Impact of COVID-19 Lockdown Policy on the Anxiety Extent, Impact, and Management Approach among Jos Tertiary Institution Students in Plateau State

Toyese Oyegoke[1*], Ayandunmola Folake Oyegoke[2,4], Jesse Nkwiri[3,4,5]

[1] Chemical Engineering Department, Ahmadu Bello University Zaria, Nigeria.
[2] Human Kinetic & Health Education Department, Ahmadu Bello University Zaria, Nigeria.
[3] Business Administration Department, Ahmadu Bello University Zaria, Nigeria..
[4] Education Matters Facilitators - Pencil Team, Salama Hospital and Maternity Zaria, Nigeria.
[5] Mathematics Department, Foundation Academy Jos, Nigeria.

*Corresponding author: OyegokeToyese@gmail.com

Abstract

This study investigated the effect of Nigeria's COVID-19 lockdown policy on university students' anxiety in Jos, a city in Plateau State. In this study, a mixed approach was used, which combined descriptive and 4-by-2 full-factorial design methodologies. 79% of the students were enrolled in programs leading to a national certificate, a higher national diploma, or a health certification, while 21% were from various institutions that awarded degrees. Additionally, a good representation of the gender classes was observed in the student body, with a female-to-male ratio of 46 percent to 55 percent, respectively. However, the majority of the pupils (99 percent) were over the age of 18. According to study results, students employed a high degree of anxiety management strategies, but this was insufficient because it only managed to lower the impact of the anxiety level to 58 percent. A poor reduction in the influence of anxiety on students' ability to handle it is a key result of their failure to consider counseling services. However, it was further concluded that, in comparison to other factors like gender, age, and educational level examined in the study, the type of school the pupils attended made a substantial difference in their anxiety level, impact, and management method. A regular re-training of counselors should be instated across all states of the country to educate them on how counseling services can be virtualized across the country to allow students to access the service in their comfort zone and to educate them on the need to raise awareness and enlighten the students on the best management approaches to minimize the effect of the student's anxiety level.

Keywords: COVID-19, lockdown policy, tertiary education, anxiety, educational management.

Introduction

The COVID-19 (Coronavirus Disease 2019) pandemic has had a substantial impact on most regions of the world. A highly contagious respiratory illness known as COVID-19, which is brought on by the SARS-CoV-2 virus, is spread through droplets from infected people who may or may not be displaying any symptoms. The virus, first identified in Wuhan, China, in December 2019, has affected 215 countries, areas, or territories with 230 thousand deaths and 3.27 million positive cases globally as of 3 May 2020 (Chernick et al., 2020; Holshue et al., 2020; Wang et al., 2020; WHO-Europe, 2021; Wu et al., 2020; Zhu et al., 2020). Nigeria experienced her share of the pandemic when the first confirmed COVID-19 case was announced on 27th February 2020 in Lagos State. These figures have since skyrocketed into thousands, with 121,566 confirmed cases, 97,228 discharged, and 1,504 deaths nationwide in recent reports (Adepoju, 2020; Amzat et al., 2020; Osagie, 2021).

To reduce the spread of COVID-19, a lockdown policy was declared by the Government of Nigeria on March 30, 2020. All schools, colleges, and universities have remained closed since. Over 87 percent of students worldwide were affected by the closure of educational institutions, according to the United Nations Educational, Scientific, and Cultural Organization (UNESCO) (Francisco et al., 2020). This situation may cause academic difficulties, disruptions to daily routines and habits, and mental health repercussions in students. Constraints like house confinement, physical or geographic isolation, and others are also likely to have a negative psychological influence on children and have an adverse effect on their mental health. Social isolation policies may cause a steady increase in social isolation among students, halting the spread of the infection and relieving pressure on the public health systems. The psychological and mental health of the students would suffer as a result. These feelings may lead to transient sleep problems, food irregularities, and engagement in potentially addictive behaviors (Pradeep, 2020). News, false information, and rumors regarding COVID-19 may also cause students to think and feel negatively about the future (Galea *et al.*, 2020).

Measures taken to contain the spread of COVID-19 have affected lower, middle, and higher education institutions worldwide. As most countries began pursuing physical distancing, most higher education institutions also had to shift to online learning within a concise time and change the way they function and communicate with their staff and students (QS, 2020; Quacquarelli, 2012). Students who can work and study alone can achieve a great deal of learning experience than students who are dependent on group study and much teacher attention. Students' motivation and learning depend on the availability of electricity, computing devices, and data. Most students don't have access to these resources. The importance of students' social networks in reducing stress and enhancing their productivity has been questioned. The COVID-19 situation may have a significant impact on students' mental health because of decreased social interactions, a lack of social support, and fresh worries. Due to unfavorable familial situations, some students during the pandemic reported poor experiences upon returning home (Kline, 2014).

Students have had to rearrange their daily lives to adjust to a situation of confinement. Most of the displaced students from their families within the same country have returned home (Tani Emmanuel et al., 2020). However, in the case of students abroad, the situation remains highly variable, with tens of thousands stranded in destination countries waiting for on-site activities to resume or because they are unable to return to their countries due to the closure of airports and borders ("Academic Difficulties for International Students," n.d.; Netz, 2013). Inevitably, the loss of social contact and socialization routines that are part of the daily experience of a higher education student would take its toll (National Institute on Aging Report, 2019; Oomen et al., 2021).

