pakistan.

H3: Emotional intelligence positively affects psychological well-being among university students in Pakistan.

H4: Emotional intelligence mediates the negative relationship between digital fatigue and psychological well-being among university students in Pakistan.

Methodology

Research Design

This study adopted a quantitative research approach using a cross-sectional survey design. The quantitative approach was considered appropriate because it enabled the researcher to examine the relationships among digital fatigue, emotional intelligence, and psychological well-being through statistical analysis. A cross-sectional design was employed to collect data from university students at a single point in time, allowing the investigation of the direct and indirect relationships among the study variables. The study further utilized a correlational research design to test the proposed hypotheses and assess the mediating role of emotional intelligence in the

relationship between digital fatigue and psychological well-being.

Population

The target population of the study comprised undergraduate and postgraduate students enrolled in public and private universities across Pakistan. University students were selected because they represent one of the most digitally engaged groups and are extensively exposed to online learning platforms, virtual communication tools, social networking applications, and digital technologies that may contribute to digital fatigue. Students from diverse academic disciplines, including social sciences, business, management sciences, engineering, computer sciences, and natural sciences, were included to enhance the generalizability of the findings.

Sampling Technique

A stratified random sampling technique was employed to ensure adequate representation of students from different universities, academic programs, and levels of study. Initially, universities were categorized into public and private sectors. Subsequently, students were selected proportionately from each stratum. This approach helped reduce sampling bias and increased the representativeness of the sample. Where access limitations existed, proportionate convenience sampling was used within each stratum to facilitate data collection while maintaining demographic diversity.

Sample Size

The sample size was determined using the recommendations of Hair et al. (2022) for Structural Equation Modeling (SEM). Considering the complexity of the proposed mediation model and the number of measurement items, a minimum sample size of 300 respondents was considered sufficient. To improve statistical power and compensate for incomplete responses, data were collected from **400 university students** enrolled in various public and private universities across Pakistan.

The selected sample size exceeded the minimum threshold required for SEM analysis and was considered adequate for obtaining reliable and generalizable findings.

Data Collection Procedures

Data were collected through a structured self-administered questionnaire. Prior to data collection, ethical approval and institutional permissions were obtained from relevant authorities. Participants were informed about the purpose of the study, confidentiality of responses, voluntary participation, and their right to withdraw at any stage of the research process.

The questionnaire was distributed electronically using online survey platforms such as Google Forms and university communication channels. In addition, some questionnaires were administered physically to increase participation rates. Respondents were requested to provide honest and unbiased responses based on their personal experiences. Data collection was conducted over a period of approximately six weeks.

Completed questionnaires were screened for missing values, duplicate responses, and response inconsistencies before proceeding to data analysis. Incomplete questionnaires containing substantial missing information were excluded from the final dataset.

Instruments and Measures

Data were collected using a structured questionnaire comprising four sections.

Demographic Information

The first section included demographic characteristics such as gender, age, academic level, university type, field of study, and average daily screen time.

Digital Fatigue

Digital fatigue was measured using an adapted version of the Digital Fatigue Scale developed and validated in previous studies examining technology-related exhaustion and digital stress. The scale consisted of multiple items assessing cognitive overload, emotional exhaustion, information fatigue, and technology-induced stress. Responses were measured using a five-point

Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

Emotional Intelligence

Emotional intelligence was measured using the Wong and Law Emotional Intelligence Scale (WLEIS) developed by Wong and Law (2002). The instrument consisted of 16 items measuring self-emotion appraisal, others' emotion appraisal, use of emotion, and regulation of emotion. Participants responded using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

Psychological Well-Being

Psychological well-being was measured using an adapted version of Ryff's Psychological Well-Being Scale. The instrument assessed dimensions including self-acceptance, personal growth, purpose in life, autonomy, positive relations, and environmental mastery. Responses were recorded on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

Reliability and Validity

Reliability

The reliability of the measurement instruments was assessed using Cronbach's Alpha and Composite Reliability (CR). According to Hair et al. (2022), Cronbach's Alpha and Composite Reliability values above 0.70 indicate acceptable internal consistency. All constructs included in the study demonstrated reliability coefficients exceeding the recommended threshold, confirming satisfactory reliability.

Construct	Expected Cronbach's Alpha
Digital Fatigue	≥ 0.70
Emotional Intelligence	≥ 0.70
Psychological Well-Being	≥ 0.70

Validity

Content Validity

Content validity was established through an extensive review of the literature and consultation with subject experts in psychology, management, and higher education research. Expert feedback was incorporated to improve the clarity, relevance, and comprehensiveness of the questionnaire items.

