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Article

Cultural and Historical Environmental Influences on Student Mental Health in Online Learning During Global Educational Disruptions

Helene D. Daya[1]
Southern Luzon State University
Correspondence: hdaya@slsu.edu.ph

Abstract

The transition to online learning during the COVID-19 pandemic created unprecedented challenges that deeply affected students' mental health. Historically, educational disruptions such as the 1918 influenza pandemic demonstrated that the quality of alternative learning arrangements shapes long-term academic and psychological outcomes. Unlike past events, however, the COVID-19 shift occurred in a digitally connected but socioeconomically unequal world. Quantitative results show that 95.3% of students (n = 1,376) experienced psychological distress, with heightened stress, anxiety, and depression. Thematic analysis (n = 229) from interviews, FGDs, and open-ended questionnaires revealed unstable home learning environments, particularly in multi-generational households common in collectivist cultures, which caused distractions and academic fatigue. Technological barriers, including poor internet access and platform overload, further compounded difficulties, especially in rural or disadvantaged areas. Culturally, online learning disrupted peer networks and instructor relationships that typically serve as vital sources of motivation and emotional support. Social isolation and reduced face-to-face interaction intensified loneliness and disconnection. Historical inequalities in educational infrastructure magnified these issues in communities with limited digital access. Students adopted coping strategies such as maintaining routines, seeking family and peer support, and engaging in physical activities. Overall, findings underscore that unstructured environmental factors exerted a stronger influence on mental health than course content. The study highlights the importance of culturally responsive interventions, equitable access to technology, and sustained social connections in strengthening students' resilience in online learning contexts.

Keywords: *Academic Fatigue, Educational Disruption, Environmental Influence, Mental Well-Being, Peer Interaction*

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Introduction

The COVID-19 pandemic transformed higher education at a historic scale, forcing a rapid pivot from face-to-face instruction to online learning and surfacing urgent concerns about student mental health and safety. Across countries, university students reported sharp increases in stress, anxiety, and depressive symptoms as classes, social life, finances, and living arrangements were disrupted simultaneously. Large and small studies alike, from the United States, Spain, the United Kingdom, China, and multi-country samples, consistently document elevated psychological distress among students during the pandemic period, with many exceeding clinical thresholds for anxiety or depression and reporting difficulties concentrating on academic work. At the same time, the shift online amplified known environmental stressors tied to where and how students learn: connectivity and hardware constraints, the absence of a quiet study space, household responsibilities, and crowded or multi-generational homes, all of which interact with socioeconomic status and national infrastructure (Son et al., 2020). Policy analyses show that while roughly one in ten students across OECD systems lack a quiet place to study, the proportion exceeds 30% in several Southeast Asian systems, including the Philippines, where the home learning environment became a decisive determinant of educational continuity and well-being (Odriozola-González, 2020).

Historically, education systems have faced pandemic-induced shutdowns before, during the 1918–1919 influenza pandemic, for instance, where authorities weighed school closures against social costs with uneven long-term educational effects (Aguilera-Hermida, 2020). While modeling and historical reviews suggest closures can reduce transmission, their educational and mental-health consequences depend heavily on context, public health measures, and the feasibility of alternatives. COVID-19 differed in scope and duration, requiring mass *"emergency remote teaching,"* not simply brief suspensions (Browning et al, 2021). Universities drew on pragmatic strategies (e.g., simplifying course expectations, increasing interaction opportunities, and scaffolding tasks) identified in early higher-education cases such as Peking University's pivot. However, implementation quality varied widely across institutions and countries.

