ORIGINAL ARTICLE

The Psychological Impact of COVID-19 Pandemic on Students

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ABSTRACT

Objective. This study aimed to determine the psychological impact of the COVID-19 pandemic on university students, categorically focusing on effective coping strategies adopted.

Methods. The researcher used a descriptive cross-sectional design and a pseudo-random number sampling method with an inversion technique to randomly select 548 health science students who participated fully out of the sum of 4,140 students from each department. The initial goal was to include 572 students in the sample. This ensured a fair representation of students from the University of Nigeria, Nsukka (UNN). The researcher evaluated these students using the COVID-19 Student Stress Questionnaire and Brief-Cope Scales.

Results. Findings showed that 58.8% of the respondents were females, 34.7% were enrolled in the nursing program, and 59.7% chose to live with their parents. Most of the students experienced moderate stress, with 45.25% and 5.47% experiencing extremely stressful or distressing situations, in terms of relationships and academic life, respectively. There were no significant differences in fear of contagion, regardless of the students' gender. and social isolation between students who lived with and without their parents. In terms of relationships and academic life among the students, there was no significant difference in relation to the demographic characteristics. Results also showed that 26.6% of the students used problem-focused coping “a little bit," and there was no significant difference as to their developmental characteristics for those using problem-focused coping, emotion-focused coping, or avoidant coping. However, the results indicated a greater tendency towards avoidant coping strategies, with no significant differences observed. Students disproportionately adopted problem-focused, emotion-focused, and avoidant coping strategies. Students reported a weakly significant positive correlation between emotion-focused coping and problem-focused coping, and a large negative association between fear of contagion and problem-focused coping strategies. They also reported a slightly positive correlation between relationships, academic life, and social isolation.

Conclusion. The study revealed that most students experience moderate stress, which gradually escalates into extremely stressful situations, particularly in relationships and academics. The researcher found no significant differences in fear of contagion or social isolation. However, avoidant coping was more prevalent compared to problem-focused and emotion-focused strategies. There were weak positive correlations between emotion-focused and problem-focused coping. Policy reform in the health and academic systems will strategically improve students' mental health.

Keywords: COVID-19 pandemic, coping mechanism, fear of contagion, mental health, psychological impact

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INTRODUCTION

In December 2019, scientists discovered the SARS-CoV-2 virus in Wuhan, China[1], which was the cause of the COVID-19 pandemic. At that time, the spread of the infection resulted in the deaths of one million people.[2,3] Since its emergence, routine activities and people's lifestyles have never been the same. Socioeconomic disparities have been impacted by the COVID-19 pandemic both nationally and internationally. Growth and income levels in several lower- and middle-income countries have declined significantly.[4] The decline in economic production and output has presented challenges to several nations, as well as affected the healthcare and academic systems.[4] A study showed that it has had a substantial psychological effect on the public and students.[5] The imposed stringent restrictions have halted the economy and had crippling mental health, physical, and psychosocial consequences among people.[6]

Over 1.5 billion students worldwide were impacted by the COVID-19 pandemic, according to UNESCO's educational response.[7] The COVID-19 pandemic has caused school closures for nearly 60 million children in the United States, while measures to slow the spread of the infection have negatively impacted 11 million students in Spain. The government's response to the COVID-19 pandemic and the closures, particularly in Madrid and Spain, have significantly impacted students' schedules on campus and staff schedules in schools.[8] Furthermore, the COVID-19 pandemic has had a significant impact on the Philippines' educational system, affecting 24.9 million students at the nation's largest university, thereby impeding the advancement of skilled laborers and other health professionals.[9]

Perceived fear of contagion has been linked to trending issues, which might cause psychological and academic stress, from a conducted study.[10] Similarly, empirical data in a study[11] demonstrated how the COVID-19 pandemic has disturbed the educational system and scared students all over the world with its disturbing effects. Its many repercussions on students have also led to a rise in inequality in educational institutions worldwide. Extensive research proved that physically closing educational institutions effectively limited the virus's spread. However, it has resulted in several issues, particularly concerning mental health, and the threat of a global pandemic elevates student tension levels more.[12] It has significantly impacted students' mental health, with anxiety, depression, and stress being common global factors. Undoubtedly, stress has become the most reported obstacle to academic success.[13] Researchers have identified academic pressure as the primary source of stress among college students.[14] Despite the psychological effects caused by the COVID-19 pandemic, a contrasting study revealed that students manage stress and pressure by seeking help and employing suitable coping strategies. Effective stress coping strategies, ranging from problem-focused to emotion-focused, help individuals manage physical and mental health impacts from stressful events.[15]

The emergence of the COVID-19 pandemic in Nigeria on February 27, 2020[5], and the subsequent shutdown of educational institutions by the Federal Government on March 27, 2020, to limit the spread has caused significant issues.[8,16] Within the first few months of the closure, 22.4 million public school students, 6.8 million secondary students, and 1.7 million college students in Nigeria missed regular classes.[17] A study conducted in Nigeria demonstrated that school closures have caused students, families, and society to face permanent obstacles in the areas of academics, the economy, and social issues. In a similar way, students' engagement in physical activity has decreased because of the closure, and their danger of self-isolation and neglect has increased along with their mental health, and behavior issues. Furthermore, it has been demonstrated that this widens the gender difference by abusing and neglecting girls.[16] According to a study, social distancing may impact students' mental health and well-being.[18] A literature search indicates insufficient data on the psychological impacts of COVID-19 on undergraduate students in Nigeria, despite reports of the pandemic.[19] The study revealed that over 50% of participants perceived a significant impact of the COVID-19 pandemic on their social life, mental health, and formal learning in Southwest Nigeria.[18] Furthermore, the COVID-19 pandemic impacted the University of Nigeria Nsukka (UNN) Enugu students, significantly affecting their mental and psychological well-being.

This study aims to make a substantial contribution to the educational system by evaluating the psychological effects of COVID-19 on university students during the pandemic. The study aims to determinethe extent of the psychological impact of COVID-19 on university students, as well as the coping strategies most effectively adopted. Besides providing significant literary contributions, this work will inform government healthcare policies, improve the academic system, and bolster readiness for future pandemics.

