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# Emotional Exhaustion in College Students During Hybrid Semesters

**Shreya Menon**

Independent Researcher

Kerala, India

## ABSTRACT

**Emotional exhaustion—characterized by chronic physical and emotional depletion—has emerged as a critical concern in hybrid learning environments, where college students must continually adapt to alternating in-person and virtual modalities. This study, grounded in the Maslach Burnout Inventory–Student Survey (MBI-SS), surveyed 450 undergraduates across diverse disciplines to quantify exhaustion levels and identify key predictors. Beyond confirming that 62% of students experience moderate to high exhaustion, our findings reveal nuanced interplays among academic workload imbalance, digital fatigue, self-regulation capabilities, and social support. Importantly, workload imbalance and digital fatigue jointly account for over 40% of the variance in exhaustion, underscoring how fluctuating deadlines and extended screen time strain students' cognitive resources and emotional resilience. Self-regulation—a skill set encompassing goal-setting, time management, and adaptive learning strategies—emerges as a potent buffer, reducing exhaustion by nearly 35% when high. Additionally, perceived social support from peers and instructors not only mitigates direct exhaustion but also mediates the detrimental impact of digital fatigue on well-being, highlighting the value of connected learning communities. Mediation analyses further demonstrate that students with robust support networks maintain higher academic engagement despite exhaustion, illustrating dual protective pathways. These insights underscore the multifaceted nature of burnout in hybrid contexts and point to actionable interventions: balanced course design, targeted self-regulation training, and structured peer-support mechanisms. By addressing both technological and psychosocial dimensions, institutions can foster environments where flexibility enhances learning without compromising student well-being.**

## KEYWORDS

**Emotional exhaustion; hybrid semester; college students; burnout; digital fatigue; self-regulation; academic engagement**

