



Online Education and Its Impact on University Students' Mental Health in the West Bank and Gaza Strip: A Cross-Sectional Study

Bilal Hamamra¹, Abdelkarim Daragmeh², Oqab Jabali³,
Guido Veronese⁴ & Fayeze Mahamid⁵

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ABSTRACT

Background: The educational performance stress during the pandemic outbreak has added to the many factors of pressure that students are exposed in Palestine. In addition to economic distress, mobility and access restrictions, lack of digital literacy and competence, and constant internet interruptions have added new burdens and significantly impacted university students' mental health. **Objectives:** This research examines the impact of the COVID-19 pandemic on the mental health of students in Palestinian universities. **Methods:** Using qualitative and quantitative methods, we identified the economic and political factors, access to educational portals, academic demands, and the general lack of interest in mental health—which has contributed to rising stress levels during the pandemic. We designed questions that allowed us to classify stress levels caused by these factors into low, medium, or high-risk categories. This study is intended to provide needed evidence on psychological stress caused by online education demands in low-income countries like Palestine. **Findings:** The study finds that students' mental health was

1 Department of English, Faculty of Humanities and Educational Sciences, An-Najah National University, Nablus, Palestine.

*Corresponding author: bilalhamamra@najah.edu

2 adaragmeh@najah.edu

3 Language Center, Faculty of Humanities and Educational Sciences, An-Najah National University, Nablus, Palestine. <https://orcid.org/0000-0003-1156-6205>; oqab.jabali@najah.edu

4 Department of Human Sciences for Education "R. Massa", University of Milano-Bicocca, Milan, Italy. guido.veronese@unimib.it

5 Department of Psychology and Counselling, An-Najah National University, Nablus, Palestine Mahamid@najah.edu

seriously affected during the pandemic, with students showing signs of panic, anxiety, and aggressive behavior toward others. Socioeconomic factors, such as area of residence, financial demands, and access to education, represent the high-risk factors associated with rising stress levels among university students in Palestine. The study also shows that students resort to religion as a coping mechanism that enables them to overcome the detrimental effects of the virus on their health. **Conclusion:** The study concludes that it is important for professors to know how to recognize early signs of mental health issues, how to manage stress effectively, and where to seek support.

Keywords: COVID-19 Pandemic; University Students; Mental Health, Stress Management; Palestine

التعليم عبر الإنترنت وتأثيره في الصحة النفسية لطلاب الجامعات في الضفة الغربية وقطاع غزة: دراسة مقطعية

بلال حمامرة¹، وعبد الكريم دراغمة^{1،2}، وعقاب جبالي³، وجويدو فيرونيسي⁴،
وفايز محاميد⁵

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ملخص

أدى الضغط الناتج عن الانخراط في التعليم خلال فترة تفشي الوباء إلى تفاقم الكثير من عوامل الضغط التي يواجهها الطلاب في فلسطين. فإذا تجاوزنا الأزمات الاقتصادية وقيود التنقل والوصول، فإن نقص الكفاءة والمعرفة الرقمية ومشكلات الاتصال بالإنترنت المستمرة قد فرضت أعباء جديدة وأثرت بشكل كبير في الصحة النفسية لطلاب الجامعات. **الأهداف:** تسعى هذه الدراسة إلى استكشاف تأثير جائحة كورونا في الصحة النفسية لطلاب الجامعات في فلسطين. **المنهجية:** تم استخدام منهجيات نوعية وكمية، فتم تحديد العوامل الاقتصادية والسياسية والوصول إلى منصات التعليم والمطالب الأكاديمية، إضافة إلى نقص الاهتمام العام بالصحة النفسية عوامل أسهمت في زيادة مستويات الضغط خلال الجائحة. تم تصميم أسئلة الدراسة لتقييم مستويات الضغط وتصنيفها إلى مخاطر منخفضة، ومتوسطة، وعالية. **النتائج:** كشفت الدراسة أن الصحة النفسية للطلاب تأثرت بشكل ملحوظ خلال الجائحة، مع ظهور علامات الذعر والقلق والسلوك العدواني بين الطلاب. ووجدت أن العوامل الاقتصادية والاجتماعية، مثل منطقة السكن والمتطلبات المالية والوصول إلى التعليم، تعد إحدى أهم العوامل الخطرة المرتبطة بزيادة مستويات الضغط. بالإضافة إلى ذلك، لجأ الطلاب إلى الدين وسيلة للتكيف مع الأثر السلبي للجائحة في صحتهم النفسية. **التوصيات:** تؤكد الدراسة أهمية تدريب الأساتذة على التعرف إلى العلامات المبكرة لمشكلات الصحة النفسية، وكيفية إدارة الضغط بفعالية، ومعرفة مصادر الدعم المتاحة.