A cultural-historical lens helps explain why students' experiences diverged even under similar lockdowns. Vygotsky's cultural-historical theory and later *Cultural-Historical Activity Theory* (CHAT) emphasize that learning and development are mediated by social tools, practices, and histories; consequently, a learner's *"activity system"* (home, school, community, technologies) shapes what is cognitively and emotionally possible (Vygotsky, 1978). During COVID-19, those activity systems

shifted abruptly from campus-based networks to family and household networks, often altering roles (e.g., caregiving), resources (e.g., devices shared among siblings), and norms (e.g., expectations about privacy and study time). Cross-cultural research further suggests that cultural orientations, such as collectivism versus individualism, modulate psychosocial responses and coping during crises: collectivist norms can bolster compliance and perceived social responsibility, with downstream mental health benefits in some contexts (Ager et al. 2020), while individualistic settings may heighten loneliness or distress when social freedoms are curtailed.

From an environmental perspective, students' mental health during online learning is shaped by tangible and social conditions: reliable internet and devices; quiet, ergonomic study areas; predictable schedules; and access to peers and instructors (Cao, 2020). Studies of emergency online learning show that acceptance and engagement depend on perceived control (self-efficacy, access), motivational factors, and cognitive engagement; where these are weak because of poor connectivity, device scarcity, or home noise, distress, and disengagement rise. Socio-ecological analyses across institutions identify specific risk factors (e.g., reduced physical activity, financial strain, lost campus supports) that predict worse mental-health outcomes for students learning remotely. These dynamics sit within broader structural inequities: UNESCO's Global Education Monitoring Report underscored how the pandemic widened pre-existing gaps in inclusion and support for at-risk learners.

Aligned with the United Nations Sustainable Development Goals, SDG 3 (Good Health and Well-being) and SDG 4 (Quality Education), the present study focuses on the intersection of online learning environments and mental health. It examines stress, anxiety, depression, well-being, and coping strategies as outcomes that are not merely psychological states but are co-produced by cultural norms, historical legacies, and material learning conditions.

Multiple strands of empirical evidence inform this work. First, pandemic-era surveys and cohort studies across settings report increased anxiety, depression, stress, and functional difficulties among university students, often linked to disruptions in study routines, social isolation, and uncertainty about the future (Bao, 2020). Second, global and multi-country analyses (e.g., 62-country student surveys; cross-cultural comparisons) reveal that national policy responses, campus support, digital access, and cultural norms shape learning satisfaction and mental-health trajectories. Third, environmental constraints in the home learning space (quiet, connectivity, device access) and socioeconomic pressures are robust predictors of distress and academic difficulties, especially where more than a third of students lack appropriate study conditions. Fourth, studies of *"emergency remote teaching"* identify instructional levers,

clarity, interaction, workload calibration, and scaffolding that mitigate stress and improve engagement when done well. Finally, cultural frameworks matter. Evidence suggests that collectivist orientations can buffer distress via social responsibility and mutual support. In contrast, individualistic orientations may correlate with higher loneliness under restrictions, patterns consistent with cultural-historic theories that locate learning and well-being in socially mediated practices.

Despite the breadth of COVID-19 research, two gaps remain. First, many studies measure mental-health symptoms or online learning satisfaction in isolation; fewer explicitly model how concrete environmental variables in students' learning spaces (e.g., noise, privacy, device-sharing, bandwidth stability) interact with cultural norms to shape mental-health outcomes. Second, historical and cultural perspectives are under-integrated in analyses of online learning's long-term mental-health effects: we know from past pandemics and activity theory that context matters, yet most designs lack the mixed-methods depth to capture culturally situated coping and resilience. Addressing these gaps, the present mixed-methods study links environmental features of the online learning setting to quantitative indicators of stress, anxiety, depression, and well-being, while qualitatively interpreting students' coping strategies through cultural-historical frames. This design contributes evidence directly relevant to SDG 3 and SDG 4 by clarifying where institutions can intervene materially (learning spaces, access) and pedagogically (interaction, workload, flexibility) to protect mental health without compromising educational quality.

Objectives of the Study

1. Determine the prevalence of psychological distress among students engaged in online learning.
2. Evaluate the levels of stress, anxiety, and depression among students in an online learning environment.
3. Explore students' personal experiences with environmental factors, encompassing physical, technological, and social challenges, during online learning.
4. Examine the coping strategies students employ to manage psychological distress and adapt to the challenges of online learning.