According to researchers, people sleep less than they did decades ago (Spiegel et al., 2005). The observed decrease in sleep duration has coincided with the increase in chronic diseases caused by lifestyle choices (Spiegel et al., 2004). An increasing amount of research shows that sleep is crucial for the start and worsening of almost all chronic illnesses, which has led to the more recent notion that sleep is essential for optimal health (Ruesten et al., 2012). The only benefit of COVID-19 may be social isolation and lockdown because it gives most people more time at home, allowing some people to adjust their sleep-wake schedules and get more sleep. When FITBIT recently reported a change in sleep patterns from their global community, they effectively validated this. They stated that after the COVID-19 epidemic, people are staying up later and sleeping for longer periods of time (FITBIT, 2020).

Regular exercise has well-established positive effects on various health outcomes (Pedersen & Saltin, 2015). Physical activity changes have an impact on other crucial health habits, highlighting the significance of physical activity for overall well-being. For instance, systematic reviews highlight the beneficial effects of both short-term and ongoing exercise on sleep quality (Kredlow et al., 2015), whereas poor sleep appears to influence levels of physical activity (Kline, 2014). Regulating social interaction and outdoor activities, such as regular exercise and physical activity, would regrettably ultimately interfere with millions of people's everyday lives (Chen et al., 2020). But the authors recently stressed the significance of physical activity during the lockdown, contending that it can assist in rebalancing physical and mental health and

well-being. In the light of the findings, it was determined that in these trying circumstances, exercise should be encouraged just as much as social isolation strategies (Brooks et al., 2020; Chen et al., 2020; Dores et al., 2021; Josh, 2020). Our previous study on the effect of the lockdown policy on students' (middle school and tertiary institutions) behavior and psychology in a particular part of Nigeria showed that the lockdown policy significantly affected students behaviorally and psychologically in Gusau (Ojetunde et al., 2020) of Zamfara State and Zaria (Oyegoke, Olotu, et al., 2021) of Kaduna State in Nigeria. Therefore, this study evaluated the impact of the COVID-19 lockdown policy on the tertiary institution students' anxiety residing in Jos, a major city of Plateau State in Nigeria. .

Research Questions:
The study answers the following questions: (1) By how much was the tertiary institution students' anxiety affected? (2) How significant was the impact of the anxiety of the student? (3) Were they able to devise a way of managing this anxiety? (4) How does the management approach influence the extent of the anxiety and its impact? (5) How do the socio-demographic characteristics influence the anxiety level, impact, and management?

Null Hypothesis:
The study assessed the validity of the following hypothesis: (1) The extent of the tertiary institution students' anxiety was significantly high, (2) The anxiety had no significant impact on the students' way of life, (3) The anxiety was significantly managed by students using different measures, (4) The management approach does not significantly influence the extent of the anxiety and its impact, and (5) The socio-demographic characteristics do not significantly influence the anxiety level, impact, and management.

Findings deduced from the study would help the government make relevant decisions during a pandemic and post-pandemic period as the proprietors of the different institutions and the students themselves

Methodology
Study Area:
The area investigated in this study is Jos, a populous city of Plateau State situated within the North-central region of the Nigeria Republic. The state comprises about 40 ethnic groups, including Angas, Ankwei, Vergam, Birom, Miango, Hausa, and Fulani, to mention but a few who are referred to as the minority groups (Plateau State, 2021).
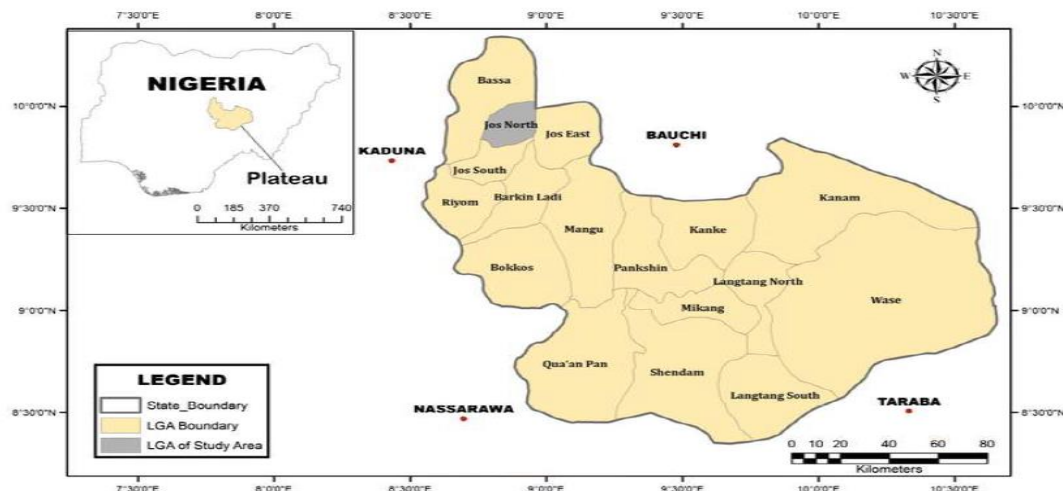

Fig. 1 - Map showing the study area

This city town is the State capital of Plateau, and it is located between latitude 9.896527 and longitude 8.858331 with an area of 3,364 km, whose population was reported to be 900,000 as of the 2006 census last conducted in Nigeria but now 917,000 (Mapcarta, 2021; Plateau State, 2021; Wikipedia, 2021). Bauchi

State borders the city in the Northeast, Kaduna State in the Northwest, Nasarawa State in the Southwest, and Taraba State in the Southeast directions.