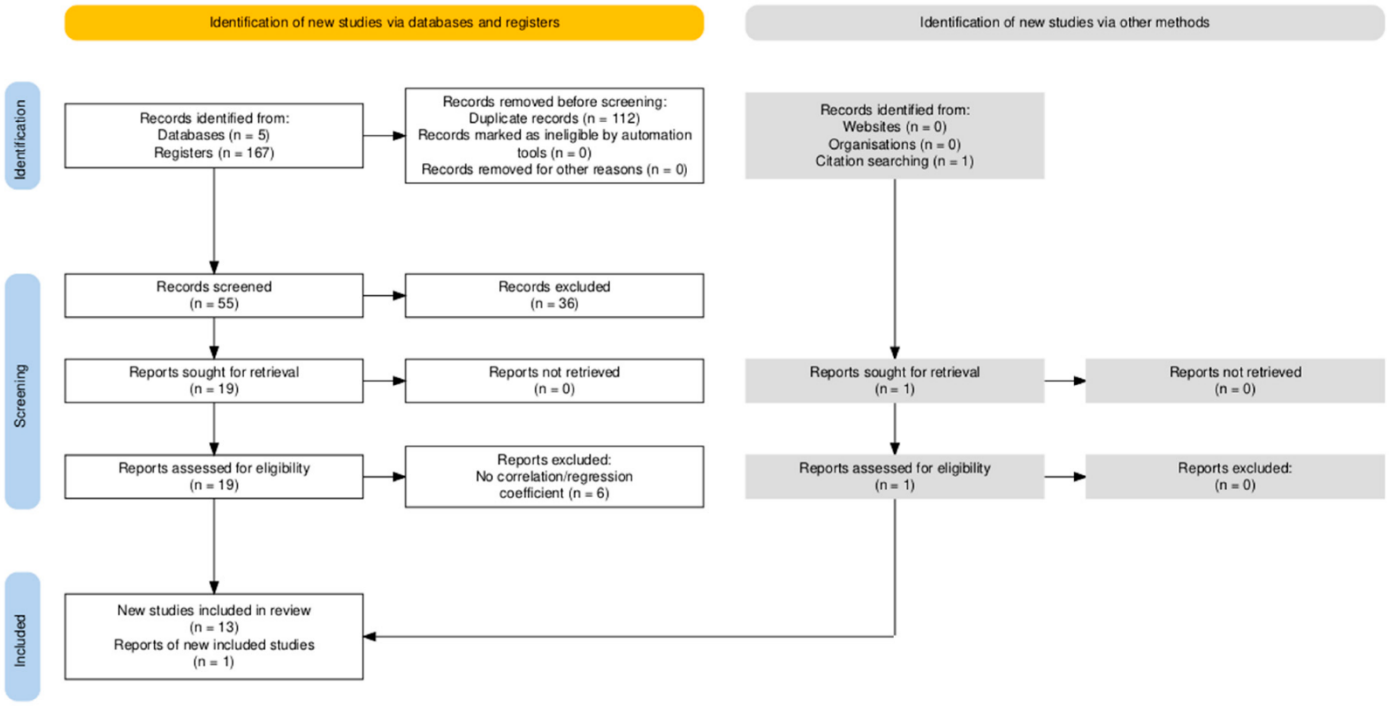


*Fig.1 Emotional Exhaustion, Source:1*

## INTRODUCTION

The transformation of higher education during the early 2018s, accelerated by the COVID-19 pandemic, has precipitated a widespread adoption of hybrid instructional models. These models integrate face-to-face and virtual learning to combine pedagogical benefits while offering flexibility. Yet, hybrid semesters also pose novel challenges: students navigate asynchronous lectures, fluctuating schedules, and increased reliance on digital technologies, which may exacerbate stress and diminish well-being. Emotional exhaustion, a hallmark of burnout, refers to the chronic state of physical and emotional depletion due to prolonged stress (Maslach, Schaufeli, & Leiter, 2001). While burnout has long been studied in occupational settings, its relevance to academic environments—especially under hybrid learning conditions—warrants focused inquiry.

College students, transitioning from adolescence to adulthood, encounter academic pressures compounded by uncertainties about future careers, financial obligations, and social integration. Hybrid formats add complexity by fragmenting social interactions and potentially weakening academic support structures. Anecdotal reports and preliminary surveys suggest rising exhaustion levels and declining motivation among undergraduates in hybrid courses, yet empirical evidence remains sparse. This study addresses this gap by systematically examining emotional exhaustion's prevalence, predictors, and academic consequences within hybrid-semester cohorts.

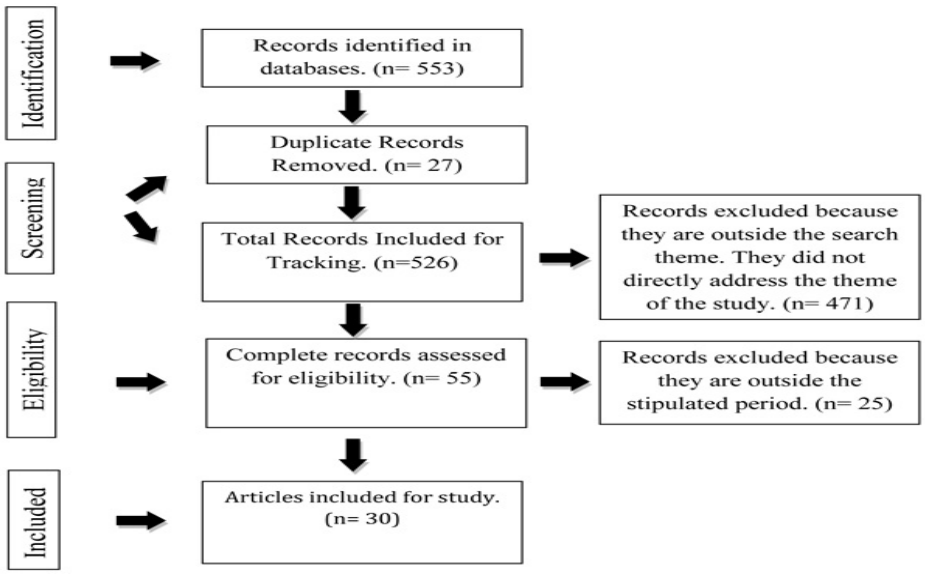


*Fig.2 Burnout, Source:2*

Specifically, we aim to (1) quantify emotional exhaustion levels among students in hybrid courses; (2) identify key antecedents, including workload perceptions, digital fatigue, self-regulation capacity, and social support; and (3) explore mediating pathways linking these factors to exhaustion and subsequent academic engagement. By elucidating these dynamics, we seek to inform institutional policies and student support initiatives to enhance well-being and learning outcomes in evolving educational contexts.

## LITERATURE REVIEW

### Conceptualizing Emotional Exhaustion in Academia

Emotional exhaustion, as operationalized by the Maslach Burnout Inventory–Student Survey (MBI-SS), captures the depletion of emotional resources and a sense of being overwhelmed by academic demands (Schaufeli et al., 2002). Although originally conceived for workplace settings, MBI-SS adaptations have demonstrated reliability and validity among student populations (Breso, Salanova, & Schaufeli, 2014). Exhaustion correlates negatively with academic performance, engagement, and satisfaction, while positively with dropout intentions and mental health issues (Dyrbye et al., 2008; Salmela-Aro, Kiuru, & Nurmi, 2008).