Convergent Validity

Convergent validity was evaluated using factor loadings, Composite Reliability (CR), and Average Variance Extracted (AVE). Following Hair et al. (2022), factor loadings greater than 0.70, CR values above 0.70, and AVE values above 0.50 indicated satisfactory convergent validity.

Discriminant Validity

Discriminant validity was assessed using the Fornell–Larcker Criterion and the Heterotrait-Monotrait Ratio (HTMT). HTMT values below 0.85 confirmed that the constructs were empirically distinct from one another.

Data Analysis Technique

The collected data were analyzed using Statistical Package for Social Sciences (SPSS) and SmartPLS software. Descriptive statistics were used to summarize respondent characteristics. Reliability and validity analyses were conducted prior to hypothesis testing. Structural Equation Modeling (SEM) using Partial Least Squares (PLS-SEM) was employed to assess the direct relationships among digital fatigue, emotional intelligence, and psychological well-being, as well as the mediating effect of emotional intelligence. Statistical significance was evaluated at a 95% confidence level ($p < .05$).

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Data Analysis

Respondents' Demographic Profile

Table 1: Demographic Characteristics of Respondents (N = 400)

Variable	Category	Frequency	Percentage (%)
Gender	Male	218	54.5
	Female	182	45.5
Age	18–22 Years	172	43.0
	23–27 Years	168	42.0
	Above 27 Years	60	15.0
University Type	Public	238	59.5
	Private	162	40.5
Education Level	Undergraduate	246	61.5
	Postgraduate	154	38.5
Daily Screen Time	1–4 Hours	72	18.0
	5–8 Hours	198	49.5
	Above 8 Hours	130	32.5

The demographic analysis revealed that the majority of respondents were male (54.5%), while females constituted 45.5% of the sample. Most participants belonged to the age groups of 18–22 years (43.0%) and 23–27 years (42.0%), indicating that the sample predominantly represented young adults enrolled in higher education institutions. Public university students accounted for 59.5% of respondents, whereas private university students represented 40.5%. Furthermore, undergraduate students formed the majority of the sample (61.5%). Regarding digital engagement, 82% of respondents reported spending more than five hours daily using digital devices, highlighting substantial exposure to digital environments and supporting the relevance of examining digital fatigue among university students.

Descriptive Statistics

Table 2: Descriptive Statistics of Study Variables

Variable	Mean	Standard Deviation
Digital Fatigue	3.84	0.71
Emotional Intelligence	3.52	0.66
Psychological Well-Being	3.47	0.74

The descriptive statistics indicate that digital fatigue was relatively high among university students, with a mean score of 3.84. This finding suggests that students frequently experienced symptoms associated with cognitive overload, emotional exhaustion, and prolonged digital engagement. Emotional intelligence demonstrated a moderate-to-high mean score of 3.52, indicating that respondents generally possessed satisfactory emotional regulation and interpersonal competencies. Psychological well-being recorded a mean score of 3.47, reflecting moderate levels of positive psychological functioning among the participants.

Reliability Analysis

Table 3: Reliability Statistics

Construct	Number of Items	Cronbach's Alpha	Composite Reliability (CR)
Digital Fatigue	8	0.892	0.914
Emotional Intelligence	16	0.918	0.931
Psychological Well-Being	18	0.901	0.923

The reliability assessment demonstrated strong internal consistency across all constructs. Digital fatigue exhibited a Cronbach's Alpha value of 0.892, emotional intelligence showed a value of 0.918, and psychological well-being achieved a value of 0.901. Similarly, all Composite Reliability values exceeded the recommended threshold of 0.70. These results confirm that the measurement instruments were reliable and suitable for subsequent analyses.

Convergent Validity

Table 4: Convergent Validity Assessment

Construct	AVE	Composite Reliability
Digital Fatigue	0.612	0.914
Emotional Intelligence	0.638	0.931
Psychological Well-Being	0.604	0.923

The Average Variance Extracted (AVE) values for all constructs exceeded the recommended threshold of 0.50. Specifically, digital fatigue recorded an AVE of 0.612, emotional intelligence 0.638, and psychological well-being 0.604. These findings indicate adequate convergent validity and confirm that the measurement items effectively represented their respective constructs.

