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THE EFFECTS OF PSYCHOLOGICAL STRESS DURING COVID-19 ON UNIVERSITY STUDENTS IN JORDAN

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Abstract

Students in higher education have had a terrible time as a result of the COVID-19 epidemic. The purpose of this research is to find out what variables led to psychological stress during the COVID-19 pandemic among a group of health-related students at Jordan's Irbid National University. Irbid National University students completed an online survey. Data on demographics, academic and everyday challenges caused by the COVID-19 outbreak, as well as physical and mental health, were collected. A convenience sample approach was utilised to collect data from 237 respondents using a self-administered questionnaire in this study. Variance-based structural equation modelling was also used to test the suggested structural model (PLS-SEM). The study population had an 85.1 percent prevalence of increased psychological stress. Daily Life, Financial Issues, General Health, and Learning Experience have positive and significant effects on Psychological Stress, but Education Environment has a negative and substantial effect on Psychological Stress, according to the findings. Students in health-related disciplines are suffering from the COVID-19 pandemic, which is having a substantial detrimental influence on their mental health. It is necessary to make proactive initiatives to ensure students' mental health and well-being.

Keywords: COVID-19, Irbid National University, PLS-SEM, Psychological Stress, Students.

1. INTRODUCTION

The COVID-19 outbreak has resulted in a worldwide public health calamity (Zhang, et al., 2020). As of April 16, 2021, there were almost 140 million confirmed cases of COVID-19 globally, with approximately 3 million deaths documented, according to the World Health Organization (WHO) (World Health Organization, 2020). Aside from rising death rates, mental health issues have quickly become a public health burden (Ornell, et al., 2020). The COVID-19 outbreak had a profound impact on daily life, with the higher education sector bearing the brunt of the damage (Bozkurt, et al., 2020). Authorities devised measures with far-reaching repercussions to control widespread transmission of the disease; Universities in many parts of the globe transitioned to online courses in the higher education sector, and students' lives altered radically in a short period of time (Onyeaka, et al., 2021). This shift to newly structured study courses, as well as widespread apprehension about the possibility of extended study hours owing to restructuring, posed a significant barrier for students (Bojović, et al., 2020). Apart from teaching-related changes, loneliness as a result of social separation is another barrier; being a student during lockdown increases the likelihood of loneliness (Weber, 2021). Isolation has resulted as a result of physical distancing measures and the migration to online learning (Puccinelli, et al., 2021), which can lead to anxiety and sadness. When infected with the coronavirus, young people are one of the most vulnerable groups in terms of the pandemic's psychological impacts (Shanahan et al., 2020; Varma et al., 2021). (Cummings, et al., 2020). Financial issues are also an issue, particularly for those who are self-sufficient or rely on family

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who work in industries that have been badly harmed by prolonged closures (Schröpfer et al., 2021). The cumulative impact of these pressures on a student's health and well-being can be significant. Several studies have found that stress, anxiety, loneliness, suicidal ideation, and depressive symptoms have increased since the outbreak began (Warden et al., 2021; Thrush et al., 2021; McClendon et al., 2021), and that being a student has been identified as a risk factor for distress during the pandemic (Al Mamun, et al., 2021). Students at medical and health-related schools may be particularly vulnerable to the COVID-19 pandemic (Guo, et al., 2021). During the COVID-19 epidemic, a survey of a cohort of German medical students found high levels of distress connected with study-related issues (Schindler, et al., 2021). In a French study, female gender, precariousness, history of psychiatric follow-up, and social isolation were revealed to be characteristics associated with psychological stress among university students (Wathelet, et al., 2021). Furthermore, Elmer et al. (2020) observed that in a sample of college students, COVID-19-specific worry, isolation, lack of connection, and emotional support were connected with poor mental health. In contrast, self-efficacy and self-esteem were found as predictive markers for lower levels of psychological distress in a cross-sectional study of medical students in Japan (Tanji, & Kodama, 2021). Given the slow start of the vaccination campaign in most European countries (Gros, & Gros, 2021) and the lack of a clear timeline for an unrestricted return to in-person teaching, identifying COVID-19-related stressors that cause stress in this vulnerable population is critical so that appropriate supportive structures and processes can be put in place to prevent long-term consequences. To our knowledge, no previous study has used as many independent variables from as many domains as our study for evaluating psychological stress among students during the COVID-19 outbreak. As a result, the purpose of this study is to look at variables associated with psychological stress among students in health-related fields during the COVID-19 outbreak.