الكلمات المفتاحية: طلاب الجامعات، الصحة النفسية، إدارة الضغط، فلسطين، جائحة كورونا:

1 قسم اللغة الانجليزية وآدابها، كلية العلوم الانسانية والتربوية، جامعة النجاح الوطنية، نابلس، فلسطين.

*الباحث المراسل: bilalhamamra@najah.edu

adaragmeh@najah.edu2

3 مركز اللغات، كلية العلوم الانسانية والتربوية، جامعة النجاح الوطنية، نابلس، فلسطين. oqab.jabali@najah.edu

4 قسم العلوم الإنسانية للتربية، جامعة ميلانو بيوكوكا، ميلان، إيطاليا. guido.veronese@unimib.it

5 قسم علم النفس والارشاد، كلية العلوم الانسانية والتربوية جامعة النجاح الوطنية، نابلس، فلسطين. mahamid@najah.edu

Introduction

The COVID-19 pandemic has significantly disrupted all aspects of human life, serving as a pivotal point of change and altering our daily experiences in fundamental ways (Jandrić, 2020). A majority of people have experienced psychological distress and anxiety (Violant-Holz et al., 2020). The preventive measures that governments have adopted such as lockdowns, closing public spaces, implementing social distancing, and transitioning to online education—have fueled people's sense of fear, isolation, boredom, and loneliness (Hwang et al., 2020; Barrot et al., 2021; Galea et al., 2020). Unfortunately, due to the unexpected magnitude of the pandemic and the preventive measures adopted, the adverse effects on mental health have been immensely noticeable worldwide (Woc-Colburn & Godinez, 2022).

Quarantine was necessary to contain the virus's spread, yet it profoundly affected the lives of both adults and teenagers. Beyond public health risks, economic instability, and social turmoil, it threatens the long-term survival and well-being of many individuals. Due to the COVID-19 pandemic, countries were forced to close all educational institutions. As a result, many nations have turned to distance learning or at-home instruction (Marazziti, 2020). Due to insufficient support and attention from qualified teachers, school and university students are further distressed, increasing the cost of education for both them and their families. They must use more resources, time, and assistance. The essential activities for nurturing, developing, and educating young minds, such as interaction, communication, play, exercise, and peer involvement, have been significantly hindered (Sifat et al., 2022). Yeasmin et al. (2020) have found that many teenagers experience mental health problems during the lockdown.

Within online education during the pandemic outbreak, many scholars point out a noticeable increase in the severity of mental distress and help-seeking behaviors among university students globally. It is argued that academic institutions, especially colleges and universities, are experiencing a mental health crisis (Faisal et al., 2022; Prowse et al., 2021; Seetan et al., 2021). Bhatt and Purohit (2019) have demonstrated that some

of the problems students have experienced during the corona pandemic include stress, depression, and post-traumatic stress disorder (PTSD). Concerning university-based mental health support services, it is generally acknowledged that higher education institutions do not provide enough support for students' mental health and well-being, as they offer a single integrated environment that includes educational, professional, and social activities, as well as health services and other support services (Horita et al., 2021). For students off-campus, support for mental health during COVID-19 has decreased tangibly.

During these critical times, various stressors have heightened anxiety among students, such as the fear of contracting the virus, worries about the pandemic's effect on their studies or future job prospects, and concerns for the health of friends and family. Some students' mental health has also been affected due to changes in their daily routines or the social isolation often associated with pandemics (Li et al., 2021). Social isolation is another factor that affects students' mental health (Conrad et al., 2021). Many students are unable to meet with friends and classmates, resulting in feelings of loneliness and isolation. The academic demands of the university are also a cause of stress for students (Copeland et al., 2021).

In Palestine, the higher education sector has faced tremendous challenges during the pandemic, significantly impacting the mental well-being of university students. While students were accustomed to a system of learning and assessment that was predominantly rote-based, lecture-based, and exam-based, the synchronous and asynchronous modes adopted during the pandemic required different learning dynamics.