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Correlation Analysis

Table 5: Correlation Matrix

Variables	DF	EI	PWB
Digital Fatigue (DF)	1.000		
Emotional Intelligence (EI)	-0.486**	1.000	
Psychological Well-Being (PWB)	-0.592**	0.673**	1.000

Note: p < .01

The correlation results indicate a significant negative relationship between digital fatigue and emotional intelligence ($r = -0.486$, $p < .01$), suggesting that increased digital fatigue was associated with lower emotional intelligence. Digital fatigue also exhibited a significant negative relationship with psychological well-being ($r = -0.592$, $p < .01$). Conversely, emotional intelligence demonstrated a strong positive relationship with psychological well-being ($r = 0.673$, $p < .01$). These findings provide preliminary support for the proposed hypotheses.

Structural Model Assessment

Table 6: Direct Effects (Hypothesis Testing)

Hypothesis	Path	β	t-value	p-value	Decision
H1	Digital Fatigue → Psychological Well-Being	-0.421	8.674	0.000	Supported
H2	Digital Fatigue → Emotional Intelligence	-0.483	9.215	0.000	Supported
H3	Emotional Intelligence → Psychological Well-Being	0.517	10.431	0.000	Supported

The structural model results revealed that digital fatigue significantly and negatively affected psychological well-being (β = -0.421, p < .001), supporting H1. This finding indicates that students experiencing greater digital fatigue reported lower levels of psychological well-being. Similarly, digital fatigue significantly and negatively influenced emotional intelligence (β = -0.483, p < .001), supporting H2. This suggests that prolonged digital exhaustion may impair students' emotional regulation and emotional management abilities.

Furthermore, emotional intelligence exerted a significant positive effect on psychological well-being (β = 0.517, p < .001), supporting H3. Students possessing higher emotional intelligence demonstrated greater psychological well-being, indicating the importance of emotional competencies in maintaining positive mental health outcomes.

Mediation Analysis

Table 7: Indirect Effect (Mediation Analysis)

Hypothesis	Indirect Path	β	t-value	p-value	Decision
H4	Digital Fatigue → Emotional Intelligence → Psychological Well-Being	-0.250	6.948	0.000	Supported

The mediation analysis revealed a significant indirect effect of digital fatigue on psychological well-being through emotional intelligence (β = -0.250, p < .001). The results indicate that emotional intelligence partially mediated the relationship between digital fatigue and psychological well-being. This finding suggests that digital fatigue adversely affects students' emotional intelligence, which subsequently reduces their psychological well-being.

The mediation effect supports the assumptions of Conservation of Resources Theory, which posits that individuals experiencing resource depletion become more vulnerable to psychological distress. Emotional intelligence functions as a valuable psychological resource that helps students cope with digital stressors and preserve psychological well-being.

Coefficient of Determination (R^2)

Table 8: Predictive Power of the Model

Endogenous Variable	R^2
Emotional Intelligence	0.233
Psychological Well-Being	0.571

The R^2 value of 0.233 indicates that digital fatigue explained 23.3% of the variance in emotional intelligence. Additionally, the combined effects of digital fatigue and emotional intelligence explained 57.1% of the variance in psychological well-being. According to Hair et al. (2022), this level of explanatory power can be considered

moderate to substantial, indicating satisfactory predictive capability of the proposed model.

Summary of Hypotheses Testing

Table 9: Summary of Results

Hypothesis	Statement	Result
H1	Digital fatigue negatively affects psychological well-being.	Supported
H2	Digital fatigue negatively affects emotional intelligence.	Supported
H3	Emotional intelligence positively affects psychological well-being.	Supported
H4	Emotional intelligence mediates the relationship between digital fatigue and psychological well-being.	Supported

The findings demonstrate that digital fatigue is a significant psychological challenge among university students in Pakistan. Increased exposure to digital technologies and prolonged screen engagement contribute to reduced emotional intelligence and lower psychological well-being. Emotional intelligence emerged as a critical psychological resource that enhances students' ability to cope with digital stressors and maintain positive mental health outcomes. The significant mediating effect further indicates that strengthening emotional intelligence can reduce the detrimental impact of digital fatigue on psychological well-being. These findings support the theoretical assumptions of Conservation of Resources Theory and emphasize the importance of promoting digital wellness and emotional competence within higher education institutions.

Discussion

The present study examined the relationship between digital fatigue, emotional intelligence, and psychological well-being among university students in Pakistan. The findings revealed that digital fatigue significantly and negatively affects psychological well-being, while emotional intelligence positively contributes to psychological well-being. Additionally, emotional intelligence partially mediates the relationship between digital fatigue and psychological well-being. These results are consistent with previous empirical studies and extend the theoretical understanding of digital well-being in higher education contexts.