2. METHOD

Students aged 18 and above enrolling at one of the engaging capacities that offer bachelor's and master's degrees in medicine, nursing, and other health-related subjects such as epidemiology, health care management, public health, and social work sciences were eligible. Before beginning the online questionnaire, all participants signed an informed consent form. All students at Jordan's Irbid National University were chosen as the study's target demographic. When it comes to ensuring the accuracy and rigour of any analysis, selecting the optimal sample size is crucial. Hair et al. (2017) advise utilizing the 10 times law, which was proposed by Barclay et al. (1995), to calculate the sample size necessary in a PLS-SEM analysis. The minimum sample size, according to this regulation, is "ten times the maximum number of structural routes directed at a single build in the structural model." Our minimum sample size should be 45 respondents, according to the 10 times rule, and the structural model of our research contains seven components (six independent and one dependent variable). We did, however, follow Westland's (2010) stricter criteria. Furthermore, the sample size for this study was determined after a review of previous similar studies as well as recommendations from other scholars (Archana & Subha, 2012; Ali et al., 2015; Farooq & Radovic-Markovic, 2017). Data was gathered using a self-administered survey questionnaire. A proportion

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sampling strategy was used to distribute 450 questionnaires at Jordan's Irbid National University. A total of 237 replies were received, suggesting a response rate of 52.67 percent. For this study, we created a self-administered questionnaire. We used standardised surveys and items from pre-existing questionnaires whenever possible. Psychological stress was the dependent variable, whereas education environment, financial issues, general health, daily life, and learning experiences were the independent variables. In addition, a modified seven-point Likert scale [23] was employed in this investigation. The data was also analysed using IBM SPSS Statistics version 24.0 and SmartPLS version 3.2.3. (Ringle et al., 2017). A variance-based PLS-SEM approach was chosen because it can handle all sorts of estimating models (i.e. reflective and formative models) that are included in the proposed idea of this research. On the other hand, CB-SEM/AMOS is usually restricted to permeable models.

3. RESULTS

Only 237 valid questions were gathered from the 450 people who completed the survey. The given conclusions were based on the study's goals, which included the findings of the structural equation model. There is missing data if respondents do not reply to one or more survey questions. For each measurement item in this study, frequency and missing value analyses were done to ensure that the data was free of missing values. The data screening found that only a minor amount of missing data existed, which was replaced with the median variable answers for each measurement item. Outliers have an extremely high value for observations on a single variable (Hair, et al., 2020). In addition to histograms and box plots, each variable was examined for a standardised (z) value for unit-variate disclosure. If the standard score is 4.0 or higher, create an outlier case using Hair et al (2016). As a result, any Z-score more than or less than 4 is regarded as an anomaly.

4. MEASUREMENTS MODEL

The internal consistency approach was used to check the dependability by looking at the composite reliability values. In the case of composites, all factors have proven to be reliable (values greater than 0.7). Hair and colleagues (Hair et al., 2020). As shown in Table 4. If the indicators' reliability (squaring of external loadings) is less than 0.7, but composite reliability and AVE are suitable for measurement, the indicators are retained since their clarity implies that they are useful (Hooi, et al., 2020). Convergent validity was determined by AVE values larger than '0.5' (Table 1), whilst discriminant validity was determined using the Fornell-Larcker test (Table 2). According to the discriminant validity criteria, the square root of AVE should be larger than the correlation between latent variables for each latent variable. Tables 2 and 3 demonstrate that the variables satisfy the criterion for discriminating validity.