Study Population and Sample Size:
The population comprises males and females residing in Jos's city in Plateau State, and the study area is about 900,000 people as of 2006 (Wikipedia, 2021). This study enrolled 178 respondents in this survey ranging from below 18 years (that is, under-aged) to above 18 of age (that is, adult) which was broadly higher than the value obtained from the recommended sample size computed as 133 via the use of the mathematical expression presented below:

$$n = \frac{N*X}{(X+N-1)} \qquad (1)$$

and

$$X = \frac{Z_{\alpha/2}^2 * p(1-p)}{MOE^2} \qquad (2)$$

Where, $Z_{\alpha/22}$ represented the critical value obtained for the Normal distribution at α/2, for a given confidence level of 95%, α is 0.05, MOE denotes the margin of error, which was taken to be 8.5%, p represented the sample proportion which was taken to be 50%, and N is the population size (i.e., 35,0000 students). The expressed was adopted from literature (Bellach, 2007; Daniel, 1999; Oyegoke, Olotu, et al., 2021).

Research Instruments:
A research instrument tagged "COVID19 Lockdown Impact Assessment on Students' Anxiety: A Case Study of Tertiary Institutions' Students Residing in Jos Questionnaire" was employed to collect data for the study. However, a hybrid approach of using hard-copy and electronic questionnaires designed via Google Form was used to ease the data collection for this study to obtain the relevant data. The questionnaire contains information such as socio-demographic details of the respondents, evaluation of the anxiety, the impact of the anxiety, and management approaches employed by the students, where the responses were rated on a scale of 1 to 3, where 1 (100%) stand for 'Agreed/yes,' 2 (50%) stands for 'Not sure,' 3 (0%) stands for 'Disagreed/no.'

Study Design and its Method of Analysis:
A hybrid method that employs descriptive and 4-by-2 full-factorial design methods was employed in this study, where the data were analyzed using frequency counts, mean, percentage, f-test, and factorial design analysis.

Table 1 - Factorial design parameters

Study Type	Initial Design	Experiments	Blocks	Center Points	Design Model	
Factorial	2 Level Factorial	16	No Blocks	0	4FI	
Response	**Name**	**Obs**	**Minimum**	**Maximum**	**Trans**	**Model**
Y1	Anxiety level	16	1.6031746	2	None	R3FI
Y2	Anxiety Impact	16	1.8888889	2.2798354	None	R3FI
Y3	Anxiety Management	16	1.53125	2.125	None	R3FI
Factor	**Name**	**Type**	**Low Actual**	**High Actual**		
A	Gender	Categorical	FEM	MAL	Levels:	2
B	School-type	Categorical	PRV	PUB	Levels:	2

C	Age	Categorical	U18	G18	Levels:	2
D	Education	Categorical	NCE/HND/RN	BSC/MSC/PHD	Levels:	2

The full-factorial design method (in Table 1) was used to identify all possible categories of respondents that this study would potentially have using the 4 factors defined in the questions as the biodata, which include the student's gender, the current educational program enrolled for, school-type attended, and age class. 16 categories of students were identified as possible, out of which categories of respondents not available were acknowledged as 'one with an uncertain view' that scores their effects on students' anxiety, the impact of the anxiety on the students, and management approaches employed by the students as '2' based on this study's scale. The student's anxiety, the impact of the anxiety on the students, and management approaches employed by the students were classified as the response (i.e., output) variable, recorded as the mean scores of various respondents. Also, the factors were designed to be on two levels each. The hypotheses formulated were tested at 0.05 levels of significance using mean and ANOVA. In the test, when the 'mean is less than 2,' or 'prob>f value is less than 0.05' implies hypothesis acceptance, while otherwise, it would be rejected.

Ethical Consideration:

Consent of the respondents was obtained before the administration of the questionnaire. The respondents' right was protected by informing them about this study's purpose and not forcing them to participate. Anonymity was ensured by the fact that identifying information about the individual subjects was not collected. All data provided were only employed for research purposes and kept confidential, without disclosing respondents' identities during and after the research.

Results and Discussions
Socio-demographic distribution of the students that participated in the study

From the survey with 178 respondents from different tertiary institutions in the study area, 54.5% of the male respondents were found, while 45.5% of the female respondents did. We found that the current ratio of 46% to 55% for a female-to-male was similar to that of Gusau City's study (Ojetunde et al., 2020) obtained 48% to 52% but much higher than that which was obtained 11% to 89% for study in Zaria (Oyegoke, Olotu, et al., 2021).
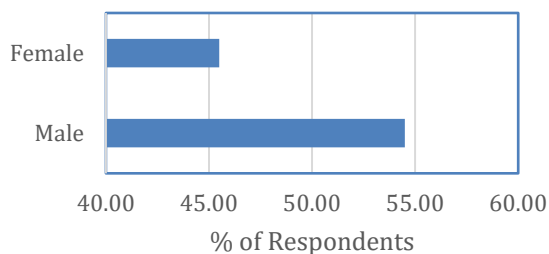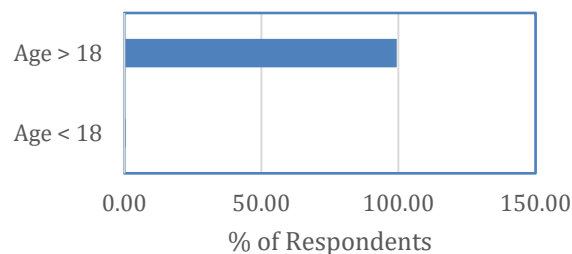