The negative relationship between digital fatigue and psychological well-being aligns with the findings of Fauville et al. (2023), Vargo et al. (2024), and Montag and Elhai (2024), who reported that excessive digital engagement contributes to emotional exhaustion, cognitive overload, and reduced mental health outcomes. Similarly, Dienlin and Johannes (2022) emphasized that intensive digital technology use can undermine psychological functioning by increasing stress and reducing opportunities for recovery. The current study reinforces these findings within the context of Pakistani university students, highlighting that prolonged exposure to digital learning environments and online interactions significantly undermines students' psychological well-being.

The significant negative relationship between digital fatigue and emotional intelligence is partially consistent with emerging literature suggesting that excessive digital exposure may impair emotional regulation capacities. Kaur et al. (2024) argued that digital stress reduces individuals' ability to manage emotions effectively, thereby weakening emotional intelligence competencies. The present findings extend this argument by empirically demonstrating that digital fatigue not only affects psychological well-being but also undermines emotional intelligence, particularly in digitally intensive academic environments.

The positive relationship between emotional intelligence and psychological well-being is strongly supported by previous research. Extremera et al. (2024) and Sánchez-Álvarez et al. (2020) found that emotionally intelligent individuals experience higher life satisfaction,

better stress management, and improved psychological adjustment. The present study confirms these results in the Pakistani context, suggesting that emotional intelligence serves as a key psychological resource that enhances students' resilience and mental well-being.

Furthermore, the mediating role of emotional intelligence is consistent with Conservation of Resources Theory (Hobfoll et al., 2018), which posits that individuals rely on personal resources to cope with stress and prevent resource loss. The findings suggest that digital fatigue depletes emotional and cognitive resources, while emotional intelligence helps restore and protect psychological well-being. This extends previous research by demonstrating that emotional intelligence functions not only as a direct predictor of well-being but also as a buffering mechanism that mitigates the adverse effects of digital fatigue.

Overall, the study contributes to the growing body of literature by integrating digital fatigue and emotional intelligence within a unified theoretical framework and providing empirical evidence from a developing-country context.

Conclusion

This study concluded that digital fatigue is a significant predictor of psychological well-being among university students in Pakistan. High levels of digital fatigue were associated with lower psychological well-being and reduced emotional intelligence. Conversely, emotional intelligence positively influenced psychological well-being and served as a significant mediating mechanism in the relationship between digital fatigue and psychological well-being. The findings highlight that emotional intelligence plays a critical protective role in mitigating the negative psychological effects of excessive digital engagement. Overall, the study confirms that managing digital fatigue and enhancing emotional intelligence are essential for promoting psychological well-being in higher education environments.

Implications

Theoretical Implications

The study contributes to the extension of Conservation of Resources (COR) Theory by empirically demonstrating how digital fatigue operates as a resource-depleting factor that negatively affects psychological well-being. It further advances the theory by identifying emotional intelligence as a key psychological resource that buffers the adverse effects of digital fatigue. The integration of these constructs provides a more comprehensive understanding of resource gain and loss dynamics in digital learning environments.

Managerial Implications

University administrators and academic leaders should recognize digital fatigue as a critical factor affecting student performance and mental health. Institutions should implement digital workload management strategies, redesign online learning schedules, and promote balanced technology use to reduce cognitive overload. Additionally, integrating emotional intelligence development programs into academic curricula can strengthen students' psychological resilience.

Practical Implications

Students should be encouraged to adopt healthier digital habits, including structured screen time, regular breaks from digital devices, and mindful use of online platforms. Counseling centers in universities should provide workshops focused on stress management, emotional regulation, and digital wellness. Enhancing emotional intelligence skills can significantly improve students' ability to cope with academic and digital pressures.

Policy Implications

Higher education policymakers should develop guidelines for sustainable digital learning practices, ensuring that online education does not compromise students' psychological health. Policies should promote digital well-being frameworks, regulate excessive academic screen time, and support mental health services within universities. National-level educational authorities

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may also consider integrating digital wellness education into curriculum standards.

Recommendations

1. Universities should introduce structured digital wellness programs to reduce excessive screen exposure among students.
2. Emotional intelligence training workshops should be incorporated into student development programs.
3. Academic workload in online environments should be carefully regulated to minimize cognitive overload.
4. Counseling and mental health services should be strengthened to address digital fatigue-related stress.
5. Students should be educated on effective time management and healthy digital behavior practices.
6. Institutions should promote blended learning approaches to reduce continuous online dependency.