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Table 1: The Measurement Model

Variables	Loading	CA	CR	AVE
Daily Life		**0.878**	**0.900**	**0.531**
DL1	0.747			
DL2	0.746			
DL3	0.789			
DL4	0.723			
DL5	0.694			
DL6	0.698			
DL7	0.732			
DL8	0.696			
Education Environment		**0.884**	**0.916**	**0.685**
EE1	0.795			
EE2	0.881			
EE3	0.873			
EE4	0.815			
EE5	Deleted			
EE6	Deleted			
EE7	0.768			
Financial Issues		**0.934**	**0.945**	**0.656**
FI1	0.833			
FI2	0.8			
FI3	0.85			
FI4	0.787			
FI5	0.855			
FI6	0.851			
FI7	0.799			
FI8	0.752			
FI9	0.755			
General Health		**0.885**	**0.905**	**0.578**
GH1	0.674			
GH2	0.781			
GH3	0.697			
GH4	0.669			
GH5	0.831			
GH6	0.842			
GH7	Deleted			
GH8	0.806			
Learning Experience		**0.927**	**0.938**	**0.605**
LE1	0.795			
LE2	0.776			
LE3	0.795			
LE4	0.804			
LE5	0.838			
LE6	0.81			
LE7	0.795			
LE8	0.735			
LE9	0.749			

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LE10	0.663			
Psychological Stress		**0.942**	**0.951**	**0.686**
PS1	0.842			
PS2	0.848			
PS3	0.847			
PS4	0.875			
PS5	0.883			
PS6	0.836			
PS7	0.697			
PS8	0.773			
PS9	0.838			

Table 2: Fornell- Larcker Criterion Analysis to check Discriminant Validity

	Daily Life	Education Environment	Financial Issues	General Health	Learning Experience	Psychological Stress
Daily Life	**0.729**					
Education Environment	0.449	**0.828**				
Financial Issues	0.64	0.669	**0.810**			
General Health	0.586	0.661	0.672	**0.760**		
Learning Experience	0.614	0.635	0.693	0.646	**0.778**	
Psychological Stress	0.693	0.623	0.723	0.681	0.676	**0.828**

5. COMMON METHOD BIAS

The influence of CMB was tested using In this study, Harman's single factor and common latent factor (CLF) analyses were used (Greene, et al., 2019). Because the first variable accounted around 22.772 percent of the entire variance, which is below the 50% criterion, Harman's single component test revealed no CMV issue.

Table 3: The Assessment for CMV in Dataset – Harman's One Factor Solution

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	20.995	46.656	46.656	20.995	46.656	46.656	10.247	22.772	22.772

6. THE STRUCTURAL MODEL OF THE RESULTS

The initial stage in Smart PLS Structural Equation Modeling is to create a research framework or a theory-based model-based schematic diagram. In addition, the analytical approach is represented graphically in SmartPLS 3.2.9. Figure 2 depicts a diagram that begins with the educational environment, daily life, financial issues, general health, learning experience, and psychological stress. The arrows that connect the constructs of this study are also defined by the direction of the hypotheses given in the analysis. The single-headed arrows are used to check the causal influence of the research construct.