Figure 1 demonstrates how the COVID-19 pandemic affects the moderating variables (i.e., gender, living arrange-

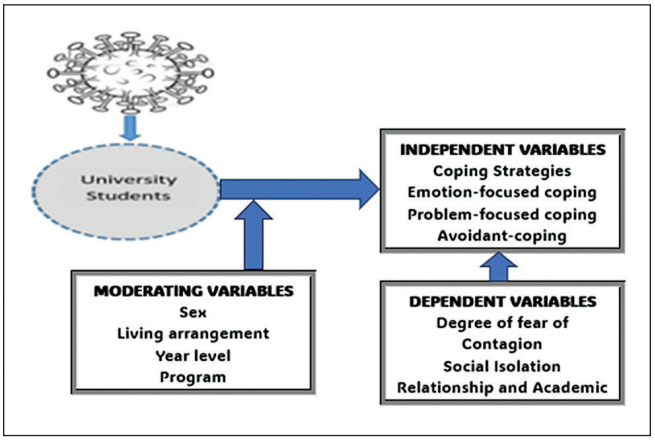

Figure 1. The paradigm of the study.

ment, year level, and program) that lead to social isolation, fear of contagion, relationship, and academic life for University of Nigeria Nsukka (UNN) health science students on the Enugu campus. Strategies adopted by the students are emotion-focused coping, problem-focused coping, and avoidant coping.

OBJECTIVES

Specifically, the study aimed:

1. To ascertain the degree of the COVID-19 pandemic's influence on the psychological well-being of the students
2. To determine the variation in the COVID-19 pandemic's influence on psychological aspects based on their respective demographics
3. To determine the coping strategies utilized by the students
4. To determine the significant correlation between coping strategies and demographic characteristics
5. To determine the significant association between the degree of impact of COVID-19 experiences and the coping strategies employed by the students

METHODS

The study employed a descriptive cross-sectional design, which refers to the data that reflects the state of the interactions between the phenomena at a certain period.[20] It aims to capture phenomena, subjects, or a snapshot of the psychological impact at a specific point in time, which is critical for understanding the pandemic's immediate effects.[20,21] In other words, it estimates a population's disease prevalence.[22] The researcher considered this to be suitable for a population-based survey and to assess public health monitoring, evaluation, and planning. By using this strategy, the researcher hopes to shed light on the COVID-19 pandemic's psychological effects on and common health outcomes for university students. It evaluates the connection between the health effect and the present exposure.[22] The design employed in this study was particularly straightforward, faster, and cost-effective from an ethical perspective. Students of the Faculty of Health Science at the University of Nigeria, Nsukka (UNN), Nigeria's first indigenous university in the eastern region, participated in the study.

Study Population and Setting

The study involved 4,140 students enrolled in Health Science, including nursing science, medical laboratory science, medical rehabilitation, and medical radiography. Data collection was done from August to December 2021. The researcher received approval from UNN officials and the graduate school's research committee. This work acknowledges the Saint Louis University ethical review board, which authorized the study's formal conduct based on the ethical considerations covered in a letter. Notably, the researcher encountered no difficulties when requesting authorization to carry out the investigation. The study's ethical guidelines include informed consent and voluntary participation, anonymity, confidentiality, respect and dignity, and the right to withdraw at any stage. The department head, dean of health science and technology, and UNN registrar, gave their full consent. A list of participants was compiled by the researcher, who then met with them to go over the details of the study. The researcher emphasized the study's significance, objectives, and hazards. The researcher secured the respondents' full participation and consent for the study, informed the participants about its objectives, and obtained their written consent. The researcher ensured confidentiality by anonymizing all the data. The researcher provided the respondents with adequate guidance to make sure they understood the purpose of the study ensuring proper data collection.

The sample size was selected based on projected numbers and departments needed for the study, ensuring that each subgroup was adequately represented in the whole sample. To ensure fair representation in all disciplines (departments), the researcher randomly selected students from each department based on proportional representation. After determining the appropriate sample, the researcher conducted the study among health science students. The method was chosen due to uncertainty about the sample size, initially set at 572. In total, 548 responded to the questionnaire. The respondents were divided into groups based on their specific characteristics, allowing for easy analysis and computation. To address any form of bias in the sampling, the researcher ensured that each respondent has an equal chance of selection and meets the inclusion criteria for study participation (i.e., respondents from UNN only); they must be students from health science programs and either male or female within the year level projected for this study.[22] The researcher chose respondents from a variety of school departments, selecting them according to their availability throughout the specified sample collection period, to ensure impartiality. The technique was essential due to its capacity to save money and time, especially considering the enormous number of students on the UNN campus. Therefore, selecting a sample that fairly and impartially represents the entire population was considered. The researcher made several efforts to include a diverse portion of the students based on their sociodemographic characteristics, which mitigated any form of bias in the process by following the available sampling techniques.

Notably, the researcher selected health science students as the respondents considering their diverse range of disciplines in comparison to other fields. The study did not include academic institutions other than UNN. The researcher distributed the questionnaires to the eligible students from each department during department meetings and collected them immediately after completion to ensure high response rates. Having obtained the formal permission to conduct the study from UNN, prior to the data collection process, the researcher, in collaboration with the university's physical

head, established a rapport with the students of the respective departments to facilitate quick and easy data retrieval from the students. The researcher set aside a suitable duration of eight hours, but the number of participants present during the data collection process led to an extension of the number of days for some respondents. The researcher collected the data in the morning to prevent respondents from feeling fatigued from their academic tasks.

The Nigeria Presidential Task Force on the COVID-19 pandemic served as the anchor for the entire data collection phase.[23] The researcher, a health professional, took care of the respondents' psychological health without requiring a professional psychological assessment and granted them complete autonomy over their participation in the data collection process. However, the researcher selected the respondents for this study based on their willingness to participate, considering their current conditions that were conducive to their participation without any adverse effects. The researcher used the behavioral observation method, which considers their verbal expressions, body language, and eye contact during the brief, amicable interaction with each respondent prior to participation, thereby reducing any potential tension. The researcher is a registered nurse by profession, so she was able to carefully select the respondents.