Conceptual Framework

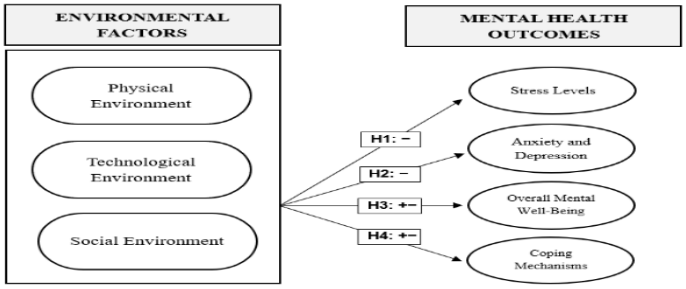

Figure 1. Conceptual framework of the study

This study explores the effects of technological, social, and physical challenges on students' mental well-being in online learning environments. A suitable physical environment, featuring adequate lighting, minimal noise, and comfortable furniture, can significantly improve focus and alleviate stress. Encountering technological challenges can heighten stress levels and reduce motivation. Social connections cultivate a feeling of belonging and strengthen our ability to tackle challenges effectively. Improving these environmental factors is essential for learners in online classrooms. A reliable internet connection and intuitive technology can reduce stress and improve academic outcomes.

Methodology

The study employed a mixed-methods sequential explanatory approach to determine the impact of environmental factors on students' mental health in online learning. The study encompassed 1,353 university students enrolled in the first semester of the 2021-2022 academic year, employing convenience sampling because of COVID-19 educational disruption. An online survey was used to document experiences, while interviews, focus group discussions, and open-ended questionnaires were used to collect qualitative data. Standardized psychological evaluations were employed to determine stress levels, anxiety, and depressive symptoms. The study sought to enhance student safety, privacy, and convenience during the global pandemic. Data confidentiality was preserved by anonymization and safe storage in password-protected databases. The study was structured into sequential phases, providing insights into students' mental well-being and environmental difficulties throughout online education. This data facilitates the development of customized interventions and support systems in online educational settings.

Results and Findings

This chapter highlights significant findings obtained from the data collection and interviews with the respondents.

Table 1. Mean, Median, and Standard Deviation of General Health Questionnaire (GHQ – 12) scores of Respondents by the indicators of Psychological Distress results (n=1376)

Table 1 shows a high prevalence of psychological distress among the sample population, with 95.35% reporting distress. The mean score of 19.4 is significantly higher than the cut-off score 13, indicating potentially severe impairment.

Level of Stress COVID-19 Student Stress Questionnaire (CSSQ)	**N**	**Mean**	**Median**	**SD**
Average Levels of Perceived COVID-19-Related Global Stress	844	10.90	11.00	2.67
High Levels of Perceived COVID-19-Related Global Stress	316	19.40	19.00	2.99
Low Levels of Perceived COVID-19-Related Global Stress	216	3.86	4.00	2.01

The lower variability in scores among those without distress suggests a more consistent mental health state, while higher variability suggests a range of severity levels.

Table 2. Mean, Median, and Standard Deviation of the Stress Level Scores of Respondents (n=1376)

Proposed Instructional Materials Development

Objective. The proposed instructional materials aim to improve the translation abilities of Filipino majors by focusing on diverse translation strategies, particularly those that were less frequently used or needed improvement in the post-test results.

Indicators	**N**	**Mean**	**Median**	**SD**
Indicates Psychological Distress	1311	19.4	19	3.37
No Psychological Distress	65	11.2	12	1.29

Most 1,376 respondents indicated normal levels of COVID-19-related global stress, while 23% reported elevated stress levels. This raises apprehensions over its enduring effects on mental health, academic achievement, and general well-being.

