Volume: 5 **Issue:** 1
Year: 2024
DOI: 10.53811/ijtcmr.1354228

International Journal of Traditional and Complementary Medicine Research

Publisher
Duzce University

ORIGINAL RESEARCH

Associations and Predictors of Psychological Distress among Students Following Disruption of Academic Activities by University Workers Strikes

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Received: 02.09.2023 Accepted: 18.04.2024

Abstract

Objective: Psychological distress is heightened among students during health distress and strikes. This study sought to determine the associating and predicting factors of anxiety and depression among university students following the disruption of academic activities by strikes.

Material-Method: This cross-sectional face-to-face/online study conveniently recruited a total of 317 students aged 15-51 years. The student's socio-demographic, socio-economic, physical characteristics, and psychological distress were assessed using a structured questionnaire, Patient Health Questionnaire-2, and General Anxiety Disorder–7. Data analysis includes descriptive statistics, Pearson's Chi-square test, and Logistic regression, at a significant level of $p<0.05$.

Results: Student category $\chi2 = 7.928$, $p = 0.005$ Vs $\chi2 = 27.282$, $p = 0.000$, steady family income $\chi2 = 11.846$, $p = 0.001$ Vs $\chi2 = 14.049$, $p = 0.000$, and lost interest $\chi2 = 7.676$, $p = 0.006$ Vs $\chi2 = 16.500$, $p = 0.000$ were significantly associated with depression and anxiety. Steady family income was a predictor for both anxiety (OR = 0.518, p = 0.031) and depression (OR =0.501, p = 0.013). Student category (OR =3.545, p = 0.017), leaving home (OR = 2.182, p = 0.011), lost interest in my studies (OR = 2.407, p = 0.007), and frequency of exercise (OR = 0.419, p = 0.036) also predict anxiety.

Conclusion: Strike causes adverse effects on the psychological states of students. Lack of steady family income, low frequency of exercise, loss of interest, contemplating dropping out of school, and leaving home were outstanding predicting and associating factors of depression and anxiety.

Keywords: Psychological Distress, Anxiety, Post-COVID, Strike, Depression, Physical Activity

INTRODUCTION

The fulfillment of every student who gains entry into the university is to acquire the necessary knowledge and skill and then at the stipulated time be conferred a degree having fulfilled all requirements in character and learning.[1] These graduates are soon expected to take over the nation's workforce and continue the cycle of national development.[2] When this process is hampered by a series of conflicts between the federal government, which is the primary investor in public tertiary institutions and the members of the Academic Staff Union of Universities (ASUU) who are the chief imparters of knowledge and professional skills then the continuum of development is bound to become chaotic.

Students of public tertiary institutions who unfortunately happen to be at the receiving end of the ASUU federal government conflict tend to suffer a myriad of setbacks as a result of a series of unprecedented ASUU strikes.[2-3] ASUU is a trade union formed in 1978 preceding the Nigerian Association of Teachers (NAT). The union is saddled with the responsibility of organizing all academic staff who are qualified for membership; regulating the relationship between academic staff members and employers; establishing and

maintaining a high standard of academic performance and professional practice; establishing and maintaining a just and proper condition of service for its members; and protecting and advancing the socio-economic and cultural interests of the nation (ASUU constitution, 1978 as amended in 1984).[3]

During the ASUU strike, students are made to stay at home away from learned course content for an alarming duration and then in a bid to rush the academic session, they are expected to sit for examination upon resumption from the ASUU strike. Lengthy stay at home also gives room for indulgence in diverse social vices including alcoholism, gangster activities, substance abuse, rape, armed robbery, and internet fraud amongst others.[2-4] Aside from the idle students being a nuisance to society, other socioeconomic implications of months of stay at home include extra expenses on parents who are obligated to provide for students' needs while at home and further extends parental sponsorship until eventual graduation from the university.[5] Parents also have to settle landlords to retain occupancy of students' school accommodations even through the months of the ASUU strike. The pathetic state and uncertainties of education in public universities compel parents to resolve to send their wards to private and foreign institutions despite the outrageous financial implications.[2-3]

According to Ajayi the ASUU strike affected 71.2% of students at Ekiti State University Nigeria and had a negative influence on the academic performance of 51.6% of the university students.[2] More than 50% of the students of the same institution believed that a favorable response from the federal government would truncate this predicament. Alabi also reported that the ASUU strike had a highly dysfunctional impact on university development by disrupting the academic calendar and extending students' study duration, hence tarnishing the reputation of the university system.[3] Students from public institutions in Nigeria are believed to be under-skilled and no match for their foreign counterparts.[5] These and many other factors are a source of physical and psychological distress among students, causing prospective students and parents to lose confidence in the public education system.