Fig. 1 - Gender   **Fig. 2 - Age**

According to Figure 2, 99.4% of the students in tertiary institutions are over 18 years of age (i.e., adults). The percentage of underage and teenage students (related to underage or teenagers) was just 0.6%, indicating that tertiary institutions of selected study areas tend to have more adult students than underage or teenage ones. There was a majority of students aged 18 and older in the tertiary institutions, suggesting most of the students were adults, not children, as in the Gusau study (Ojetunde et al., 2020) which has some representation of lower-aged students, which was identified to be so since the Gusau study included secondary education (that claims 68% of students) in the studies.
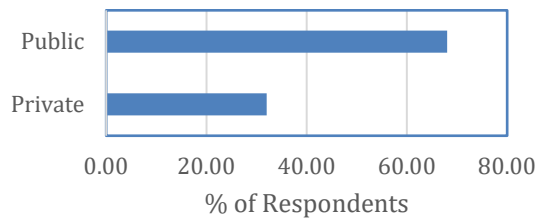
| **Fig. 3 - School Type** | **Fig. 4 - Education Level** |

The data collected from the survey represented in Figure 3 shows that the percentage of those who attended private school was 32% while that of public school was 68%. Also, the result collected for the distribution of the education levels of the participating students presented in Figure 4 showed that most of the respondents are NCE/ND/HND/RN, which accounts for 78.7%, while BSC/MSc/Ph.D. students account for about 21.3%.
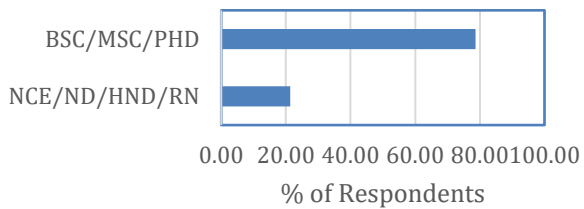
Extent of Students' Anxiety in Tertiary Institutions

Findings from our existing report (Hassan et al., 2022; Oyegoke, John, et al., 2021) on the extent of students' anxiety in Jos indicated that the students have fear of dropping out of school; loss of fellowship position due to suspension of academic and other socio-economic activities; how to cope with virtual classrooms introduced to your school; missing campus social activities like students' union; afraid that terrible things can happen; fear of getting sick or infected with COVID-19; feared that other students at school could spread the COVID-19 due to poor prevention attitude; worries basic supplies might be exhausted; concern over academic delays or extension of schedule; and concerned about the delay in your life projects caused by the suspension of the school. Although, the majority did not have worries about the possibility of being raped or abused, which indicated the report (Oyegoke, John, et al., 2021) that the large rejection of rape or abuse possibility could record lower agreement due to the fact that the majority of the students that participated were of age greater than 18 years and a higher number of the students are enrolled in a degree program where they could be more educated on self-defense, and campaign against rape and abuses is highly promoted in their various institutions. Cultural norms and society's orientation could contribute to the outcome reported in the literature (Oyegoke, John, et al., 2021).

Additionally, according to the report (Hassan et al., 2022; Oyegoke, John, et al., 2021) the most rated factor triggering their anxiety was the fear of experiencing academic delay, calendar extension, and delays in their future plans that suspension of school could cause especially their graduation date. This indicates that the bulk of students is worried about the negative effects of the lockdown policy on academic progress in Jos communities. These results were similar to those found in two other reports (Ogunode, 2020; Oyinloye, 2020) that disclosed the change in school calendars at different levels of educational programs in the FCT and Ado Ekiti affected both internal and external examinations. The report reported that 73% of Jos-based students were anxious, suggesting that only a few students are less anxious.

Impact of the Anxiety on the Students' way of life

Likewise, the analysis of the impact of anxiety on the students' way of life using the selected items considered in the study is presented in Table 2. Analysis of the results in Table 2 indicates that the students accepted six (6) of the items evaluated as part of the areas that their anxiety significantly impacted, and the five (5) other items that the students rejected include item 5 to 9. The rejected items include "You stayed alone during the lockdown," "You had difficulties falling asleep," "Headache / Taking too many painkillers," "You have more nightmares than before the lockdown," and "You do get angry more quickly than before during lockdown," respectively. These rejected items indicate that the students' anxiety did not result in them taking painkillers, having nightmares, having sleeping difficulty, and getting angry often during the lockdown period, unlike other students in other localities that were reported to be affected by all these items.

Table 2 - Answers validated by the respondent on the impact of anxiety on students' life.