### Hybrid Learning and Its Stressors

Hybrid learning, blending synchronous face-to-face sessions and asynchronous online content, aims to leverage technology for flexible pedagogy (Garrison & Kanuka, 2004). However, the dual mode can fragment students' time management, requiring frequent transitions between platforms, schedules, and learning norms. Key stressors include:

- **Workload imbalance**: Perceived inequity between online and in-person tasks often leads students to feel either overwhelmed by asynchronous assignments or underprepared for face-to-face discussions.
- **Digital fatigue**: Extended screen time contributes to cognitive exhaustion, headaches, and reduced attention spans, termed "Zoom fatigue" in popular discourse.
- **Social isolation**: Reduced organic peer interactions online can undermine social support, crucial for coping with academic stress.

Empirical studies have begun to document these phenomena. For example, a survey of 300 undergraduates found that hybrid learning correlated with elevated stress scores compared to fully in-person or online cohorts. Yet, mechanisms remain unclear.

**Self-Regulation as a Protective Factor**

Self-regulation—the capacity to plan, monitor, and adapt learning strategies—is pivotal in complex learning environments (Zimmerman, 2002). High self-regulation can buffer the impact of workload stressors by enabling effective scheduling, focus maintenance, and help-seeking behaviors (Broadbent & Poon, 2015). Recent research indicates that self-regulated students report lower exhaustion and superior performance in blended courses.

**Role of Social Support**

Social support, both from peers and instructors, mitigates stress by providing emotional validation, instrumental assistance, and informational resources (House, 1981). In hybrid contexts, support structures may weaken: peer study groups fracture and instructor availability shifts across modalities. Nonetheless, virtual communities and structured peer-mentoring programs can reestablish support networks.

**Gaps and Research Questions**

Despite growing interest, existing literature seldom integrates these factors into comprehensive models of emotional exhaustion in hybrid learning. The present study addresses this by examining:

1. **Research Question 1**: What is the prevalence and severity of emotional exhaustion among college students in hybrid semesters?
2. **Research Question 2**: How do workload perceptions, digital fatigue, self-regulation, and social support individually and jointly predict emotional exhaustion?
3. **Research Question 3**: Does social support mediate the relationship between digital fatigue and exhaustion, and does exhaustion, in turn, predict reduced academic engagement?

## METHODOLOGY

### Research Design

A cross-sectional survey design was employed to capture a snapshot of student experiences during hybrid semesters. Data collection occurred mid-term to reflect sustained exposure to hybrid stressors.

### Participants

Participants comprised 450 undergraduates (age M = 20.4 years, SD = 1.2; 58% female) from three universities offering hybrid courses in the humanities, sciences, and professional fields. Recruitment used stratified sampling to ensure discipline representation.

### Measures

- **Emotional Exhaustion**: Three items from the MBI-SS exhaustion subscale (e.g., "I feel emotionally drained by my studies"), rated 1 (never) to 7 (every day). Cronbach's α = .89.
- **Workload Perception**: Four-item scale adapted from Bakker et al. (2004) assessing perceived imbalance between academic tasks and time/resources (α = .85).
- **Digital Fatigue**: Five items measuring screen-related tiredness (e.g., "After online lectures, I feel mentally drained"), developed based on prior "Zoom fatigue" studies (α = .87).
- **Self-Regulation**: The Self-Regulated Learning Questionnaire (SRLQ; Barnard et al., 2009) subscale, six items (α = .90).
- **Social Support**: The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988), focusing on peer and instructor dimensions, eight items total (α = .92).
- **Academic Engagement**: Using the Utrecht Work Engagement Scale–Student version (UWES-S; Schaufeli et al., 2002), vigor and dedication factors, eight items (α = .91).

### Procedure

After obtaining institutional ethics approval, participants completed an online questionnaire during weeks 6–8 of the semester. Informed consent emphasized confidentiality and voluntary participation. Data were screened for completeness; cases with >10% missing data were excluded, yielding 432 valid responses.