Psychological distress including anxiety, depression, and stress[6] are top among the common mental disorders (CMD) which are in turn regarded as the major cause of disabilities worldwide.[7] Individuals with psychological distress stand at a higher risk of mortality such as death by suicide, morbidity, and substance abuse.[8] Additionally, it has been observed that individuals who engage in regular physical activity (PA) presented with decreased levels of psychological distress.[9] Regular participation in PA is also associated with other health-enhancing benefits, like mood elevation, stabilization of emotion, risk reduction, and prevention of diseases like diabetes, heart attack, and hypertension.[10-11] Many individuals experiencing health distress such as seen during the recent past lockdown of COVID-19 could not meet up with the recommendation that would qualify them as engaging in regular PA resulting in reports of poor health.[12] We therefore hypothesize that the student's low level of participation in PA during the strike may harm their psychological state and probing to explore its impact may offer a possible way to avert it.

The prevalence of psychological distress among students has been recorded in the literature. For example, in Nigeria, it was found that 25% out of 10, 421 students had psychological distress[13]; in Brazil, it was recorded as 33.7%[14], ranging from 14.5-15.04% in India[15-16], and in Ethiopia, ranges from 21.6%-40.5%[17-18]**.** Psychological distress was heightened during pandemics and epidemics. For example, in the recent past COVID-19 pandemic, there was an increased rate of anxiety, fear, poor sleep, depression[19-20], and suicide.[21-22] Accordingly, during the recent COVID-19 lockdown, the odds of having anxiety were 1.61 times higher among students with a low family income while inactive students were 0.59 times less likely to be anxious. However, the odds of having depression were 0.65 times less among males than female students of Malaysia University.[23] The prevalence of anxiety and depression among university students during COVID-19 was as high as 81.7% and 82.4%, respectively.[24]

Studies have been carried out to communicate the detrimental effect of the ASUU strike on academic staff and university development[3,25] with a paucity of data showing the distress students encounter with each industrial action. This study aims to determine the physical, socio-economic psychological impact of the ASUU strike on students and determine the associating and predicting factors of anxiety and depression among university students following the disruption of academic activities embarked on by university workers in public universities in Nigeria. Additionally, this study may provide possible

suggestions for protecting the mental health of university students.

MATERIALS AND METHODS

This study used a cross-sectional survey design and a non-probability sampling technique to sample students aged 15-51 years from public universities in Nigeria. The recruited subjects were both undergraduate and postgraduate students admitted and studying in both state and federal universities. Additionally, only subjects who are conversant with the use of social media platforms like Facebook, Linked-in, WhatsApp, Messenger, or Telegram, can comprehend spoken and written English and were residing in the country during the period survey were included in the study. Students using medication that can impair their memory or who were seriously sick or studying in universities not affected by the strike were advised not to participate.

Outcome assessment tools

The outcome assessment tools for data collection as detailed in the protocol of the study[26-27] include; 1) a structured questionnaire used to collect information including age, gender, location of residence, marital status, student category, type of university, family income, frequency of leaving home per week, afraid of the future of my education because of this strike, lost interest in my study because of this strike, frequency, duration, type, and place of exercise, hours spent watching television, living condition, do you see anything positive about this strike, do you know any student that died during the strike, and suggestion on way to curb such strike in the future. This questionnaire was modified from a previously used questionnaire called the Physical and Socio-economic Psychological Distress Questionnaire (PASDQ) [28] for workers participating in industrial action. The PASDQ was reported to have a Cronbach α ranging from 0.67 to 0.93 and an ICC ranging from 0.26 to 0.88. 2) Patient Health Questionnaire (PHQ-2) was used to determine the level of depression. It is a self-administered 2-item questionnaire[29] with items scored from 0-3, "0" = not at all, and "3" = nearly every day. The resultant score falls within 0 – 6 and 3 is regarded as the optimal cut-point for screening for depression, hence scores ≥ 3 indicate a like hood of major depression which would warrant further assessment with PHQ-9.[29] The sensitivity = 12.3-90.6; specificity = 65.4-99.8, and positive predictive value = 36.9-92.9 were acceptable. 3) Generalized anxiety disorder (GAD-7), was used to evaluate the level of anxiety, it investigates the frequency at which a person had suffered from anxiety in the last 2-weeks.[30] It comprises 7 items measured on a 4-point Likert scale (0-3), 3 = almost every day and 0 = not at all with a resultant score ranging from 0 – 21.[30] It is reported to have excellent internal consistency with Cronbach's α = 0.911, hence a validated instrument for anxiety screening.