The sample size was determined using Open Epi,[24] with a population size of 4,140 students and an expected frequency of 50%. Fair representation of students was achieved through proportionate stratified sampling, which increases precision, controls for bias, and improves data quality. The researcher employed this method of sampling because it additionally provides odds for every member of the sample to be chosen strictly by chance for participation in the study. Because the sample groups included numerous students from different health science departments, the researcher considered the comparability of the assessment procedures used. Furthermore, by adequately representing diverse subgroups within the student population, this method minimizes bias and enhances the reliability and generalizability of the study's findings. As a result, estimates are more precise, ensuring that the students' presentations come from all subgroups within the population.

This study used pseudo-random number sampling, an inversion sampling technique that allows for the random selection of students from each department based on proportional representation, to separate the population into departments or subgroups according to factors related to power usage, ensuring a fair representation of all disciplines. It ensures an unbiased and statistically random sequence, so using this technique gives control over the process. For this study, the researcher considered the demographic characteristics as baseline features and other relevant elements to ensure program comparability.

The successful data gathering process led to the statistical computation of the study's findings. First, second, third, fourth, and fifth year students completed the questionnaires, confirming the planned sample size of 572, which is still acceptable at a 95% confidence level; thus, the researcher estimated the percentage of high global stress levels. Notably, due to the researcher's careful and proper execution of this procedure, there were no missing data. The actual sample size was determined by the responses of respondents to the survey questions. For the study, the four basic characteristics—gender, program, year level, and living arrangement—were employed as match variables by both exposed and unexposed respondents. In general, the study kept track of how many people responded from each department. However, as case and control groups, the researcher noted how many respondents lived with their parents and how many lived alone, and they were all grouped based on the impacts respondents encountered for those who lived with their parents. The complete statistical analysis, which considers the respondent's sociodemographic characteristics, including whether they lived with their parents or not, shows the exact count of the case and the control. An analytical method based on the frequency and percentage formula was applied to determine the overall percentage of the groups.

Data Gathering Tools

The study utilized the COVID-19 pandemic Student Stress Questionnaire (CSSQ) in English to assess the impact of the pandemic on university students. The researcher obtained the questionnaires from a successfully conducted study with permission.[25] The validity and reliability testing scores of the authors, Zurlo et al., indicate that they deemed the questionnaires suitable and unnecessary for further validation before using them in this study. The questionnaire assesses stressors in three areas: Relationships and Academic Life, Isolation, and Fear of Contagion. The CSSQ, developed by Zurlo et al.[25] at the University of Naples, has a Cronbach's alpha of 0.71. It is composed of seven questions on a five-point Likert scale. The scale reveals that student with scores of 6 or less experience low levels of COVID-19-related global stress, while those with scores of 7 to 15 experience moderate to significant levels. Overall, the study highlights the importance of understanding and managing stress in university students during this challenging time.

The Brief-Cope is a questionnaire that assesses students' effective and ineffective coping strategies for COVID-19-related stress. It is a shortened version of the original 60-item COPE scale, based on various coping methods. The scale has three subscales: problem-focused coping, which includes active coping, informational assistance, planning, and constructive reframing; emotion-focused coping, which includes venting, emotional support, humor, acceptance, self-blame, and religion; and avoidant coping, which includes self-distraction, denial, substance use, and behavioral disengagement.[41] The validity and reliability of Brief Cope are based on a 5-point Likert scale, with high scores indicating mental detachment from the stressor's physical source. Low scores are often linked to effective coping. The questionnaire is divided into three parts: a letter to respondents outlining the research's