During the shift to online education, students were required to develop independent learning habits, participate in collaborative tasks, adapt to diverse assessment methods, and engage in project design and problem-solving. Yet, the transition to online platforms like Zoom, Facebook, and video conferences for educational purposes has caused considerable discomfort and challenges for many staff and students in Palestine, due to digital inequality and frequent internet disruptions in the region (Daraghme 2021; Affouneh et al., 2020; Farrah & al-Bakry 2020; Khalife et al., 2021). From the educators' side, most teachers had no previous

experience with the pedagogical and technical skills needed to create content and manage its delivery. On the learners' side, this learning mode was deemed inequitable due to social and economic inequalities, particularly in an aid-dependent country like Palestine. This has disrupted the educational process and caused many students to fall behind in their studies (Weinhandl et al., 2020; Alsoud & Harasis, 2021). Domestic violence increased during the lockdown, resulting from financial and economic pressures (Peterman et al., 2020; Campbell, 2020; Hamamra, 2022). Such a situation has impacted students' performance and mental health.

The Palestinian territories have a relatively small higher education sector with only 19 universities, offering undergraduate and graduate degrees in a wide range of academic disciplines. Though these universities are located in the major cities in Gaza (6 universities) and the West Bank (13 universities), many students come from rural communities, refugee camps, and remote villages located in Area C. According to the annual statistics book issued by the Directorate General for Development and Scientific Research (Ministry of Higher Education 2021/2022), the total number of enrolled undergraduate students in all universities is 155,060, out of whom 95,368 are female students (62%), 105,440 reside in camps or rural communities (68%), and 148,858 (96%) are non-scholarship students who rely on parental support to pay for their education. Prior to COVID-19, all of these universities used the traditional, face-to-face learning mode, which necessitated the physical presence of students in the classroom (Hamamra et al. 2021). The use of online methods has experienced a sudden and dramatic growth during the campus lockdown period.

In Palestine, mental health is culturally considered a taboo subject. The lack of medical services necessary for managing the proliferation of the virus, combined with a general lack of interest in mental health, has certainly complicated the situation. This study collects data on the psychological impacts of adopting the new learning mode in Palestine, a low-income country with substantial infrastructure and economic obstacles that may increase the burden on learners. We use the

data to identify and classify educational factors in terms of their level of impact on the well-being of students, who represent the most vulnerable group in the educational setting.

Many researchers have explored the effects of the virus on students' mental health. For instance, Shuwiekh et al. (2020) conducted a study on the varying mental health impacts of COVID-19 throughout the Arab world, noting differences from one nation to another based on multiple factors. These include the level of preparedness and response to the outbreak, the severity of the outbreak, and the socio-economic and cultural contexts. The findings also show that the impact of COVID-19 on mental health is likely to be more severe in countries that are less prepared and have limited resources to cope effectively with the outbreak.

Veronese and colleagues (2021) conducted research to examine how well-being and resilience serve as mediating factors in the link between COVID-19 induced stress and mental health outcomes in Palestine. The study included 400 participants who completed surveys assessing stress, well-being, resilience, and mental health outcomes. Results showed that well-being and resilience were partially mediating factors, serving as important buffers against adverse mental health effects caused by stress.

Ghandour (2020) examined the mental health of university students in the West Bank during the pandemic, alongside the effects of living under military occupation. A cross-sectional survey was implemented using the Arabic version of the General Health Questionnaire-28 (GHQ-28). Out of 571 recruited participants, 505 (89.1%) completed the survey. The findings indicated a high incidence of mental health issues within the Palestinian university community in the West Bank, with 45.8% of participants scoring above the threshold for potential mental health problems. The most prevalent issues were anxiety (27.1%) and depression (25.1%). Those with higher levels of anxiety and depression tended to have poorer mental health. Additionally, the results showed that both the COVID-19 pandemic and military occupation had significant impacts on mental health, as seen in increased levels of anxiety and depression among participants. These findings underscore the necessity for mental health support during times of crisis.

Mahamid et al. (2022) carried out a study to assess the effects of the COVID-19 pandemic on the mental health of students in Palestine, exploring the potential role of e-learning in mitigating these impacts. Additionally, the study examined the future prospects of Palestinian education in the context of the pandemic. Their research indicated that the pandemic has significantly adversely affected Palestinian students' mental health, but also pointed out the mitigating possibilities of e-learning. The findings are crucial for policymakers and educators in Palestine and beyond, suggesting a pressing need for enhanced investment in mental health services and e-learning initiatives to assist students in coping with the effects of the pandemic.