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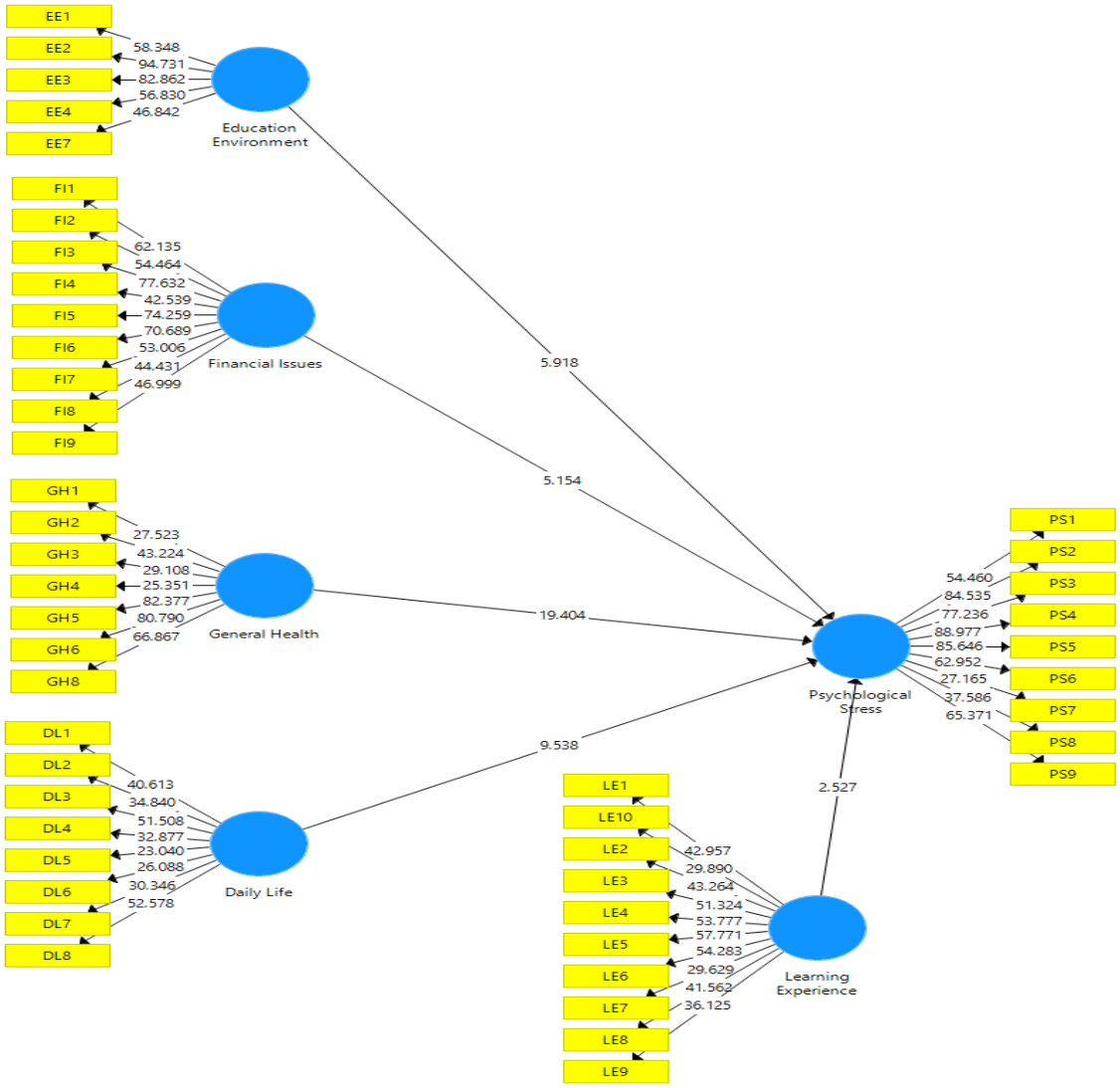

Figure 1: The Standardized Result

Table 4: The Path Coefficients

	Coefficient	STDEV	T Statistics	P Values
R^2	**0.851**	**0.007**	**116.290**	**0.000**
Daily Life -> Psychological Stress	0.197	0.021	9.538	0.000
Education Environment -> Psychological Stress	-0.153	0.026	5.918	0.000
Financial Issues -> Psychological Stress	0.192	0.037	5.154	0.000
General Health -> Psychological Stress	0.665	0.034	19.404	0.000
Learning Experience -> Psychological Stress	0.085	0.034	2.527	0.012