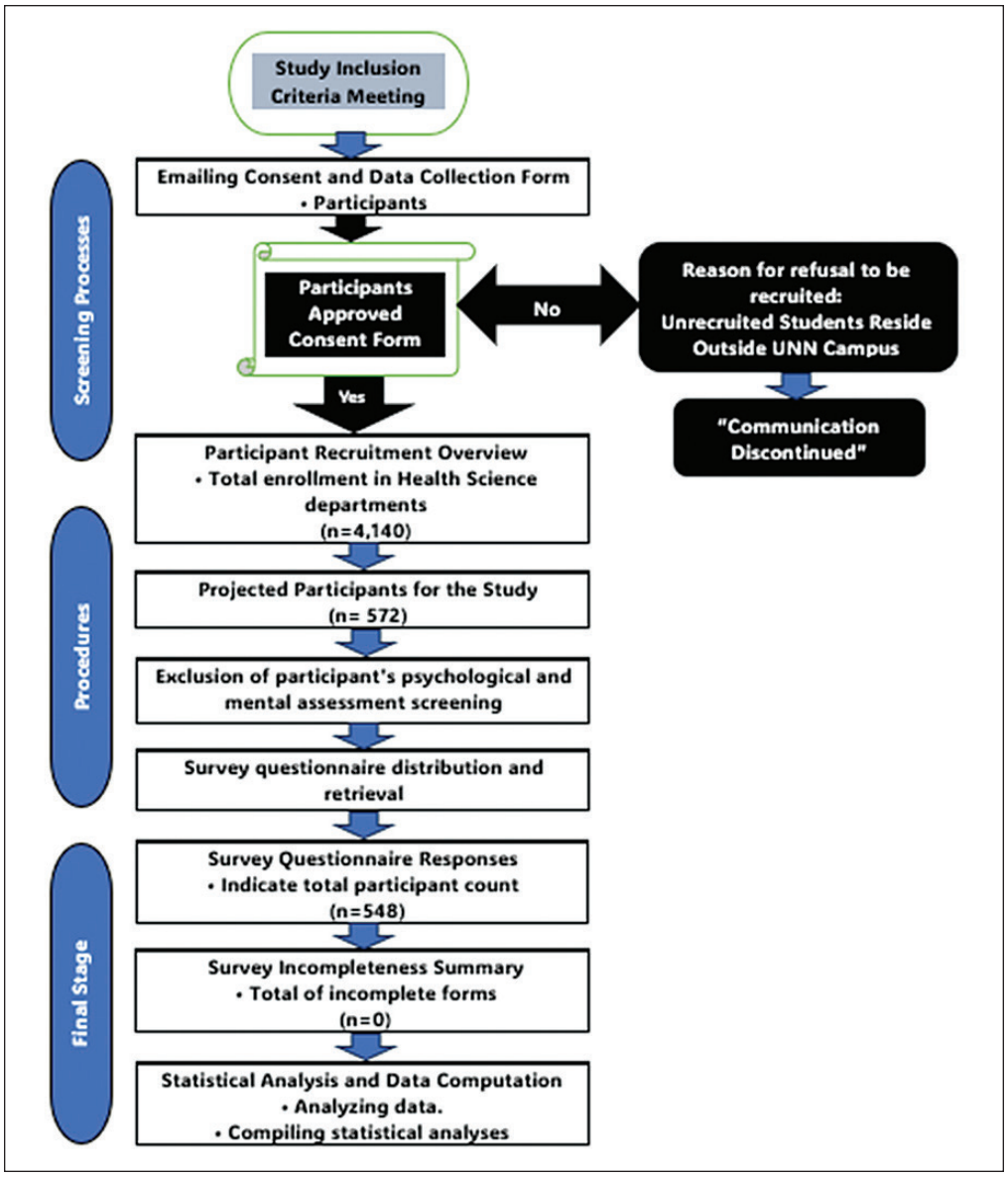

Figure 2. The data gathering flowchart.

purpose, goals, and benefits, and instructions on completing the questionnaire. The study elicits demographic data related to stressors, such as gender, living arrangements, program, and year level. The study's central body includes the COVID-19 pandemic stress scale and the Brief COPE Scale. The central body of the study includes the COVID-19 pandemic stress scale and the Brief COPE Scale. The researcher did not assess the validity and reliability of the COPE questionnaire used in this study because it was taken from a prior study. This is significant because the previous author had already tested the validity and reliability of the questionnaires.

Data Analysis

The researcher determined the mean, standard deviation, and lowest and highest scores for fear of contagion, social isolation, relationships, and academic life. The results table lists the detailed stages involved. The researcher used the global stress score level from Zurlo et al.,[25] because the same authors used a comparable scale in the statistical analysis. This study also considers a broader perspective on stress measurement as part of its objectives.

The researcher used a multiple regression analysis to determine the relationship between the coping strategies and the demographic characteristics. Furthermore, the researcher used the T-test to test the hypothesis that the groups' mean scores for gender and living arrangement are equal; the F-test to analyze the group's year level; the Pearson correlation coefficient scale; the COPE to evaluate the relationship between coping strategies; and the CSSQ to measure the degree of impact.

The researcher compared the stress levels based on the demographic characteristics using the mean (and standard deviation) and median (IOR). Notably, the T-test compares the means of the two groups to identify their significant differences from each other in the population, whereas the F-test compares the variance to identify the significant difference. Using this strategy made it statistically easier to compare the variance in each grouped sample and identify any significant differences.

Table 1. Demographic Profile of the Respondents (n=548)

Indicators	Frequency	Percentage
Gender		
Male	226	41.2
Female	322	58.8
Total	**548**	**100.0**
Program		
Nursing	190	34.7
Medical Laboratory Science	163	29.7
Radiology	106	19.3
Medical Rehabilitation	89	16.2
Total	**548**	**100.0**
Year Level		
First	164	29.9
Second	138	25.2
Third	118	21.5
Fourth	79	14.4
Fifth	49	8.9
Total	**548**	**100.0**
Living Arrangement		
Living with Parents	327	59.7
Not living with Parents	221	40.3
Total	**548**	**100.0**

Figure 2 illustrates the process of gathering data, starting with the inclusion criteria. During the screening process, participants gave their consent. The health science department enrolled the 4,140 students identified in this study, resulting in the selection of 572 participants. Notably, the author did not conduct the participants' psychological and mental assessment. The procedure involved the distibution and retrieval of the questionnaire. The data gathering flowchart's last step showed that 548 participants had completed the survey. The statistical analysis was conducted, and the result was compared with previous study findings.

RESULTS

Demographic Profile of the Respondents

Table 1 shows that there are 58.8% females and 41.2% males. Majority (34.7%) were enrolled in a nursing program, while only (16.2% were enrolled in medical rehabilitation. Most respondents 29.9% were in their first year while only 8.9% were in their fifth year. More than half (59.7%) lived with their parents.

The COVID-19 Pandemic has an Impact on Students' Psychological Well-Being

Table 2 shows the impact of the COVID-19 pandemic. In terms of relationships and academic life, the majority gave them a rating of 8.53, indicating a general perception of "moderately stressful," with 248(45.3%) and 30(5.5%) respondents indicating very stressful to extremely stressful, respectively. Social isolation has a rating of 3.99, indicating a "moderately stressful" impact. The significant values 225(41.1%) and 41(7.5%) indicate a range of moderate to extreme stress. With a rating of 2.14, fear of contagion indicates

Table 2. The COVID-19 Pandemic Influences Students' Psychological Well-being (n=548)

COVID-19-related concerns	Not at all stressful		Somewhat stressful		Moderately stressful		Very Stressful		Extremely stressful		Mean (SD)	Interpretation
	1	%	2	%	3	%	4	%	5	%		
	0		1		2		3		4			
Fear of Contagion	81	14.8	104	18.1	114	20.8	120	21.9	129	23.5	2.14 (2.04)	Moderately Stressful
	0		1-2		3-4		5-6		7-8			
Social Isolation	9	1.6	106	19.3	225	41.1	167	30.5	41	7.5	3.99 (3.27)	Moderately Stressful
	0		1-4		5-8		9-12		13-16			
Relationship and Academic Life	2	0.4	41	7.5	227	41.4	248	45.3	30	5.5	8.53 (4.12)	Moderately Stressful
Overall Global Stress			11	2.1	302	55.1	235	42.9			14.69	Average Level

**Somewhat stressful – 0-6 (LL), Moderately stressful – 7-15 (AL), Very stressful – ≥16 (HL)*

Ranges and interpretation	Not at all stressful	Somewhat stressful	Moderately stressful	Very stressful	Extremely stressful
Fear of Contagion (1item)	0-0.80	0.81-1.60	1.61-2.40	2.41-3.20	3.21-4.0
Social Isolation (2 items)	0-1.60	1.61-3.20	3.21-4.80	4.81-6.40	6.41-8.00
Relationship and Academic Life (4 items)	0-3.20	3.21-6.40	6.41-9.60	9.61-12.80	12.81-16

**Global stress score ranges and interpretation: 6 or below – low level, 7–15 – average level, ≥16 – high level*

that most students consider it to be "moderately stressful." The findings (129, 23.5% and 120, 21.9%), assessed the fear of contagion as "moderately stressful." Based on the analysis, a significant portion of the students experience higher levels of stress, particularly in relationships and academic life, and social isolation negatively impacts their psychological well-being. The ratings for relationships and academic life, fear of contagion, and social isolation all fall within the "moderately stressful" range as indicated by the scale.