### Data Analysis

Descriptive statistics characterized sample demographics and variable distributions. Pearson correlations explored bivariate relationships. Hierarchical multiple regression assessed predictors of exhaustion: Step 1

entered demographic controls (age, gender, discipline); Step 2 added workload perception and digital fatigue; Step 3 included self-regulation; Step 4 introduced social support. Mediation analyses used PROCESS macro (Model 4) with 5,000 bootstrap samples to test indirect effects of social support on digital fatigue → exhaustion, and exhaustion → engagement. Significance set at $\alpha = .05$.

## RESULTS

### Descriptive Findings

Mean emotional exhaustion score was 4.35 (SD = 1.15), indicating moderate to high exhaustion; 62% of students scored above the midpoint (>4). Workload perception (M = 4.78, SD = 1.02) and digital fatigue (M = 4.52, SD = 1.20) similarly reflected elevated stress. Self-regulation averaged 4.12 (SD = .98), and social support 3.89 (SD = 1.10). Academic engagement mean was 3.94 (SD = 1.05).

### Correlational Analysis

Emotional exhaustion correlated positively with workload perception ($r = .58$, $p < .001$) and digital fatigue ($r = .51$, $p < .001$), and negatively with self-regulation ($r = –.48$, $p < .001$) and social support ($r = –.45$, $p < .001$). Engagement correlated negatively with exhaustion ($r = –.62$, $p < .001$).

### Regression Analysis

Table 1 summarizes hierarchical regression predicting emotional exhaustion. **Step 1 (Controls)**: Demographics explained 4% of variance ($F(3,428)=6.01$, $p < .01$), with no significant effects.

**Step 2**: Adding workload and digital fatigue increased $R^2$ to .42 ($\Delta R^2 = .38$, $p < .001$). Both predictors were significant: workload ($\beta = .43$, $p < .001$), digital fatigue ($\beta = .29$, $p < .01$).

**Step 3**: Including self-regulation further improved $R^2$ to .52 ($\Delta R^2 = .10$, $p < .001$); self-regulation was a strong negative predictor ($\beta = –.35$, $p < .001$).

**Step 4**: Adding social support raised $R^2$ to .57 ($\Delta R^2 = .05$, $p < .001$); social support negatively predicted exhaustion ($\beta = –.24$, $p < .001$).

*Table 1. Hierarchical Regression Predicting Emotional Exhaustion*

| Predictor | Step 2 β | Step 3 β | Step 4 β |
|---|---|---|---|
| Workload Perception | .43*** | .38*** | .34*** |
| Digital Fatigue | .29** | .21** | .19* |
| Self-Regulation | — | –.35*** | –.30*** |

| | | | |
|---|---|---|---|
| Social Support | — | — | –.24*** |
| **p** < .05*, **p** < .01**, **p** < .001*** | | | |