Table 4 summarizes the study's SmartPLS Structural Equation Model findings. It shows how the route coefficients, Standard Deviation (STDEV), and probability value are all obtained from the study's relevant construct (P-value). Furthermore, a substantial positive association

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was identified between Daily Life and Psychological Stress. According to the findings, a 1% increase in Daily Life causes a 0.197 increase in Psychological Stress. The data also revealed that the educational environment had a considerable negative impact on psychological stress. According to the data, a 1% increase in Education Environment resulted in a 0.153 reduction in Psychological Stress. Financial problems and psychological stress have also been linked in a good way. According to the research, a 1% rise in Financial Issues causes a 0.192 increase in Psychological Stress. Finally, the findings revealed that general health had a strong positive impact on psychological stress. According to the data, a 1% improvement in General Health would result in a 0.665 increase in Psychological Stress. Finally, the data demonstrated that the learning experience had a considerable calming effect on psychological stress. According to the data, a 1% increase in Learning Experience resulted in a 0.085 rise in Psychological Stress. The R2 value indicates how well the independent variables characterize the variance-independent variables. The R2 estimations in the model are provided in Table 4. On the dependent variable, the degree of variance represented by the independent factors was indicated. However, according to Table 4, the Psychological Stress predictors account for 85.10 percent of the variance. In other words, the error variance of Psychological Stress accounts for approximately 18.50 percent of the variation in Psychological Stress.

DISCUSSION

Following the initial wave of the COVID-19 outbreak, this study investigated a wide variety of potential variables that might create psychological stress in a community of students pursuing health-related fields at Jordan's Irbid National University. Looking at the data, it's worth noting that the COVID-19 pandemic is associated with significant levels of psychological stress among students in health-related fields, according to our research. Our study indicated that 85.1 percent of participants had significant levels of psychological stress, which is consistent with the findings of other studies performed among higher education students in various countries during the COVID-19 outbreak. The findings show that students' mental health, as evaluated by self-reported psychological stress, is connected to both personal and academic problems. In terms of personal health status, our findings on general health status are consistent with those of Lai et al. (2020), who discovered that personal health status was associated with higher perceived stress levels and more severe anxiety and depression symptoms in international university students during the COVID-19 pandemic. They also identified the health of friends and family as a COVID-19-related stressor, which was not included in the analysis because the questionnaire used in this study did not address it. Concerns about the health of friends and family, on the other hand, were not associated to psychological stress in our study. The majority of students expressed a desire to engage with their peers, which is consistent with prior research that has related social isolation to psychological stress (O'Sullivan et al., 2021; Styck et al., 2021; Suliman et al., 2021). Another essential environmental resource for individuals is social support, which is linked to mental health (Li, et al., 2021). Financial instability has been found to aggravate student distress in the past. During the COVID-19 pandemic, Fu et al. (2021) it was observed that a low economic position was associated to anxiety symptoms, and income loss has also been identified as a risk