The Impact of the COVID-19 Pandemic on Fear of Contagion Varies according to Gender, Living Arrangement, Program, and Year Level

Table 3.1 displays the degree of fear of contagion based on demographics. It shows that there is no significant difference in the fear of contagion between males and females, with a p-value of 0.583, which indicates that both genders experienced the same levels of fear of contagion. It also revealed that living arrangements do not significantly affect the fear of contagion (p-value = 0.260), with a similar mean score. Students in different programs do not significantly differ in their fear of contagion, as indicated by a p-value of 0.075. Students at different year levels do not significantly differ in their fear of contagion, according to a p-value of 0.071, although the mean value for second-year students is 2.36, slightly higher. The fear of contagion is relatively similar across the different demographic categories, with no significant difference observed in gender, living arrangement, program, or year level. Therefore, it suggests that students share a common concern about the fear of contagion, as this fear often contributes to stress and negatively impacts their psychological well-being.

The Impact of the COVID-19 Pandemic on Social Isolation Varies according to Gender, Living Arrangement, Program, and Year Level

Table 3.2 shows the varying degrees of social isolation's influence on demographic characteristics, with males' score (4.01, 1.714) higher than that of female students, with a p-value of 0.784, and no significant difference in social isolation between males and females due to the similarity in the mean scores. Therefore, it suggests that although male students report slightly greater average degree of social isolation than female students, there is no discernible gender difference in this instance. It also suggests that male students tend to be mentally depressed, which makes them consider isolating themselves. There is no significant difference in social isolation between students who lived with and without their parents (4.09, 1.834; p = 0.260). The same holds true for the program with a score of 402.The students who enrolled in medical rehabilitation (4.18, 1.699) have a higher mean score for the second year (4.08, 1.726; p = 0.913), with no significant difference in social isolation among students in different year levels. Overall, the analysis reveals that neither the year level nor the program of study significantly influences students' levels of social isolation; this could be because more students live in close-knit institutional environments.

The Impact of the COVID-19 Pandemic on Relationships and Academic Life Varies according to Gender, Living Arrangement, Program, and Year Level

Table 3.3 reveals that the COVID-19 pandemic primarily impacted the relationships and academic performance of female students (8.67, 2.606; p-value = 0.183), showing no significant difference in this dimension between males and

Table 3.1. The Impact of the COVID-19 Pandemic on Fear of Contagion Varies According to Gender, Living Arrangement, Program, and Year Level (n=548)

Dimension: Fear of Contagion	Mean (SD)	Significance Test	*P* value
Gender		t-test	
Male	2.10 (1.714)	-0.550	0.583 (NS)
Female	2.16 (1.211)		
Living Arrangement		t-test	
With Parents	2.15 (1.159)	-1.126	0.260 (NS)
Without Parents	2.11 (1.229)		
Program		F-test (ANOVA)	
Nursing Science	2.10 (1.184)	2.316	0.075 (NS)
Medical Rehabilitation	2.01 (1.182)		
Medical Laboratory	2.01 (1.108)		
Radiography	2.43 (1.260)		
Year Level		F-test (ANOVA)	
First	1.96 (1.132)	2.170	0.071 (NS)
Second	2.36 (1.213)		
Third	2.16 (1.154)		
Fourth	2.11 (1.271)		
Fifth	2.08 (1.170)		

**Non-significant (p <0.05), Significant (p >0.05), Degree of freedom – 2.47*

Table 3.2. The Degree of Social Isolation Varies according to Gender, Living Arrangement, Program, and Year Level (n=548)

Dimension: Social Isolation	Mean (SD)	Significance Test	*P* value
Gender		t-test	
Male	4.01 (1.714)	0.274	0.784 (NS)
Female	3.97 (1.750)		
Living Arrangement		t-test	
With Parents	3.92 (1.661)	-1.126	0.260 (NS)
Without Parents	4.09 (1.834)		
Program		F-test (ANOVA)	
Nursing Science	3.88 (1.778)	0.979	0.402 (NS)
Medical Rehabilitation	4.18 (1.699)		
Medical Laboratory	3.81(1.778)		
Radiography	3.98 (1.644)		
Year Level		F-test (ANOVA)	
First	3.96 (1.765)	0.214	0.913 (NS)
Second	4.08 (1.726)		
Third	3.92 (1.727)		
Fourth	4.05 (1.768)		
Fifth	3.81 (1.661)		

**Non-significant (p <0.05), Significant (p >0.05), Degree of freedom – 2.47*

Table 3.3. The Impact of COVID-19 on Relationships and Academic Life Varies according to Gender, Living Arrangement, Program, and Year Level (n=548)

Dimension: Relationship and Academic Life	Mean (SD)	Significance Test	*P* value
Gender		t-test	
Male	8.34 (2.925)	-1.334	0.183 (NS)
Female	8.67 (2.606)		
Living Arrangement		t-test	
With Parents	8.54 (2.651)	.075	0.940 (NS)
Without Parents	8.52 (2.882)		
Program		F-test (ANOVA)	
Nursing Science	8.32 (2.927)	1.326	0.265 (NS)
Medical Rehabilitation	8.41 (2.793)		
Medical Laboratory	8.85 (2.362)		
Radiography	8.83 (2.655)		
Year Level		F-test (ANOVA)	
First	8.57 (2.859)	0.043	0.996 (NS)
Second	8.57 (2.816)		
Third	8.53 (2.604)		
Fourth	8.48 (2.698)		
Fifth	8.41 (2.653)		

**Non-significant (p <0.05), Significant (p >0.05), Degree of freedom – 2.47*

females. This also holds true for students living with and without parents (8.54, 2.651; p-value = 0.940). The Medical Laboratory students (8.85, 2.362) and first-year students (8.57, 2.859; p-value = 0.996) did not show significant differences in this dimension among students in different year levels. Regardless of these demographic characteristics, the COVID-19 pandemic influenced students' relationships and academic performance equally, as it transformed the conventional academic methods and student lives into a new normal.