How significant was the impact of the anxiety of the student?	Average Rating (AR)	Average Rating (%) $\left(\dfrac{3-AR}{AR}x100\right)$	Conditions (%) (Accepted>50%, Rejected<50%)
(7) Headache / Taking too many painkillers	2.41	29.49	Rejected
(8) You have more nightmares than before the lockdown	2.39	30.62	Rejected
(5) You stayed alone during the lockdown	2.10	44.94	Rejected
(6) You had difficulties falling asleep	2.10	44.94	Rejected
(9) You do get angry quickly than before during lockdown	2.10	45.22	Rejected
(2) Getting used to loneliness and losing interest in associating with people or fellow students	1.78	60.96	Accepted
(10) Feeling frustrated and tired of life	1.64	67.98	Accepted
(3) Finding It hard to focus	1.55	72.47	Accepted
(1) Losing interest in book reading / studies / academics	1.47	76.40	Accepted
(4) You were not able to hang out with your friends	1.42	79.21	Accepted
(11) You had more chores and homely responsibilities to do than usual	1.30	84.83	Accepted
Overall Average Acceptability Rating	*1.84*	*57.92*	

Moreover, the students' 6 items reported to be accepted include items 1 to 4, 10, and 11. These items include "Losing interest in book reading/studies/academics," "Getting used to loneliness and losing interest in associating with people or fellow students," "Finding It hard to focus," "You were not able to hang out with your friends," "Feeling frustrated and tired of life," and "You had more chores and homely responsibilities to do than usual," respectively for item 1-4, 10 and 11 as shown in Table 2. Among which, "You were not able to hang out with your friends" and "You had more chores and homely responsibilities to do than usual" were found to have shown the highest level of acceptance, indicating that most of the students are getting weak and tired of the stress that the lockdown period avails them for as well as the loneliness they went through without the opportunity of mingling with their colleagues. The overall level of impact that the anxiety of the lockdown pandemic has caused the student was found to be 58%.
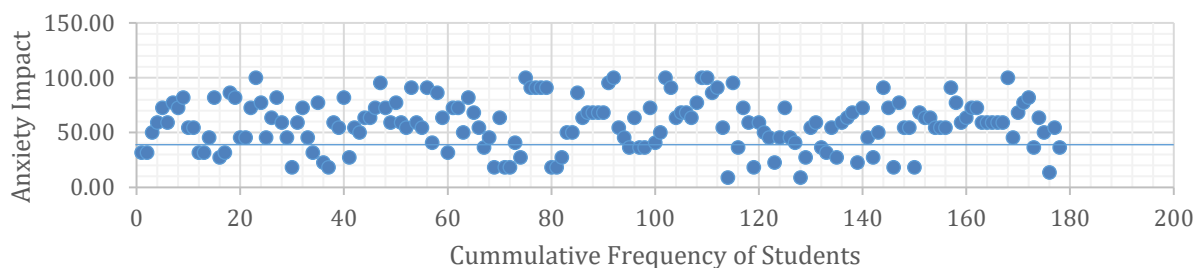
Fig. 5 - Anxiety Impact

Further analysis of the anxiety impact map (in Figure 5), where the region with a percentage greater than 50 % (with scores < 2) was qualified to be more impacted students' region while the region below the 50 % with a lesser percentage (that is, scores > 2) was qualified as the fewer impact students' region as presented in Figure 6. From this, it was deduced that those more affected were more than those that were less affected with a display of better numbers of less affected students, which also shows a good correlation with the overall rating obtained for the overall rate of anxiety impact on the students' way of life which was reported as 58% in Table 2.

Approaches Adopted by the Students in the Management of the Anxiety Impact
To better understand what influences the anxiety impact the students in terms of how they manage their respective challenges, an analysis of the different possible approaches that a student could employ to

manage this challenge was evaluated. The resulting outcome of the investigation is presented in Table 3. The results in Table 3 present the items subjected to the analysis in the search for the answers to whether the students could devise a means of managing their respective anxiety levels to lessen the impact. It was expected that a lot of the students are to employ a mixture of diverse approaches. However, findings from our studies indicate that three (3) of the eleven (11) items considered as possible means of managing the situations were found to be rejected by the students that participated in the study. These rejected items include items 8, 10, and 11, that is, "Reading academic books," "Traveled to some other places away from home with less strict adherence to preventive measures," and "Attended counselling sessions," respectively. These findings imply that most of the students were losing interest in studying the academic books, which possibly also means losing interest in academics generally. The students did not use travelling or visiting different homes to reduce their anxiety, maybe because of the limited distance movement for non-essential workers. Most importantly, none of the students was able to attend or access any counselling for any session, possibly due to poor awareness of the counsellor roles, inaccessibility of the counsellors for the students, and absence of online counselling services in their schools.

Table 3 - Answers validated by the respondent on the approach used in managing the anxiety.

Were they able to devise a way of managing this anxiety?	Average Rating (AR)	Average Rating (%) $\left(\frac{3-AR}{AR}x100\right)$	Conditions (%) (Accepted>50%, Rejected<50%)
(11) Attended counselling sessions	2.61	19.66	Rejected
(10) Traveled to some other places away from home with less strict adherence to preventive measures	2.19	40.45	Rejected
(8) Reading academic books	2.10	45.22	Rejected
(4) Sports / work-out / Playing games	1.63	68.26	Accepted
(9) Reading non-academic books	1.57	71.35	Accepted
(7) Online Skills / Study / Business / Job	1.53	73.31	Accepted
(3) You were eating more than your usual	1.41	79.49	Accepted
(1) Working on a personal project	1.36	82.02	Accepted
(6) Prayer / Self-motivation / Meditation / reflection	1.19	90.45	Accepted
(2) Internet / social media / chatting	1.15	92.42	Accepted
(5) Watching movies / TV / Music	1.12	93.82	Accepted
Overall Average Acceptability Rating	1.62	68.77	