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factor in another research. According to this study, the simple dread of slipping into financial difficulties as a result of a loss of income has a significant influence on psychological stress. Part-time employment for students is common in gastronomy or retail, two businesses that were severely damaged by the COVID-19 epidemic. As a result, students were more vulnerable to losing their economic sources. According to the study, those who felt helpless to influence the situation, indicating a high external locus of control, were more likely to experience considerable levels of psychological stress. A substantial negative association between perceived stress and locus of control has been documented among higher education students even before the epidemic. It's reasonable to suppose that the consequences have gotten worse, which is consistent with Mudenda et alfindings.'s that helplessness during the COVID-19 epidemic was linked to mental health in pharmacy students. They also discovered that stress related to academic programme uncertainty was linked to higher felt stress levels and more severe symptoms of mental disorders. In terms of study-related parameters, we discovered that a lower felt stress level from the study load was a protective factor for the development of stress as compared to the traditional study format. According to the findings, colleges should advise students to adapt their learning plans to the present problems of online learning and adapt their schedule to workload changes to avoid psychological stress. Overall, the findings of this study suggest that policymakers should pay more attention to the influence of the COVID-19 pandemic on students' mental health. According to the findings of a Jordanian longitudinal survey, young people are most affected by the current scenario, with nearly one in every two 15- to 30-year-olds believing that their concerns were either not heard or not requested. Although the younger population is less likely to have a severe or critical course when infected with the coronavirus, the long-term repercussions of mental health degradation could be severe, and measures to protect students' psychological well-being must be taken. Based on our findings, we suggest that more study be done to look at the coping techniques students utilised during the COVID-19 pandemic when confronted with a variety of pandemic-related obstacles. It's also important to look into how students dealt with the negative effects of social isolation, loneliness, and financial difficulties. We advocate employing qualitative study designs to get in-depth insight and comprehension for this aim. When analysing the results, some constraints should be addressed. First, despite the great number of responders, they only represent 67% of the students contacted, and there is a chance that response and desirability bias influenced the results. Low response rates in epidemiological surveys, on the other hand, have been found to have only a minor impact on prevalence and association measures. The offer to participate was also distributed through the university's distribution list. As a result, only students who had survey participation notifications turned on in their settings were contacted, potentially leading to self-selection bias. The results are not generalizable to students in all disciplines because we focused on students in health-related fields. Furthermore, because this study used a self-report questionnaire, the results represent the participants' subjective perceptions; generalised anxiety and depression were not examined using validated and standardised questionnaires. It is necessary to consider the transition of psychological stress. However, because the alternate model produced comparable results, the results can be presumed to be stable. The same subjects should be questioned again in a follow-up study to establish the permanence (or transience) of psychological stress. The findings must also be seen in the perspective of the pandemic's

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nonacute phase, when lockdown restrictions were more eased. The poll was done at both universities during the test period. Because of the study's cross-sectional methodology, it's impossible to say whether the findings are related to the COVID-19 epidemic or whether the distribution of psychological stress was pre-existing or altered by the study period. However, following the initial lockout, a longitudinal investigation indicated that stress levels remained elevated at similar levels. A follow-up study with the same questionnaire could help to confirm and validate the findings. Further research could look into the differences amongst universities. Despite these flaws, the current study has several significant advantages. First, researchers looked into a sample of over 450 students in health-related professions from two distinct colleges. Second, a number of demographics, economical, health-related, motivational, and teaching-related aspects were examined in order to improve students' perspectives on the mental burden they faced through the COVID-19 outbreak.

CONCLUSIONS

Maintaining students' mental health is a public health problem in general, but it becomes even more vital in the event of a pandemic. As a result, the psychological well-being of young adults should be prioritised, and the negative consequences of lockdown policies should be considered while developing legislation. This is especially relevant given that the study was done following Jordan's first lockdown. Long-term quarantine as a result of the COVID19 epidemic may cause pupils' psychological well-being to deteriorate significantly. Further research into the link between reported high levels of psychological stress and the COVID-19 epidemic, as well as the coping techniques used and their impact on students' mental health, should be undertaken. Our findings imply that kids with low financial support structures in the educational environment require special attention. To meet the current challenges of online learning, universities should encourage faculty members to maintain contact with students, pay attention to their (mental) health, allow them to maintain social ties, and support them in their studies by providing flexibility in structure and adjusting the workload. The findings of this study, when paired with those of other studies, will be critical in implementing timely and appropriate treatments for kids at risk in order to mitigate the psychological harm caused by the COVID-19 pandemic. Digital study groups, peer group sessions, regular online consultation hours, mentoring, and psychological counselling could all be used as interventions. More research is needed to determine which solutions are most effective in meeting the needs of students.

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