Procedure

The Health Research Ethic Committee [UNIMED HREC] University of Medical Sciences, Ondo State, Nigeria granted ethical approval for the commencement of this study. We also explained the purpose of the study to each subject and obtained their concern to participate. The social media platforms such as Facebook, Linked-in Messenger, Telegram, and WhatsApp were used to disseminate the survey. To participate in the study prospective subjects were sent a link to the survey and were required to click the link and read the preliminary instructions which were mend to enable them to decide to participate. In the opening instruction, we invited the subjects to participate and informed them that participation was voluntary and that no name was required. In addition, subjects were notified that only a single response is required per individual and collected information would be treated in cumulative only, and no identity would be traced to individual response. They were advised to complete the survey if they chose to participate by clicking "yes" after reading the preliminary instructions. However, they were also informed that they could choose not to participate by clicking "no" without any penalty. However, in the hard copy survey, the subjects gave written consent by signature or thumbprint. No pledge, reward, or gift was offered to the subjects to stimulate participation. However, the subjects were promised that they would be granted access to the findings of the study if they indicated interest.

Statistical analysis

The online survey responses were extracted using Microsoft Office Excel 2007. The extracted data underwent cleansing and coding to enable them to be readable by statistical software such as statistical package for social scientists (SPSS) version 23 which was employed for data analysis. The subject demographics, physical, and socio-economic characteristics were summarized using the descriptive statistics of frequency, percent, mean, and standard deviation. The normality of the

measured and manipulated data/variable was determined by the Kolmogorov–Smirnov test and non-normal data were log-transformed to base 10. Pearson's Chi-square test was used to determine the factors associated with anxiety and depression. Gender variance in frequency, duration, and intensity of exercise, depression, and anxiety was assessed using the Man-Whitney U-test. Logistic regression was used to assess the predictor of anxiety and depression among the students during the strike. The level of significance was set at $p<0.05$.

RESULTS

Socio-demographic and physical characteristics of the subjects

The subject's socio-demographic and physical characteristics are presented in Table 1.

Table 1. Demographic of the participants

Demographic	Frequency	%
Gender		
Male	141	44.5
Female	176	55.5
Age		
15 -25	249	78.5
26-51	68	21.5
Student category		
Undergraduate	273	86.1
Postgraduate	44	13.9
Type of University		
State University	59	18.6
Federal university	258	81.4
Marital Status		
married	24	7.6
single	293	92.4
Residence		
Southern Nigerian	285	89.9
Northern Nigerian	32	10.1
Steady Family income		
Yes	122	38.5
No	195	61.5
Leaving Home		
≤5 times	218	68.8
> 5 times	99	31.2
Afraid of my future		
Agree	298	94.0
Degree	19	6.0
Lost interest		
agree	175	55.2
Disagree	142	44.8
Place of exercise		
At home	168	53.0
Out of home	149	47.0
Hours spent watching television		
≤ 3 hours daily	251	79.2
>3 hours daily	66	20.8
Living condition		
Live alone	73	23.0
Living with family members	244	77.0
Do you know any student that died during the strike		
Yes	128	40.4
No	189	59.6
Suggestions on ways to curb strikes in future		
Government should honor agreements	191	60.3
Salary increments for academics	27	8.5
Revitalization of universities	23	7.3
increase the budget for education	52	16.4
use of a university-friendly platform to pay lecturers	24	7.6

The majority of the subjects were in the age range of 15 -25 years old (78.5%). The majority of the respondents in this study were of the female gender (55.5%) compared to the male (44.5%). Notably, most of the subjects were residents of southern Nigeria (89.9%) whereas (10.1%) of the study subjects resided in northern Nigeria. Major of the subjects were singles (92.4%) than married (7.6%)

who were living with their family member (77.0%) than living alone (23.0%). The majority of the subject were also of the undergraduate student category (86.1%) than postgraduate (13.9%) studying in Federal government-owned universities (81.4%) than state universities (18.6%). The majority of these study subjects also agree (94.0%) that they were afraid of the future of their education and that they had lost interest in their studies because of the strike (55.2%) than those who disagree. The majority of the subjects also do not have a steady family income (61.5%) compared to those who have a steady family income (38.5%). The majority of the subjects exercised at home (53.0%) than outside the home (47.0%), spent ≤ 3 hours daily (79.2%) watching television than >3 hours daily (20.8%). The majority of the subjects suggested that to curb such strikes soon, Government should honor existing agreements (60.3%) reached with the striking lecturer whereas others also suggested that government should increase the budget for education (16.4%) and increase the salaries (8.5%) of the striking lecturers.