The Extent of Variation in Coping Strategies Utilized by the Students

There were insignificant variations in stress levels between health courses and different year levels. Table 4 displays the students' three coping strategies: problem-focused coping, emotion-focused coping, and avoidant coping. Findings showed that 146 (26.6%) of the students used problem-focused coping "a little bit," and 150 (27.4%) of the students used emotion-focused coping with the lowest score of 1.09, while 145 (26.5%) of the students used the avoidant

coping strategy with the highest score of 1.11. This implies that students use emotion- and problem-focused coping strategies, but not always. The prevalence of avoidant coping is marginally higher, indicating a general tendency among students to avoid stress instead of dealing with it head-on. Most of the time, students prefer coping strategies based on issue severity.

Differences in Coping Strategies according to Gender, Living Arrangements, Program, and Year Level

Table 5.1 showed that there was no significant variation in coping strategies according to gender. A p-value of 0.171, based on their mean values for both genders, indicates that there is no significant difference in problem-focused coping between males and females. Similarly, p-values of 0.094 and 0.637 imply that there are no significant differences in emotion-focused coping and avoidant coping, respectively between males and females.

Table 5.2 reveals that there are no significant differences in avoidant coping (p-value of 0.761), problem-focused coping (p-value of 0.647), and emotion-focused coping (p-value of 0.284), among students living with and without parents.

A p-value of 0.845 in Table 5.3 indicates that there is no significant variation in emotion-focused coping between the programs. The same is true for problem-focused coping, as indicated by a p-value of 0.799, as well as avoidant coping strategies with a p-value of 0.720.

Table 5.4 indicates no significant variation in emotion-focused coping across the year levels, as indicated by the 1.671 value. This also applies to avoidant coping, with a p-value of 0.619, problem-focused coping as indicated by a p-value of 0.254, and emotion-focused coping with a p-value of 0.155.

The findings show that there are no appreciable variations in the use of coping strategies (emotion-focused, problem-focused, and avoidant) according to year level, gender, living situation, or program of study. This implies that these academic or demographic characteristics have no effect on students' coping techniques, suggesting that these coping processes may be common in all students.

Table 4. The Extent of Variation in Coping Strategies Utilized by the Students at the University

Coping Strategies		Extent of use (Responses)								Mean (SD)		Interpretation	X^2 Coefficient of variation/ Test value
		Not using this at all		A little bit		A medium amount		Using this a lot					
Problem-Focused Coping	Score	**1**		**2**		**3**		**4**		2.57	1.10	Med	CV=3.73 TV=7.815 (NS)
	f / %	118	21.5%	146	26.6%	139	25.4%	145	26.5%				
Emotion-Focused Coping	Score	**1**		**2**		**3**		**4**		2.51	1.09	Med	CV=2.36 TV=7.815 (NS)
	f / %	126	22.1%	150	27.4%	140	25.6%	132	24.1%				
Avoidant Coping	Score	**1**		**2**		**3**		**4**		2.53	1.11	Med	CV=1.35 TV=7.185 (NS)
	f / %	127	23.2%	145	26.5%	135	24.6%	141	25.7%				

**Degree of utilization: 1-1.75 – Not using, 1.76-2.5 – A little, 2.51-3.25 – Medium, 3.26-4.0 – a lot*

Table 5.1. The Significant Difference in Coping Strategies among Students Grouped according to Gender

Dimensions: Gender	Problem-focused Coping Mean (SD)	Emotion-focused Coping Mean (SD)	Avoidant Coping Mean (SD)
Male	2.26 (0.427)	2.21 (0.315)	2.32 (0.388)
Female	2.21 (0.393)	2.16 (0.358)	2.34 (0.408)
t-test	1.372	1.675	-0.472
P-value	0.171 (NS)	0.094 (NS)	0.637 (NS)

**Non-significant (p <0.05), Significant (p >0.05), Degree of freedom – 2.47*

Table 5.2. The Significant Difference in Coping Strategies among Students Grouped according to Living Arrangements

Dimensions: Living Arrangement	Problem-focused Coping Mean (SD)	Emotion-focused Coping Mean (SD)	Avoidant Coping Mean (SD)
With Parents	2.24 (0.424)	2.17 (0.318)	2.34 (0.393)
Without Parents	2.22 (0.382)	2.20 (0.375)	2.33 (0.410)
t-test	0.458	-1.072	0.304
P-value	0.647 (NS)	0.284 (NS)	0.761 (NS)

**Non-significant (p <0.05), Significant (p >0.05), Degree of freedom – 2.47*

Table 5.3. The Significant Difference in Coping Strategies among Students Grouped according to Program

Dimensions	Problem-focused Coping Mean (SD)	Emotion-focused Coping Mean (SD)	Avoidant Coping Mean (SD)
Nursing Science	2.23 (0.373)	2.18 (0.341)	2.32 (0.408)
Medical Rehabilitation	2.24 (0.479)	2.18 (0.339)	2.32 (0.410)
Medical Laboratory	2.21 (0.380)	2.16 (0.333)	2.37 (0.398)
Radiography	2.27 (0.371)	2.21 (0.362)	2.33 (0.367)
f-test	0.336	0.273	0.447
P-value	0.799 (NS)	0.845 (NS)	0.720 (NS)

**Non-significant (p <0.05), Significant (p >0.05), Degree of freedom – 2.47*

Table 5.4. The Significant Difference in Coping Strategies among Students Grouped according to Year Level

Indicators	Problem-focused Coping Mean (SD)	Emotion-focused Coping Mean (SD)	Avoidant Coping Mean (SD)
First	2.27 (0.390)	2.21 (0.347)	2.31 (0.390)
Second	2.17 (0.382)	2.15 (0.327)	2.33 (0.402)
Third	2.23 (0.471)	2.12 (0.325)	2.31 (0.403)
Fourth	2.25 (0.366)	2.19 (0.331)	2.37 (0.413)
Fifth	2.28 (0.430)	2.27 (0.406)	2.31 (0.404)
f-test	1.340	1.671	0.661
P-value	0.254 (NS)	0.155 (NS)	0.619 (NS)