Hanani et al. (2022) undertook a study to determine the prevalence of mental disorders among medical students and identify contributing factors. The research also evaluated the effectiveness of cognitive behavior therapy (CBT) in treating mental health issues within this group. For this purpose, the 12-item Arabic General Health Questionnaire (GHQ-12) was employed to measure the intervention's effectiveness. The researchers discovered a statistically significant association between good mental health status and factors such as more physical activity, more sleep, and less entertainment time. Furthermore, the CBT program demonstrated significant improvements in outcome metrics. Eight weeks post-intervention, there was a noticeable decrease in levels of social dysfunction, anxiety, and depression among the students.

To measure the anxiety levels of Palestinian university students during the COVID-19 pandemic, Radwan et al (2022) employed a cross-sectional web-based survey along with the Generalized Anxiety Disorder Scale (GAD-7), a seven-item assessment tool. The study revealed that 22.0% of the participants exhibited no signs of anxiety, 25.2% experienced minor symptoms, 29.6% showed moderate symptoms, and 23.2% suffered from severe symptoms. The research also revealed that stressors related to COVID-19, including impacts on everyday life, economic pressures, and educational disruptions, were positively correlated with the intensity of anxiety symptoms. Conversely, the presence of social support was found to be inversely related to anxiety levels.

In a descriptive cross-sectional study, Radwan et al. (2021) used an online survey that included the DASS-21 psychometric scale to evaluate psychological distress among Palestinian school students during the lockdown period. The results showed that most students were dealing with moderate to severe levels of stress, depression, and anxiety. Significantly, the intensity of these mental health issues varied widely across various demographic factors such as gender, age group, family size, and socioeconomic status.

Based on these insights, the researchers emphasized the urgent need to establish a health protocol aimed at maintaining resilience in students during high-risk situations.

In two Palestinian universities, nurse educators and students participated in a study by Atout et al. (2021) to learn more about their experiences during the outbreak of COVID-19 and draw attention to the difficulties nurse educators and students encounter. The researchers utilized the focus group strategy and the maximum variation sampling strategy. The study's outcomes revealed that both nurse educators and students confronted a broad spectrum of challenges. These challenges encompassed issues with clinical courses, insufficient access to resources, limited interaction opportunities, a lack of proper evaluation, and the presence of difficult home environments.

These studies have provided valuable insights into the adverse impact of COVID-19 on the mental health of university students in both Palestine and the broader Arab region.

They have also noted essential connections between the studied population's socio-economic background and rising anxiety levels. However, important factors and indicators that connect online education modalities to students' mental health are not given enough attention in any of these works, marking a notable gap that we will tackle in this study.

Thus, our research aims to determine how the pandemic outbreak and the subsequent preventive measures of lockdown and migration to online education have impacted students' mental health, well-being, and psychological functioning in a context characterized by poverty and socio-

economic deprivation. Therefore, we formulated a hypothesis (H1) positing a positive association between the COVID-19 pandemic and mental health distress among university students.

As a second hypothesis, we hypothesized that physical health concerns, e-learning, social factors, and economic status predict statistically significant variance in mental health distress (H2).

Methods

This descriptive study employs a survey approach following a quantitative cross-sectional methodology. Online questionnaires were purposively distributed to students in Gaza and the West Bank to collect data on students' mental health at the country level. The study received approval from the Institutional Review Board (IRB) at An-Najah National University. Data collection occurred between January 20, 2021, and March 20, 2021, a period during which many Palestinian universities had not yet resumed regular on-campus studies. To gather data, an ad-hoc online questionnaire was randomly distributed, comprising three sections. The initial section of the survey collected demographic information from students, including age, gender, and details about their socio-economic backgrounds, such as their place of residence, whether it be a camp, village, or city. We also intended to collect information on the place of residence in areas A, B, and C because students residing in area C suffer most from slow internet connection and often rely on Israeli SIM cards to connect to online synchronous classes. The second part solicited responses on the leading causes of stress related to the online education experience during the university lockdown period. The third section collected student input on the types of stress and the coping and management mechanisms.

To construct the study tool, the researchers first needed to identify the study dimensions related to the impact of online education on students' stress levels. To achieve this, the researchers conducted key informant interviews with university instructors from various disciplines to explore the most commonly observed impacts on their students' stress levels during the pandemic. In these interviews, we identified different types of impact, such as nightmares, anxiety, panic, quarrels with family, teammates, etc.,

as well as coping mechanisms like the consumption of addictive substances or seeking stability in faith. The informants highlighted factors that, based on their own experience with education during the pandemic, contributed to rising stress levels. These factors included power cuts, submission deadlines, and unstable internet connections, among others. The results of these interviews informed the design of the study tool. In a study of this type, we considered all factors equally important; therefore, we assigned the same weight to each survey statement.