Table 3. Mean, Median, and Standard Deviation of the Severity of Anxiety Level Scores of Respondents (n=1376)

Severity of Anxiety Generalized Anxiety Disorder (GAD-7)	**N**	**Mean**	**Median**	**SD**
With Mild Anxiety	428	6.97	7.00	1.24
With Minimal Anxiety	164	2.16	2.00	1.47
With Moderate Anxiety	418	12.15	12.00	1.50
With Severe Anxiety	366	18.04	18.00	2.12

The Generalized Anxiety Disorder-7 (GAD-7) scale measures anxiety severity among respondents, with higher scores indicating more severe levels. Severe anxiety experiences have higher standard deviations, suggesting greater variability, while mild anxiety experiences have lower standard deviations. The data shows a concerning prevalence of anxiety in the sample population, with 87% of respondents reporting some level of anxiety (mild, moderate, or severe).

Table 4. Mean, Median, and Standard Deviation of the Severity of Depression Level Scores of Respondents (n=1376)

Level of Depression University Student Depression Inventory (USDI)	**N**	**Mean**	**Median**	**SD**
High	267	106.6	106	7.05
Low	607	54.3	56	12.50
Moderate	361	84.1	84	6.33
Very High	141	129.5	128	7.88

The USDI distinguishes between levels of depression severity. The findings reveal 44.1 percent of respondents reported having mild levels of depression, while more than half reported having moderate to severe levels. In moderate depression, a lower standard deviation indicates more consistent experiences, whereas a large SD in mild depression indicates a range of resilience variables.

Table 5. Thematic analysis of the environmental factors affecting students' mental health during the conduct of online learning

Themes	**Sub-Theme**	**Sample Quotation**
Physical Environment	Blurred Boundaries Between Home and Learning Space	*"I struggled to focus during online classes because my study area was also my bedroom."*
	Health Challenges and Fatigue	*"I experienced eye strain and fatigue from prolonged screen time daily."*
Technological Environment	Internet Connectivity and Technical Difficulties	*"My internet connection was unstable, and I often got disconnected during lectures."*
	Digital Learning Adaptation Struggles	*I lacked the technical skills to use specific tools, making some tasks overwhelming."*
Social Environment	Feelings of Isolation and Lack of Peer Interaction	*I felt lonely because I could not casually talk to my classmates like I used to."*
	Limited Support from Instructors and Peers	*"Some professors were not responsive, making it hard to seek clarification when needed."*

The study reveals that the shift to virtual online learning, marked by the blurring of boundaries between home and school, frequent disruptions, and inadequate study environments, has had a profound negative impact on students' mental health. This phenomenon can be better understood through both cultural and historical perspectives. Historically, periods of educational disruption, such as during

the 1918 influenza pandemic, demonstrated that the home environment's readiness and societal support systems play a decisive role in sustaining student well-being. In the present context, many students, especially in collectivist cultures, live in multi-generational households where domestic responsibilities, shared spaces, and cultural expectations intersect with academic demands, often magnifying distractions and stress.

Prolonged screen exposure, heightened anxiety, and unstable internet connectivity have led to fatigue, reduced motivation, and strained cognitive resources. The need to manage time effectively while navigating multiple digital platforms has created cognitive overload, eroding students' confidence and long-term academic commitment. The absence of in-person peer networks and reduced instructor interaction, both culturally significant in fostering collaboration and emotional resilience, has contributed to a sense of impersonality in the learning experience. Isolation and diminished community engagement have compounded loneliness, while academic pressures and self-doubt have intensified due to the difficulty of seeking timely assistance from instructors and classmates.

Culturally embedded social support systems, active and meaningful online participation, and accessible mental health services emerge as essential strategies to mitigate these effects. A historically informed approach to educational planning underscores the need for robust infrastructure, culturally sensitive pedagogy, and sustained human connection to protect student well-being in virtual learning environments.