**Non-significant (p <0.05), Significant (p >0.05), Degree of freedom – 2.47*

Table 6. Significant Association between the Degree of Impact of COVID-19 Experienced and the Coping Strategies Used by the University Students

Indicators		Relationships and Academic Life	Social Isolation	Fear of Contagion	Problem-focused Coping	Emotion-focused Coping	Avoidant Coping
Relationships and Academic Life	Pearson Correlation	1	0.234**	0.133**	-0.030	0.037	-0.013
	Sig. (2-tailed)		0.001***	0.002	0.487	0.392	0.757
Social Isolation	Pearson Correlation		1	0.135**	-0.002	0.051	-0.053
	Sig. (2-tailed)			0.002	0.959	0.234	0.212
Fear of Contagion	Pearson Correlation			1	-0.091*	-0.019	-0.068
	Sig. (2-tailed)				0.033	0.655	0.112
Problem-focused Coping	Pearson Correlation				1	0.196**	0.332**
	Sig. (2-tailed)					0.0001	0.0001
Emotion-focused Coping	Pearson Correlation					1	0.124**
	Sig. (2-tailed)						0.004
Avoidant Coping	Pearson Correlation						1
	Sig. (2-tailed)						

**Correlation is significant at 0.05 p value **Correlation is significant at 0.01 p-value ***Correlations is significant at .0001*

Significant Correlation between the Impact of COVID-19 and the Coping Strategies Employed by the Students

There was a small but significant positive relationship (Table 6) between relationships, academic life, and isolation. It implies that when relationships and academic life improve, students are afraid of contagion due to the COVID-19 pandemic and tend to feel isolated due to study-related work and the sudden exposure to the environment. Similarly, the fear of contagion exhibited a weak yet significant negative correlation with the use of problem-focused coping strategies, while there was a weak yet significant positive correlation between problem-focused coping and emotion-focused coping. Avoidant coping showed a moderate and significantly positive association between problem-focused coping and avoidant coping, indicating that students who use problem-focused coping strategies tend to also use avoidant coping strategies. While academic and relational improvements can inadvertently lead to isolation, students employ a mix of coping strategies to manage their stress. There is a correlation between the employment of avoidant coping strategies and problem-focused coping techniques by students. This

seemingly inconsistent conduct may be a sign that although students attempt to solve problems directly, they may also turn to avoidance when faced with overwhelming situations or when doing so is not possible right away.

Overall, the study found that the COVID-19 pandemic's impact on students' stress levels was uniform alongside the different demographic characteristics, with moderate stress reported in relationships and academic life. The fear of contagion was uniformly moderate alongside the various demographic characteristics, indicating a consistent concern among students. The students used these coping strategies in moderation because, overall, problem-focused coping, emotion-focused coping, and avoidant coping did not show statistically significant differences in the extent of use among the respondents. It demonstrated that there was no significant difference between males and females in problem-focused coping, emotion-focused coping, or avoidant coping, and the same applies to those living with and without their parents. Coping strategies did not significantly vary by gender, living arrangement, or program, suggesting a need for broad-based mental health interventions.

DISCUSSION

Research has demonstrated that stress is an inescapable component of students' lives, and it impacts their emotional well-being, academic performance, and physical health.[39] The COVID-19 pandemic has primarily contributed to the stress level of the students. Surprisingly, the results showed moderate stress in addition to the multiple-dimensional range, which significantly impacted their relationships and academic performances. Stress tends to be an unavoidable aspect of academic life, primarily because of the academic workload and issues with student relationships. The findings were consistent with a study that found a high level of stress among medical students, which is associated with terrible academic performance, as well as a multiplicity of stress sources in academics.[26] The results also showed that students experienced a moderate level of stress, which gradually escalated from very stressful to extremely stressful. It revealed a moderate level of stress associated with social isolation and fear of contagion. Consequently, the findings demonstrated that stress significantly impacts students' lives. As stress is a lifestyle crisis, students do not experience stress from merely studying. Rather, the expectations parents have for their children expose them to stressful situations as they develop with a larger burden beyond their expectations, a study has arguably shown.[27]

Based on the scale table, the ratings for relationships and academic life, social isolation, and fear of contagion all fall within the "moderately stressful" range. The percentage distributions show that while a majority of students experience moderate stress, there is a notable portion of the student population experiencing higher levels of stress, particularly in relationships and academic life, and social isolation. This highlights the need for targeted interventions to address these stressors and provide adequate support for students.

The fear of contagion remains relatively constant across the different demographic categories, with no significant differences observed in sociodemographic characteristics. The analysis implies that students experienced fear of contagion regardless of their sociodemographic characteristics. It illustrates that an individual, regardless of gender, develop a fear of contagion because of their own thoughts, without the influence of any external factors. The COVID-19 pandemic increased university students' levels of stress, anxiety, depression and fear, and these levels climbed inexorably as the fear of contagion increased.[28] According to a conducted study, the fear of illness has a rapid impact on the public because it directly influences behavioral changes. Public news about deadly infectious illnesses triggers fear and other threat-based emotions.[29,30] It also showed that negative emotional reactions, a predisposition to feel disgusted, and sensitivity to bodily concerns are among the characteristics that contribute to anxiety sensitivity and fear of contracting COVID-19.

The results indicated that social isolation was consistent across various demographic characteristics. Although male students demonstrate a variable degree of social isolation in comparison to females, it suggests that this may be due to psychological, social, and behavioral factors. The stigma associated with mental health concerns more severely impacts males, discouraging them from discussing or seeking help for feelings of loneliness and isolation. It contradicts the study that showed social media platforms to have enhanced students' communication levels and decreased social isolation. However, females tend to experience higher levels of social isolation compared to males due to their limited freedom to associate with others.[31]

Similarly, the COVID-19 pandemic had a significant impact on the academic performance and relationships of female students, regardless of their demographic characteristics. Clearly, the influence on students' lifestyles significantly elucidates the association between academic performance and relationships, thereby enhancing peer-group relationships and learning. According to the Bertoletti et al.[32] study, females experience academic learning in a less favorable manner during the COVID-19 pandemic, with a 20–25% decrease in self-improvement and self-reporting in their grades compared to males. This study also illustrates how physical and psychological distress associated with family background affects students during the COVID-19 pandemic. The COVID-19 pandemic had a greater impact on social lives than on academic ones.[33] In senior high school, males exhibit superior academic performance than females, as indicated by the Wrigley-Asante et al.[34] study.