Moreover, the results collected in Table 3 indicated that seven (7) of the eleven (11) management approaches evaluated in this study were accepted by the students. These items accepted by the students include 1 to 7, and 9, that is, "Working on a personal project," "Internet/social media/chatting," "You were eating more than you usual," "Sports/work-out/Playing games," "Watching movies/TV/Music," "Prayer/Self-motivation/Meditation/reflection," "Online Skills/Study/Business/Job," and "Reading non-academic books," respectively. Where item 2 (that is, Internet / social media/chatting) and 5 (that is, watching movies / TV / Music) were found to have displayed the highest level of acceptance among all other management approaches considered in the study. The overall rating for the anxiety management strategy employed by the students was generally found to be 69%.
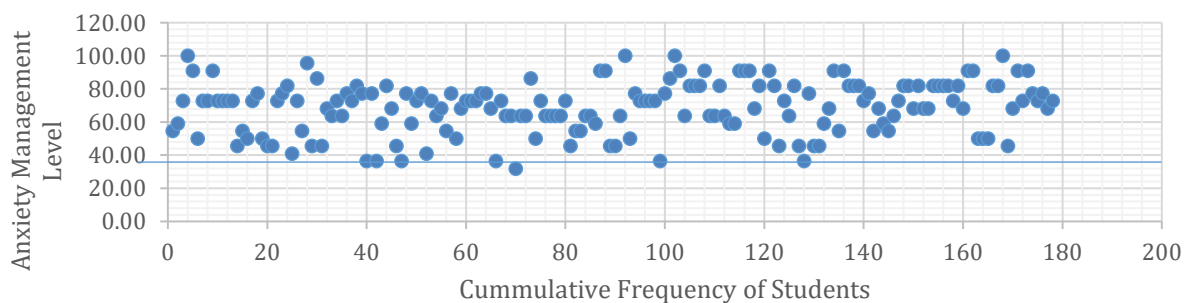

Fig. 6 - Anxiety Management

Going by the results presented in the anxiety map presented in Figure 6, it was deduced that the bulk of the students employed a lot of the management approaches considered in this study except for a few students who employed less managerial approach life for calm the level of the anxiety to reduce the impact of the anxiety on their way of life. In the map presented in Figure 6, the region below 50% with scores > 2 indicates those who adopted a less management approach while the other region (that is, a region above 50% with scores < 2) presents those that employed mixtures of diverse approaches.

Influence of the Anxiety Management (AM) on the Anxiety Level (AL), Anxiety Impact (AI), and
Analysis of the results presented in Table 1-3 and Figure 5-7 for the anxiety level, impact, and management confirm the overall ratings to be 73%, 58%, and 69%, respectively. The results indicate that despite the high level (69%) of anxiety management approach adopted by the students, it was only able to reduce the impact of the anxiety level to 58%, which was not good enough.

Further findings from the results indicate that the student did not employ counselling services, being the best of all the approaches considered in this study (Matliwala, 2017; Shannon et al., 2016). This significant management approach (i.e., counselling services) that outweighs other approaches would have significantly reduced the impact by far below 50%. Therefore, it is necessary to educate the students on the significance of reaching out to a counsellor in a crisis like the COVID-19 pandemic. The wrong choices of the students' approach to managing the anxiety have resulted in poor association obtained for the management approaches used to the anxiety impact reported.

Analysis of the Contribution of Socio-demographic Data with Anxiety Level (AL), Anxiety Impact (AI), and Anxiety Management (AM)
The results presented for the distribution of the effects on the institutions' students' anxiety level (AL), anxiety impact (AI), and anxiety management (AM) across the institutions are presented in Table 4., where it was deduced that the school-type was found to have shown the highest contribution of 66.4% 30.35%, and 69.37% in AL, AI, and AM analysis, respectively.

Table 4 - Effects and Contributions Analysis for Anxiety Level, Impact, and Management (A=Gender, B=School-type, C=Age, D=Education level)

Term Intercept	AL Contribution, %	AI Contribution, %	AM Contribution, %
A	3.00	10.37	9.27
B	66.44	30.35	69.37
C	0.22	0.58	0.82
D	10.38	11.28	3.12
AB	0.10	0.01	6.33
AC	1.77	6.53	1.05
AD	1.74	0.23	0.01
BC	3.53	16.68	2.06
BD	3.29	0.00	1.53
CD	0.37	6.53	0.05
ABC	0.01	0.59	2.41
ABD	0.01	8.12	0.40
ACD	0.53	0.27	0.86
BCD	4.06	0.59	0.58
ABCD	4.57	7.88	2.13

This deduction implies that the type of school the students enrolled in also influences their anxiety level, impact, and management strategy. Like the case of some private schools that run online programs during lockdown periods and other activities (Ezulike et al., 2021) which still makes the students be connected to their academics, and enables them to meet with their teachers or instructors and fellow students regularly, significantly lessened the possible anxiety rise in such students' way of life.

The results obtained for the evaluation of the influence of the students' socio-demographic characteristics (such as gender, school type, age, and educational level of the students in the study) on the extent of students' Anxiety in tertiary institutions via the use of analysis of variance (ANOVA) is presented in Table 5.

From the results obtained from the ANOVA, it was shown that all the single effects of the socio-demographic characteristics of the students were found to have significantly influenced the anxiety level of the students except for the C effect (i.e., age), which was found to be insignificant in line with the report obtained for the single effect contributions to the anxiety level as presented in Table 4 where its effect was found to be less than 1 % unlike that of the gender, school-type and education level which made a significant difference since the values obtained for their Prob>F was found to be less than 0.05. The deduction could be due to the dominance of the adult of age greater than 18 in the study.