Participants

A purposive convenience sample was randomly selected from major academic institutions across Palestine. Students were enrolled at the undergraduate level, which hosts around 88,000 students in Palestine. The distribution was proportionate to the population number in Gaza (40%) and the West Bank (60%). Proportionate distribution was also maintained within the West Bank, with 33% of the sample coming from the South, 33% from the North, and 33% from cities in the middle of the West Bank. We collected 15,000 responses from students in different academic majors and years, representing 13 out of the 20 higher education institutions in the country. The inclusion and exclusion criteria were as follows: (1) Given our interest in the impact of the pandemic and subsequent preventive measures on students' mental health, data were collected from undergraduate students living in the West Bank and Gaza. (2) The impact of the pandemic and online education on graduate students was excluded, since graduate students are generally more mature and independent than undergraduates and because their study is student-based (Hamamra et al. 2021). The age of the respondents varied from 18 to 25 years, averaging at 22 years old.

A pilot test of the questionnaire was conducted on a small sample in February 2021 to determine if there might have been any confusion about any items. A reliability analysis of the instrument was conducted to ensure that the scale consistently reflected the construct it was measuring. The Cronbach's Alpha value for the overall questions was 0.94, with individual Cronbach's Alpha values ranging between 86.2% and 90.1%. In practical terms, achieving a Cronbach's Alpha of 0.70 or higher is commonly

recommended as an indicator of sufficient internal consistency within survey items. Based on this standard, the items in the survey were considered to be consistent and reliable.

After the initial pool of survey items was developed, we sent the items for review to qualified experts. Two experts from the psychology and pedagogy departments reviewed the items to ensure they were accurate, simple, clear, and grammatically correct. The feedback from the reviewers was carefully considered during the refinement of the survey, resulting in the creation of the final version. This final survey was subsequently distributed electronically to the respondents, who were instructed to provide their responses using a five-point Likert scale (with options such as 3 = agree, 2 = neutral, and 1 = strongly disagree).

Data analysis

The data collected was analyzed using SPSS Statistics version 29. The analysis involved the use of descriptive statistical procedures, including the calculation of means and standard deviations. Additionally, the study examined the association between the impact of COVID-19 and mental health by utilizing Pearson Association Coefficients. Moreover, regression analysis was operated to predict mental health, as physical health concerns, e-learning, social factors and economic factors were operated as predicting variables.

To evaluate the validity of the instrument, the study analyzed the average responses to all questions pertaining to the impact of the COVID-19 pandemic on students' mental health in Palestine. Specifically, the indicators used in this assessment were tailored to explore the effects of the pandemic on the mental health of students at Palestinian universities, including its association with e-learning and various other factors influencing academic performance. This procedure was carried out by calculating the average of all indicators for the dimensions of the instruments and then determining the association of each indicator with the overall index. The instrument was evaluated, and all the questions demonstrated good reliability. The significance level for associations was below 0.05 for all the questions, indicating statistical significance.

Results

Table (1) presents the demographic characteristics of the 15,000 respondents, including gender distribution, place of origin, and academic experience, along with their respective impact on mental health during the COVID-19 pandemic.

Table (1): Demographic characteristics of the sample (n = 15.000).

Variable		Percentage%
Gender	Male	30%
	Female	70%
Location	City	39%
	Village	36%
	Camp	18%
	Small communities in Area C	7%
Academic Year	First Year	10%
	Second Year	11%
	Third Year	30%
	Fourth Year	35%
	More than four years	16%
Have you been in contact with someone who has received a positive COVID-19 test result?	No	2.%
	Yes, I tested positive.	42%
	Yes, a family member(s) tested positive.	56%
	Yes, a colleague tested positive.	35%
	Yes, an acquaintance tested positive.	47%
I live in Gaza.		40%
I live in the West Bank.		60%

The sample statistics accurately represent the study population in terms of geographic distribution, gender, and academic level. The percentage of male respondents is 30%, while females make up 70%. As for the academic year distribution of the sample, 35% of the respondents

are seniors, 28% are juniors, 11% are sophomores, and 10% are first-year students. In terms of socio-economic background and location of residence, 45% live in cities, 37% in villages, and 18% come from refugee camps. The sample results indicate that 98% of the respondents have either tested positive for the coronavirus or know someone who has. Additionally, 21% of the respondents indicated that they were aware of someone who had succumbed to COVID-19

This section of the survey aimed to identify the types of impact that resulted from the academic demands, such as anxiety attacks, unsettling dreams, sleep problems, anger levels, and aggressive behavior. We also intended to find out any stress management mechanisms used by the students to cope with rising stress levels Table (2) summarizes the results.