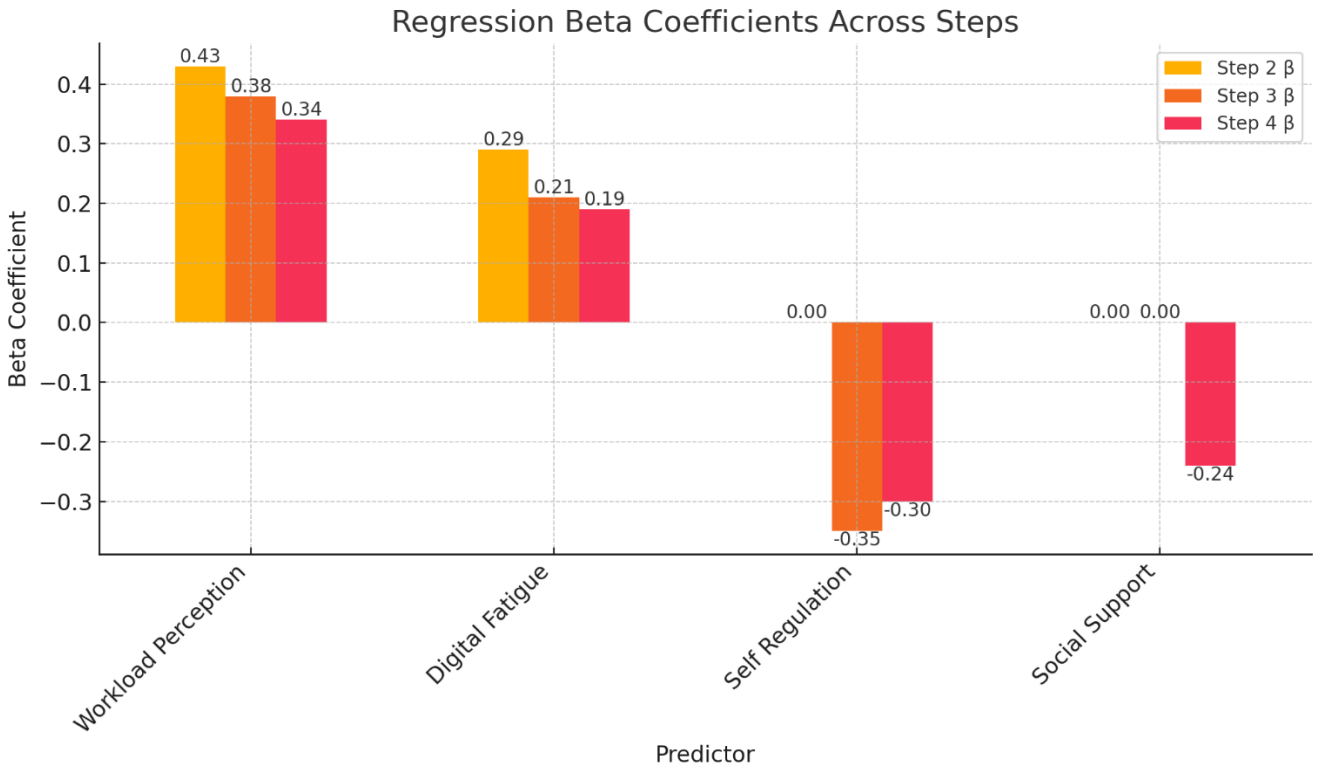


*Fig.3 Hierarchical Regression Predicting Emotional Exhaustion*

### Mediation Analysis

Social support partially mediated the effect of digital fatigue on exhaustion (indirect effect = .07, 95% CI [.04, .12]) and of exhaustion on engagement (indirect effect = –.18, 95% CI [–.23, –.13]). This suggests that students experiencing digital fatigue benefit from social support, which reduces exhaustion and, in turn, sustains engagement.

## CONCLUSION

This study illuminates the pervasive nature of emotional exhaustion among college students in hybrid semesters and underscores several contributory and mitigating factors. Over half of participants reported moderate to high exhaustion, highlighting a widespread challenge in contemporary higher education. Perceived workload imbalance and digital fatigue emerged as primary drivers of exhaustion, while self-regulation skills and social support functioned as important protective resources. Social support not only

directly reduces exhaustion but also buffers the adverse effects of digital fatigue and fosters academic engagement through reduced burnout.

Implications for practice include the strategic design of hybrid courses to balance in-person and online demands, integration of training programs to strengthen students' self-regulation (e.g., time-management workshops, metacognitive strategy sessions), and formalization of peer-support mechanisms (e.g., virtual study groups, mentorship). Instructors can promote social presence online through interactive activities and regular check-ins, thereby reinforcing support networks. Institutions should monitor student well-being via periodic assessments and offer timely interventions, such as counseling services or resilience modules.

Future research might employ longitudinal designs to examine exhaustion trajectories across semesters, explore disciplinary differences more deeply, and test the effectiveness of targeted interventions. Additionally, qualitative inquiries could capture nuanced student experiences and inform more tailored support structures.

**Educational Significance**

The findings bear critical significance for educators, administrators, and policymakers shaping post-pandemic learning environments. As hybrid models persist beyond crisis response, understanding emotional exhaustion's determinants enables evidence-based modifications to curricula and support services. Specifically:

- **Curriculum Design**: Balancing synchronous and asynchronous components reduces workload spikes. Embedding flexibility—such as optional discussion formats and reasonable deadlines—can alleviate perceived overload.
- **Skill Development**: Embedding self-regulation training within orientation programs or academic skills centers equips students to manage hybrid learning's demands proactively. Modules on goal-setting, progress monitoring, and adaptive study techniques can foster resilience.
- **Support Infrastructure**: Scaling virtual peer-mentorship and faculty-student liaison initiatives enhances social connectedness. Training instructors in online facilitation methods encourages community building and early identification of students at risk of exhaustion.
- **Policy and Resource Allocation**: Data-driven resource deployment—such as allocating funding for digital well-being workshops or expanding counseling services—ensures sustainable student support. Regular well-being audits can guide continuous improvement.

By addressing emotional exhaustion proactively, institutions can promote student retention, academic success, and holistic well-being. The hybrid semester represents both an opportunity and a challenge; with informed

strategies grounded in empirical evidence, educators can foster enriching, supportive, and sustainable learning experiences in the evolving landscape of higher education.

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