Table 5 - ANOVA for Anxiety Level (A=Gender, B=School-type, C=Age, D=Education level)

Source	Sum of Squares	DF	Mean Square	F Value	Prob > F
Model	1.643773	9	0.182641	53.4247	< 0.0001
A	0.049917	1	0.049917	14.60117	0.0087
B	1.10582	1	1.10582	323.4651	< 0.0001
D	0.172805	1	0.172805	50.54746	0.0004
AC	0.029457	1	0.029457	8.616422	0.0261
AD	0.028913	1	0.028913	8.457273	0.0270
BC	0.058667	1	0.058667	17.16087	0.0061
BD	0.0547	1	0.0547	16.00035	0.0071
BCD	0.067488	1	0.067488	19.7409	0.0044
ABCD	0.076007	1	0.076007	22.23279	0.0033
Residual	*0.020512*	*6*	*0.003419*		
Cor Total	*1.664285*	*15*			

Other findings made from the analysis were the interaction of the socio-demographic characteristics such as AC, AD, BC, BD, BCD, and ABCD, which were found to have significantly influenced their anxiety level since the values obtained for the Prob>F were found to be less than 0.05. In addition, the variation in B, that is, school-type across private. Public schools were found to have shown the highest level of significance in introducing differences in the level of the students' anxiety level, evident with the Prob>F (i.e., < 0.0001), which was the lowest of all, highest percentage contribution (i.e., 66%), highest mean square value (i.e., 1.10582) and highest F-value (i.e., 323.4651). This deduction could be associated with the fact that most public schools were left closed totally during this period of lockdown, while the case of some private schools was different simply because a lot of the students from the private schools were enrolled in different virtual learning programs, which was not launched in public schools in most developing nations like Nigeria and other African countries in agreement with the literature (Ezulike et al., 2021; Oyinloye, 2020).

Influence of the Students' Socio-demographic Characteristics on the Impact of the Anxiety on the Students' way of life

The analysis of variance (ANOVA) was applied in evaluating the influence of the Students' Socio-demographic characteristics on the impact of Anxiety on the students' way of life. The model considers that school type has more effect on the anxiety impact on the student than gender, age, and education level as presented in Table 6.

Table 6 - ANOVA for Anxiety Impact (A=Gender, B=School-type, C=Age, D=Education level)

Source	Sum of Squares	DF	Mean Square	F Value	Prob > F
Model	0.895468	8	0.111933	37.73398	< 0.0001
A	0.094983	1	0.094983	32.01969	0.0008
B	0.278092	1	0.278092	93.74788	< 0.0001
D	0.103334	1	0.103334	34.83501	0.0006
AC	0.059808	1	0.059808	20.16184	0.0028
BC	0.152866	1	0.152866	51.53279	0.0002
CD	0.059827	1	0.059827	20.16849	0.0028
ABD	0.074397	1	0.074397	25.08014	0.0016
ABCD	0.07216	1	0.07216	24.32598	0.0017
Residual	*0.020765*	*7*	*0.002966*		
Cor Total	*0.916233*	*15*			

The study of the results presented in Table 6 for the investigation of the students' socio-demographic characteristics influences on the impact the anxiety caused on the students was found to have shown similar results obtained for its influence on the students' anxiety levels where all the single effects (like gender (A), age (B), school-type (C), and educational level (D)) and the effect-interactions (like AC, BC, ABD, and ABCD) were found to be significant since their Prob>F was found to be less than 0.05 in accordance to the literature (Daniel, 1999; Ojetunde et al., 2020) except for the age (C) whose variation was found to be insignificant due to the significant participation of students with age greater than 18. Likewise, the school-type (B) was also found to have significantly made a difference in the students' anxiety impact due to the difference in the accessibility and availability of virtual learning programs from school to school, which has helped some manage students when they are in lockdown at home during the pandemic. It can also be said that the students' anxiety levels directly relate to the level of impact it caused on their way of life and their attitude toward the new normal.

Evaluation of Students' Socio-demographic Characteristics Relation to the Approaches Adopted by the Students in the Management of the Anxiety Impact

Table 7 shows ANOVA for Anxiety Management and the effect of different measures or approaches used by the students in managing anxiety impact in relation to their socio-demographic characteristics. Among the factors considered, school type has more effect on anxiety management compared to other factors.

Table 7 - ANOVA for Anxiety Management (A=Gender, B=School-type, C=Age, D=Education level)

Source	Sum of Squares	DF	Mean Square	F Value	Prob > F
Model	0.715998	9	0.079555	23.74751	0.0005
A	0.068247	1	0.068247	20.37189	0.0040
B	0.510632	1	0.510632	152.4252	< 0.0001
D	0.022994	1	0.022994	6.863781	0.0396
AB	0.046564	1	0.046564	13.89943	0.0098
AC	0.007708	1	0.007708	2.300839	0.1801
BC	0.01516	1	0.01516	4.525262	0.0775
BD	0.011275	1	0.011275	3.365584	0.1163
ABC	0.017755	1	0.017755	5.300035	0.0609
ABCD	0.015663	1	0.015663	4.675522	0.0738
Residual	*0.0201*	*6*	*0.00335*		
Cor Total	*0.736099*	*15*			

The evaluation of the single variation effect of the socio-demographic characteristics in Table 7 indicated that gender (A), school type (B), and educational level (D) were found to have shown a significant difference in the level of the management approaches the students employed in calming the level of their anxiety to reduce the impact on the students' way of life since their Prob>F values were found to be less

than 0.05 in accordance to the literature (Ojetunde et al., 2020). In contrast, the age (C) variation was also found to have shown an insignificant difference in their level of anxiety management, as shown in Table 4 as 0.82%, which is less than 1%.