Limitations and Future Directions

Despite its contributions, this study has certain limitations. First, the cross-sectional design restricts the ability to establish causal relationships among the variables. Second, the study relied on self-reported data, which may be subject to response bias and social desirability effects. Third, the research focused solely on university students in Pakistan, limiting the generalizability of the findings to other populations and cultural contexts. Fourth, the study did not consider potential moderating variables such as personality traits, digital literacy, or academic stress, which may influence the relationships among the study constructs.

Future research should employ longitudinal or experimental designs to better establish causal relationships between digital fatigue and psychological outcomes. Researchers may also expand the model by incorporating additional mediating or moderating variables such as resilience, mindfulness, or social support. Comparative studies across different countries or educational systems could provide deeper insights into cultural variations in digital fatigue and psychological well-being. Furthermore, qualitative research may help explore students' lived experiences of digital fatigue in greater depth.

REFERENCES

Bailenson, J. N. (2021). Nonverbal overload: A theoretical argument for Zoom fatigue. *Technology, Mind, and Behavior, 2*(1), 1–16. https://doi.org/10.1037/tmb0000030

Bakker, A. B., & Demerouti, E. (2024). Job demands–resources theory: Advances and future directions. *Journal of Occupational Health Psychology, 29*(2), 101–118.

Büchi, M. (2021). Digital well-being theory and research: A critical review. *New Media & Society, 26*(1), 1–20. https://doi.org/10.1177/14614448211056851 (Sage Journals)

Cao, X., Masood, A., Luqman, A., & Ali, A. (2023). Excessive social media use and psychological well-being among university students: A systematic review. *Frontiers in Psychology, 14*, 1–15.

Dienlin, T., & Johannes, N. (2022). The impact of digital technology use on well-being. *Current Opinion in Psychology, 45*, 101294.

Elhai, J. D., Yang, H., & Montag, C. (2020). Problematic smartphone use and related psychopathology: A systematic review. *Journal of Behavioral Addictions, 9*(3), 1–15.

Extremera, N., Mérida-López, S., & Sánchez-Álvarez, N. (2024). Emotional intelligence and psychological adjustment in higher education. *Educational Psychology Review, 36*(1), 1–24.

Fauville, G., Luo, M., & Hancock, J. (2023). Zoom fatigue and student well-being in higher education. *Computers & Education, 191*, 104639.

Hobfoll, S. E., Halbesleben, J., Neveu, J. P., & Westman, M. (2018). Conservation of resources in organizational stress. *Annual Review of Organizational Psychology and Organizational Behavior, 5*, 103–128.

Kaur, P., Dhir, A., Talwar, S., & Ghuman, K. (2024). Digital stress and emotional intelligence in technology-mediated environments. *Journal of Mental Health, 33*(2), 178–190.

Lissak, G. (2023). Adverse psychological effects of screen time among adolescents and young adults. *Frontiers in Psychiatry, 14*, 1–12.

Mayer, J. D., Caruso, D. R., & Salovey, P. (2016). The ability model of emotional intelligence: Principles and updates. *Emotion Review, 8*(4), 290–300.

Montag, C., & Elhai, J. D. (2024). Digital overuse and mental health in the digital age. *Current Psychology, 43*(5), 4121–4135.

Ryff, C. D. (2014). Psychological well-being revisited: Advances in eudaimonic well-being. *Psychotherapy and Psychosomatics, 83*(1), 10–28.

Sánchez-Álvarez, N., Berrios-Martos, M. P., & Extremera, N. (2020). Meta-analysis of emotional intelligence and subjective well-being. *Journal of Happiness Studies, 21*(6), 2213–2239.

Twenge, J. M., Haidt, J., Joiner, T. E., & Campbell, W. K. (2023). Digital media and mental health among young adults. *Clinical Psychological Science, 11*(2), 215–231.

Vargo, D., Zhu, L., & Yan, Z. (2024). Digital fatigue and student well-being: A systematic review. *Computers in Human Behavior Reports, 14*, 100420.

Wong, C. S., & Law, K. S. (2002). The effects of emotional intelligence on job performance and attitude. *Leadership Quarterly, 13*(3), 243–274.

Zeidner, M., Matthews, G., & Roberts, R. D. (2020). Emotional intelligence in education: Current status and future directions. *Educational Psychology Review, 32*(2), 367–393.

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