Table 6. Thematic analysis of the coping strategies employed by the students during online learning

Themes	**Sub-Theme**	**Sample Quotation**
Psychological Coping Strategies	Self-Motivation and Positive Mindset	*"Setting personal goals helped me stay motivated despite the challenges of online learning."*
	Stress Management and Emotional Regulation	*"Journaling about my experiences and emotions helped*

		me release stress."
Academic Coping Strategies	Time Management and Study Routines	*"I struggled to focus on my studies because of distractions at home."*
	Seeking Academic Support	*"I watched supplemental tutorial videos to understand complex subjects better."*
Social and Emotional Support Strategies	Staying Connected with Friends and Family	*"Talking to my family about my struggles comforted and encouraged me."*
	Engaging in Hobbies and Physical Activities	*"Painting and creative activities helped me stay mentally refreshed."*

Students displayed notable resilience amid the cultural and historical challenges of prolonged online learning, drawing on adaptive coping strategies such as goal setting, expressions of gratitude, and relaxation techniques. Psychological coping included self-motivation, stress management, and emotional regulation skills historically valued in educational contexts that demand perseverance during crises, such as past pandemics and wartime disruptions. Some students maintained resilience through family support and shared responsibilities in collectivist cultures, where interdependence and community ties traditionally buffer stress. In contrast, others struggled in multi-generational households where cultural norms and domestic demands competed with academic needs.

Academic coping was enhanced through effective time management, structured study routines, and active participation in online peer discussions, reflecting contemporary digital adaptation and the historically ingrained value of collaborative learning in many cultures. Nonetheless, distractions within the home environment and cultural hesitance to seek virtual assistance from instructors posed significant barriers.

Social and emotional support strategies emphasized maintaining interpersonal connections and nurturing personal interests, which resonate with community engagement's historical role in sustaining morale during societal disruptions.

However, negative coping behaviors emerged, including social withdrawal and maladaptive habits such as emotional eating, mirroring patterns observed in historical crises where prolonged isolation weakened mental resilience.

These findings underscore the need for higher education institutions to design targeted, culturally sensitive interventions that address educational resilience's historical context and the unique pressures of contemporary online learning. Such measures can improve learning environments by balancing academic rigor with culturally grounded social and emotional support systems.

Discussions

The findings of this study largely align with existing research on the psychological impact of virtual online learning, supporting prior evidence that environmental instability, technological barriers, and social isolation contribute to increased stress, anxiety, and depression among students. The study's confirmation of high distress levels is consistent with Shen (2022), who emphasized the role of resilience in mitigating academic stress. Identifying self-motivation, structured routines, and academic support as effective coping strategies is consistent with their findings, reinforcing the argument that proactive coping mechanisms enhance student well-being. The research supports the conclusions of George et al. (2023), linking maladaptive behaviors such as excessive screen time and emotional eating to declining mental health, indicating that some students encountered difficulties in adjusting to online learning. The findings contrast with those of Tafesse et al. (2024), who argued that curricular intensity is the primary factor contributing to cognitive overload, rather than environmental distractions. This study demonstrates that unstructured elements affect students' stress and disengagement in virtual learning more significantly than the course content. The findings emphasize the necessity of institutional measures to tackle structural and psychological barriers, ensuring that digital learning environments foster resilience and well-being.

The study aligns with the UN's Sustainable Development Goals by addressing mental health issues in online education and examining factors influencing learning outcomes in virtual environments.

Conclusions

The study highlights the need for structured mental health support systems, accessible counseling services, stress management programs, and interactive learning strategies to address the challenges of online learning. Students may develop resilience through self-motivation and structured routines, while others face social isolation and

unhealthy coping behaviors. Proactive institutional interventions, such as peer support groups and faculty-led mentorship programs, are necessary to create a supportive learning environment. Technological impediments and environmental distractions must be addressed to ensure fair access to Internet services and promote digital well-being practices.

Recommendations

1. Educational institutions should invest in reliable internet and user-friendly digital platforms.
2. Foster online communities with mentoring and peer support.
3. Promote mental health services, including virtual counseling.
4. Implement flexible deadlines and personalized learning to reduce stress.
5. Offer resilience training and mindfulness-based cognitive therapy.
6. Encourage regular breaks and offline activities to counter screen fatigue.

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