Further evaluation of the multivariate effects of the socio-demographic characteristics such as AB, AC, BC, BD, ABC, and ABCD in Table 7, where the AB was found to be the only multivariate effect (i.e., the effect-interaction) that was found to have a made a significant difference on the level of the student mode and level of managing their anxiety levels due to the value of Prob>F (i.e., 0.0098) which was found to be less than 0.05 in agreement to the literature (Daniel, 1999; Ojetunde et al., 2020). These findings imply that the students' gender (A) and school type (B, i.e., the most significant socio-demographic characteristics) attended significantly made a wide difference in how the student manages their anxiety level to minimize its impact on their ways of life. A similar deduction on the impact of the school type attended by the student was also reported by Ezulike et al. (2021) where it was highlighted that private schools changed to online classes as well as in other reports (Fabio & Federica, 2020; Sean & Jason, 2020) while public schools especially developing nations like Nigeria could not do so due to lack of infrastructure during the lockdown period. Further deductions were also drawn to the fact that public institutions' inadequate funding has enormously contributed to the impossibilities of these schools to switch to e-learning platforms. Oyinloye (2020) later recommends distributing iPad and e-tablets pre-loaded with textbooks to be given to students as part of government COVID-19 palliatives or relief packages in Nigeria. And reports show that schools that embrace the idea of switching to virtual learning platforms were able to bring the best of a good number of their students to their respective institutions.

Conclusions and Recommendations

An investigation to evaluate the impact of the COVID-19 lockdown policy on the anxiety of tertiary institution students, residing in Jos city of Plateau State in Nigeria, in terms of assessing their anxiety level, anxiety impact, and the level of management approach employed in the study was successfully studied via the combined use of 4-by-2 factorial design techniques and descriptive statistics.

From which, different students from different tertiary institutions running programs in national diploma (ND), national certificate of education (NCE), higher national diploma (HND), health certification programs, bachelor, master, and doctoral degree programs were engaged in the study. Out of which 79% of them were enrolled in a national diploma, higher national diploma, and health certification programs (NCE/ND/RN/HND) while 21% were from different degree awarding institutions (BSc/MSc/Ph.D.). Moreover, the gender ratio of the students who participated was 46% to 55% for the female to male ratio, which indicated a good representation of the two genders in the study. The students were majorly adults (99% with age>18). Students from both private and public institutions were also considered. The private institutions claim 32% while public institutions claim 68%.

Findings from the study further revealed that the student's overall average anxiety level was 73% which accounted for the resulting worries about the possibility of their academics experiencing a delay due to the extension of their school calendar and the possibility of that affecting their life plan with the postponement of their graduation date to this effect. The overall average impact of anxiety on the way of the students' life was found to be 58%. From which, the study reveals that the students' inability to hang out with their friends, and the rigorous chores their homes engaged them in, contributed to getting them weaker, stressed up, and feel being lonely. And these were found to be one significant contributor to the overall average level of impact obtained. The study of the students' level of anxiety management approach was found to have majorly focused on the use of the internet, social media, chatting platform, watching movies, and listening to music. In contrast, only a few students considered the need to approach counsellors for a session. The overall average reveals that the level of management approach employed by the students was 69%. The ineffectiveness of the management approach was found to be responsible for the significant impact reported as 58% when the management level was accounted to be 69%, indicating that the students despite, they employed some strategies, the study revealed that the vital approach (i.e., approach a counselling service center offline or online) were not employed by most of them.

The study confirms the null hypotheses "The extent of the tertiary institution students' anxiety was significantly high", "The anxiety was significantly managed by students using different measures", and "The management approach does not significantly influence the extent of the anxiety and its impact" to be valid and acceptable although the different measures used by the student were found to be less effective as well as the management approach which reported to be not good enough showing less effective in reducing the anxiety impact on the student. In contrast, "The anxiety had no significant impact on the students' way of life" and "The socio-demographic characteristics do not significantly influence the anxiety level, impact, and management" were confirmed invalid and rejected, since all the socio-demographic characteristics significantly influenced their anxiety, impact, and management except the variation in age (C) which was found to have contributed less than 1% influence the responses evaluated.

The ANOVA result indicated that the type of school attended by the students significantly made some difference in their anxiety level, impact, and management approach compared to other characteristics like the gender, age, and educational level investigated in the study. However, the difference in the students' gender and the type of school they attended significantly influences the choice of their anxiety management approach, which could imply that some schools provided different supporting strategies to aid the students in better managing their anxiety levels during the period of the COVID-19 lockdown.

Further findings from the study indicate that the student's counselling services were not employed, being the best of all the approaches considered in this study. Hence, initiating a proper orientation for students to understand the significance of counselling in times of crisis, such as the COVID-19 pandemic, is essential. To better prevent this in future pandemics or crises, a regularly re-training of counsellors should be inaugurated across the states of the nation to educate them on how the counselling services can be virtualized across the nation to enable students to access the service in their comfort zone and to also educate them on the need to create awareness and enlightening the students on the best management approaches to minimizing the impact of the students' anxiety level. Another program like restructuring our education system into a hybrid training system can help ease the effect any potential crisis could cause on any school calendar across the states.

Conflict of Interest
The authors declare no conflict of interest.

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