The findings indicated no significant difference in the use of problem-focused, emotion-focused, or avoidant coping strategies between males and females. This suggests that students are using coping strategies in a balanced but minimal manner. Conversely, students are more inclined to avoid

coping strategies and this varies depending on the severity of the stressor. Females are frequently socialized to express their emotions more, which can increase their propensity to employ emotion-focused coping. Avoidant coping, in contrast to issue- and emotion-focused coping, is considered a maladaptive style because individuals modify their behavior to avoid dealing with the stressor instead of addressing it. This has a long-term impact on the mental health of students. It may be considered maladaptive because the problem could worsen if not addressed directly.[35] Problem-focused coping involves confronting stressors, seeking help, managing time, problem-solving, creating boundaries, attempting to change situations, promoting mental health, controlling, and mitigating negative emotions.[36]

Findings revealed no significant differences in students' problem-focused, emotion-focused, or avoidant coping strategies between those who live with their parents and those who do not. It holds true for all programs and year levels. It probably indicates that, depending on each student's particular behaviors toward coping mechanisms, coping strategies tend to have comparable results when used by students in their everyday activities, regardless of whether they live with parents or not. An intervention will include further research on the variables that influence coping strategies. Nursing students at the University of Jordan demonstrated how emotional intelligence tends to mediate the association between anxiety and problem-focused coping strategies. Interestingly, it showed that interventions had an impact on coping behaviors related to anxiety that were emotion-focused and avoidant. It showed that student nurses with high emotional intelligence and low anxiety levels typically adopt problem-focused coping strategies. This shows that emotional intelligence is frequently used by students as a coping strategy for anxiety.[37]

The findings emphasize the uncertainties about the COVID-19 pandemic's effects and coping strategies in relation to each other. The results also revealed a little positive correlation between relationships, academic life, and isolation, and a large negative association between the fear of contagion and problem-focused coping. The findings aligned with a study on different coping styles during the COVID-19 pandemic, which discovered that perceived stress influences the connection between coping strategies, even in academic and lifestyle settings.[38] Previous studies have demonstrated a strong correlation between enhanced avoidant coping and high distress during the COVID-19 pandemic.[40]

Limitations

The pandemic's restrictions made it difficult to obtain samples, so only those present in the school during data collection were included in the study. Stratified proportionate sampling was used to designate samples per strata, ensuring no one from other departments or institutions was misplaced. Sample selection biases were significant because respondents were predominantly from urban areas, which may not accurately reflect the experiences of students in rural regions. Future studies should include a psychological assessment by qualified professionals to better understand the mental health status of respondents, ensuring a more comprehensive analysis of the psychological impact. As a result, the number of students would have been higher, but the researcher addressed this issue by focusing on a specific number of students. Future research should aim to achieve more balanced gender representation by implementing targeted strategies or adjusting inclusion criteria. The study recognizes the biases associated with self-reporting because it is common for people to accept respondents' opinions about survey instruments without considering their actual emotions or expertise. Future studies can lessen these biases by utilizing observational data and cross-validating results with additional data. Recall bias, where respondents often struggle to recall past events, can also be mitigated by using clear and precise survey tools. Through the deployment of a pilot study, researchers may further limit the risks of bias involved and ensure correctness and accurate research results by improving the validity and reliability of the survey tools. The study's context and limitations, along with the tendency of different subpopulations to respond differently to the COVID-19 pandemic, allow for a broad application to other populations in other institutions due to the consistent patterns observed across the sociodemographic characteristics of the groups. Additionally, exploratory research with the same or different methodologies in diverse settings will yield slightly similar findings.

CONCLUSIONS AND RECOMMENDATIONS

The COVID-19 pandemic had a major psychological influence on several dimensions, including demographic characteristics. As a result, the students encountered experiences that ranged from moderately stressful, very stressful, to extremely distressing situations, especially in relation to academic life. These factors invariably have detrimental effects on students' mental well-being, which in turn affects their relationships and academic pursuits, most especially for female students. Social isolation significantly impacted male students, showing no significant difference in fear of contagion across all the students, regardless of their gender. It suggests that the psychological impact of the pandemic is pervasive among students, regardless of their demographic background. It underscores the need for universally accessible mental health resources in educational institutions. Students disproportionately adopted problem-focused, emotion-focused, and avoidant coping strategies, regardless of their demographic characteristics, although the result showed that they were more inclined to avoidant coping strategies with no significant differences. Students experienced a slightly positive correlation between relationships, academic life, and isolation, as well as a large negative association between fear of contagion and problem-focused coping strategies.

In general, the COVID-19 pandemic's emergence had negative effects on students because healthcare policies restricted movement and social isolation. These policies significantly distorted students' relationships and academic lives, both with and without their parents. Furthermore, the COVID-19 pandemic had a significant impact on students' educational practices, leading to the traditional method shifting towards online methods of learning that resulted in poor academic performance for most students. It provides guidance for future studies by identifying research gaps and issues that frequently arise during a pandemic. This is particularly relevant when disease outbreaks become global threats to humans. This strategically encourages policy reform in both academic and healthcare sectors.

Researchers can use a qualitative approach to re-evaluate the social disparities in student categories to gain a deeper understanding of self-isolation and students' mental health level. Longitudinal research that tracks a cohort of students from the start of the pandemic to a few years after it ends could help determine how stress levels, coping strategy, and academic performance have changed. Future studies should involve students from various faculties (such as the humanities, engineering, and business) and institutions (both urban and rural) to further understand the pandemic's effects in various educational contexts. To gain a deeper understanding of students' experiences and the complex stress management techniques they use throughout the pandemic, researchers should also hold focus groups or qualitative interviews. Additionally, universities should adopt psychological resources like flexibility of approach and coping strategies across all students to reduce vulnerability in various situations.

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