Table (2): Means and Standard deviations related to impacts of Covid-19 on mental health (n =15.000).

Statement	M	SD	%	Level
Throughout the COVID-19 lockdown and the online education period				
I had unsettling dreams that either replayed aspects of the COVID-19 pandemic experience or were clearly connected to it.	3.93	0.77	63%	Medium
I went through severe anxiety attacks, characterized by physical symptoms such as palpitations, chest pain, and dizziness.	4.03	0.61	81%	High
I have suffered from sleep problems such as difficulty falling asleep, early morning awakening, and fearful dreams.	3.86	0.78	65%	Medium
I found myself feeling more irritable and displaying anger towards my family members	3.85	0.68	64%	Medium

Statement	M	SD	%	Level
I have reduced contact with fellow human beings.	4.01	0.67	91%	High
I have had more physical or verbal arguments with my teammates.	3.89	0.78	85%	High
I have had physical or verbal arguments with my family.	3.88	0.76	75%	High
I have consumed addictive substances such as cigarettes or sleeping pills.	3.88	0.77	35%	Low
I have sought stability in faith and religion.	3.92	0.67	83%	High
I have changed my attitude about what is really important to me in life.	3.88	0.76	62%	Medium
I have maintained a regular daily routine.	3.66	0.91	73%	High

Most respondents reported various types of psychological stress during the lockdown and the transition from in-person classes to online learning. Respondents reported high levels of anxiety, accompanied by physical symptoms. Students also noted frequent aggressive behaviors and violent arguments with teammates. Reduced social interactions were also reported as a behavioral change. Sleep problems and heated arguments with family members were rated at moderate levels.

Regarding coping mechanisms, finding stability in faith received the highest rating. Sixty-two percent of students coped through disengagement and idleness, while 73% accepted their situation by engaging in routine daily activities. Thirty-five percent consumed sedatives, which equates to 5,250 students out of the 15,000 study participants.

Student responses classified into high, medium, and low stressors. Table 3 provides overall percentages for each item. The impact of the factor could be classified as low (score ranging between 1-35%), medium (score ranging between 35-70%), or high risk (score above 70%). This classification will offer educators insights into which factors may impact

student mental health in Palestine and other similar socio-economic contexts.

Table (3): Percentages of factors contributing to stress (n = 15.000).

Statement	Percentage%	Level
Worries about power cuts during exams with limited time for responding.	88%	High
Worries about assignment submission on time.	80%	High
Financial worries that my parents could not pay for internet charges.	92%	High
Uncertainties regarding my future career, training place, or studies.	56%	Medium
Missing online classes because of unstable internet connection.	82%	High
Boring classes due to the lack of participation.	54%	Medium
Fears that the teachers will request me to open the camera.	34%	Medium
Fears that I will not be able to complete my field training.	84%	High
Having to drop/postpone at least one of the academic courses I was studying.	85%	High
Finding a quiet place because my family house is small.	64%	Medium
Having many projects and could not cope with too many deadlines.	84%	High
The confusion resulting from the lack or absence of teacher guidance.	78%	High
An increasing sense of isolation because my classmates turned off their cameras during class sessions.	30%	Low

Overall, the results indicate severe sources of stress related to online education among the 15,000 students sampled in this study, with most sources ranking as high or medium. Items concerning infrastructure, power cuts, unstable internet, and large family settings scored above 80%. These

factors are related to the socio-economic conditions of Palestinian families or the geographic locations of the respondents, with students residing in Area C being most affected by these sources. The 1,050 respondents living in small, isolated communities in Area C reported concerns as high as 87% related to issues such as power cuts, internet connection, quiet study spaces at home, and family financial support for the extra costs arising from internet charges in remote communities.

Concerning respondents residing in villages, refugee camps, or Gaza, they were primarily impacted by economic and infrastructure factors. The highest score, at 92%, was attributed to the item that inquired about students' economic concerns regarding their families' financial conditions.

Items related to the assessment of learning and academic demands were also rated as high, with scores above 80% for submission deadlines, time-limited exams, and projects requiring multiple tasks and submissions. Pedagogical concerns, such as a lack or absence of teacher guidance or the predominantly lecture-based mode of learning, were rated as a medium risk to students' mental health. Assigning projects and problems without much guidance and requiring too many submissions was another pedagogical concern affecting students' mental health. Although they still significantly impacted student stress levels, cultural reasons were rated low. Issues such as turning on cameras during classes and the sense of isolation resulting from keeping cameras off were considered low risks compared to socio-economic and pedagogical factors. Most students (85%) expressed anxiety about dropping or postponing courses. Another 84% expressed concerns about their inability to complete fieldwork on time. In other words, delays in graduation constituted a significant concern for students during the online learning period.

A Pearson Correlation Coefficient test was conducted to examine the relationship between the impact of COVID-19 and mental health. The results, as shown in Table 4, indicated a positive association between the impact of COVID-19 and mental health, suggesting that a greater impact of COVID-19 was linked to poorer mental health outcomes.

Table (4): Pearson Correlations between Covid-19 and mental health (n = 15.000).

Measures	(1)	(2)
(1) COVID-19 impact	-	.64**
(2) Mental health		-

**p<0.01

The coefficients from the regression analysis (Table 5) for the model reveal that factors such as physical health concerns, social factors, e-learning experiences, and economic factors during the COVID-19 pandemic accounted for statistically significant variations in students' mental health.

Table (5): Regression to predict mental health (n = 15.000).

Variable	B	SE	B	T	P	95% CL
Physical health concerns	-.37	.05	-.36**	- 4.06	.000**	[-.27 - .50]
e-learning	-.28	.03	-.24**	-4.28	.000**	[-.32 - .59]
Social factors	-.45	.05	-.37**	-7.82	.000**	[.30 - .51]
Economic factors	-.64	.07	-.30**	-8.67	.000**	[-30 - .57]

a. Dependent Variable: students' mental health.

b. All independent variables were entered.

WE used ANOVA test to test the significancy of the model. Results of ANOVA test in table (6) showed a linear relationship between the dependent variable (mental health) and the independent factors (physical health concerns, social factors, economic factors).

Table (6): ANOVA^a for the complete model (n = 15.000).

Model		SS	df	MS	F	Sig.
1	Regression	12.899	4	3.225	211.940	.000 ^b
	Residual	1.826	120	.015		
	Total	14.725	124			

a Dependent Variable: mental health

b Predictors: (Constant), physical health concerns, social factors, economic factors.

Discussion

This study evaluates the repercussions of the COVID-19 pandemic on the mental well-being of Palestinian university students. It underscores that various factors related to learning, social interactions, and economic conditions during the pandemic have a significant influence on the mental health of these students. A majority of the respondents acknowledged the substantial impact of e-learning on their mental health during the COVID-19 crisis. The research data also substantiate that the adoption of e-learning during the pandemic disrupted established patterns of learning and university education, leading to instances where students had to either drop or postpone at least one of their academic courses. This observation aligns with findings from prior studies on similar topics (Guo, Crum & Fowler, 2021; Hossain et al., 2020; Krystal et al., 2019; Pidgeon et al., 2014; Volken et al., 2021) conducted on university students during the pandemic.

Most respondents reported that worries about their health negatively impacted their mental health, as they felt stressed and greatly burdened by such concerns. Students stated that quarantine had significantly drained their energy, compelling them to reduce contact with others. This state of isolation, induced by the pandemic, left most students experiencing upsetting dreams that either replayed aspects of their COVID-19 experiences or were related to it. Moreover, respondents reported feeling and behaving more irritably and angrily with teammates and family members.

Furthermore, they endured unexpected and intense anxiety and panic attacks, manifested through physical symptoms including heart palpitations, chest discomfort, and dizziness. These symptoms can be viewed as results of the rising stress levels during the pandemic. Similar results were found in previous studies (Al-Maddah et al., 2021; Fiorillo & Gorwood, 2020; Mamun, Hossain & Griffiths, 2019; Volkan et al., 2021; Sabah et al., 2024).

Concerning coping mechanisms, students reported various adaptation strategies such as seeking refuge in faith to manage stress stemming from academic uncertainties during the pandemic. Others adapted to new realities by maintaining a regular daily routine or reordering their life priorities. Many students found solace in religious faith, which provided

them with comfort and strength. In other words, religion serves as a significant coping strategy for many Palestinian students, offering them psychological support. The results of the current study are consistent with those of previous studies (Al-Maddah et al., 2021; Fiorillo & Gorwood, 2020; Volkan et al., 2021; Sabah et al., 2024).

Regarding the factors contributing to the increased stress levels among Palestinian university students, socioeconomic factors were rated as high. Students expressed concerns about power cuts and unstable internet connections, as indicated by (Ayyoub & Jabali, 2021; Shehab et al., 2020). Additionally, the economic burden on families, who had to purchase wireless prepaid internet cards, often from Palestinian internet providers or Israeli telecom companies, was a significant source of stress. Palestinians residing in Area C, which is under Israeli occupation, endure severe restrictions on their freedom of movement, systematic institutional oppression, and discrimination, all of which impact students' performance, as noted by (Bashitialshaaer, 2021; Shehab et al., 2020).

Secondly, in terms of socioeconomic factors, academic demands constituted significant stressors for students. They reported stress related to the online delivery mode, which included handling numerous assignments and projects, meeting deadlines, the absence of teacher guidance, completing the field training component of their degree, and feeling the need to drop one or two courses. These findings align with those reported in previous studies (Ayyob & Jabali, 2021; Bashitialshaaer, 2021). These stressors place considerable pressure on students' mental health, indicating a potential need for specialized teacher training to mitigate their impact on students' mental well-being, academic performance, and financial concerns.

The fact that 35% of the study sample reported consuming addictive substances is alarming and may suggest the need to establish a long-term mental healthcare program, along with investments in the necessary healthcare personnel. This program should aim to maintain strong relationships between healthcare professionals and university students, especially during times when Palestinian universities are compelled to adopt online learning during crises (Bashitialshaaer, 2021; Mahamid et al.,

2022; Mahamid, 2016). There is a noteworthy similarity between the Israeli occupation, which results in the displacement and expulsion of millions of Palestinians from their homes and imposes checkpoints and mobility restrictions, and the virus itself—an invisible, elusive enemy that forces people to confine themselves in their homes, haunted by the specter of infection and death (Bashitialshaaer, 2021; Ghandour, 2020).

Limitations

While the current study yielded noteworthy findings, it is important to acknowledge its limitations. Firstly, the study's representativeness is constrained as all participants were identified as Palestinians, which may limit the generalizability of the results. Additionally, the data were sourced exclusively from university students, potentially not fully representing the entire student population in Palestine. Consequently, the prevalence of mental health challenges among university students during the COVID-19 pandemic highlights the need for further research on this topic. Future studies should encompass various educational levels to explore the long-term effects of the pandemic on students' mental health comprehensively.

Conclusion

The findings from this study provide potentially valuable insights into the impact of the COVID-19 pandemic on students' mental health. It is evident that during the outbreak, there existed a significant association between the levels of depression, anxiety, and perceived stress among students. It's worth noting that since the study was conducted online, there may have been variations in the conditions under which participants completed the questionnaire, influenced by the evolving epidemiological situation. The study on the impact of online education on university students' mental health has some limitations. It is subject to sampling bias, as the participants are not representative of the entire student population. Self-reported measures for assessing mental health outcomes may also introduce biases. Temporal changes in online education delivery or student adaptation to virtual learning environments could influence the study's outcomes over time. Additionally, the study may not fully capture students' subjective perceptions of online education, highlighting the need for

qualitative approaches. These factors should be considered when interpreting the results and highlight the need for ongoing research in this area to gain a more comprehensive understanding of the complex relationship between the pandemic and mental health outcomes among students.

The cross-sectional study on Online education and its impact on university students' mental health highlights the significance of prioritizing mental health support services for students, particularly during crises like those experienced in Palestine. The study highlights the importance of accessible counselling and psychological hotlines during times of need. Additionally, educational institutions may need to adapt existing mental health programs to address the unique challenges of online learning, such as increased feelings of loneliness and decreased social connection. Introducing online peer mentoring programs and virtual support groups can foster a sense of connection among students and provide valuable emotional assistance. Policymakers and educators should consider integrating coping mechanisms and mental health literacy into online learning environments to equip students with the skills necessary to manage stress, anxiety, and other mental health issues effectively.

Furthermore, the study emphasizes the need for ongoing monitoring of university students' mental health throughout the pandemic. Healthcare professionals, including doctors and mental health providers, play a crucial role in mitigating the risk of mental health issues during such crises. In regions like Palestine, which face resource constraints in their mental health systems, there is a dire need for additional support and resources to enhance mental health services. Additionally, equipping professors with the knowledge to recognize early signs of mental health issues, manage stress effectively, and access support resources is essential for promoting student well-being during challenging times.

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