Determinant of depression and anxiety among students the strike

Table 2 showed case the results of Pearson's Chi-square test used to determine the association between the subject's physical, demographic, and socioeconomic characteristics with depression and anxiety. Student category $\chi2$ (1, n = 110) = 7.928, p = 0.005, marital status $\chi2$ (1, n = 4) = 4.696, p = 0.030, steady family income $\chi2$ (1, n = 31) = 11.846, p = 0.001, lost interest $\chi2$ (1, n = 77) = 7.676, p = 0.006, and contemplating dropping out of school $\chi2$ (1, n = 44) = 6.764, p = 0.009 were significantly associated with depression. Students whose student category was undergraduate (40.3%) showed an increased level of depression than those who were postgraduate (18.2%), while students who were married (16.7%) were less likely to be depressive than those who were single (38.9). Students who answered yes to steady family (25.4%) were less likely to be depressive than those who answered no (44.6%). Students who agreed (44.0%) that they have lost interest in their study showed increased levels of depression than those who disagree (28.9%), while students who agree (48.4%) to contemplating dropping out of school were more likely to be depressed than those who disagree (32.7%). Anxiety was significantly associated with age $\chi2$ (1, n = 18 1) = 11.079, p = 0.001, student category $\chi2$ (1, n = 201) = 27.282, p = 0.000, marital status $\chi2$ (1, n = 10) = 8.382, p = 0.004, steady family income $\chi2$ (1, n = 68) = 14.049, p = 0.000, leaving home $\chi2$ (1, n = 160) = 8.881, p = 0.003, afraid of my future $\chi2$ (1, n = 209) = 9.119, p = 0.003, lost interest $\chi2$ (1, n = 136) = 16.500, p = 0.000, contemplating dropping out of school $\chi2$ (1, n = 74) = 10.213, p = 0.001, do you see anything positive about this strike $\chi2$ (1, n = 67) = 10.100, p = 0.001, and do you know any student that died during the strike $\chi2$ (1, n = 105) = 19.086, p = 0.000. Undergraduate (73.6%) students had a higher level of anxiety than postgraduate (34.1%) students while students who were married (41.7%) were less likely to be anxious than those who were single (70.3%). Students who had a steady family income (55.7%) were less likely to be anxious than those who do not (75.9%) while students who leave home ≤5 times/week (73.4%) had increased level of anxiety than those who leave home >5 times/week (56.6%). Students who agree (70.1%) that they were afraid of the future of their education had a higher level of anxiety than those who disagree (36.8%) while students who agree (77.7%) that they have lost interest in their studies had increased level of anxiety that those who disagree (56.3%). Students who agree that they were contemplating dropping out of school (81.3%) had a higher level of anxiety than those who disagree (62.8%) while students who saw something positive about the strike (57.3%) were less likely to be anxious that those who do not (74.5%). Students who know a student that died during the strike (82.0%) had a higher level of anxiety than those who do not (58.7%).

Predictors of depression and anxiety among students during the strike

Logistic regression was used to determine the predictor of anxiety and depression among students during the strike. For anxiety, the model was significant, X^2 (20) = 84.73, p < 0.001. The model was able to explain 32.8% (Nagelkereke R^2) of the variance in anxiety. The Hosmer-Lemeshow test showed a non-significant Chi-square with p = 0.297 indicating that the data fit well with the model and correctly classifying 74.8% of the overall cases. Accordingly, 89.4% of the subjects who had anxiety were predicted by the model to have anxiety (sensitivity), and 43.6% of the subjects with no anxiety were predicted as not having anxiety (specificity). Of all cases predicted as having anxiety 77.2% were correctly predicted (positive predictive value) while the negative predictive value was 65.67%, meaning 65.67% of the subject were correctly predicted as not having anxiety.

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Table 2. Association between depression and anxiety with subject characteristics

Variable	Depression		Anxiety	
	None n(%)	**Yes n(%)**	**None n(%)**	**Yes n(%)**
Gender				
Male	88 (62.4)	53 (37.6)	50 (35.5)	91(64.5)
Female	111(63.1%)	65 (36.9)	51(29)	125(71)
$\chi 2$	0.014		1.516	
p-value	0.904		0.218	
Age				
15 -25	154 (61.8%)	95 (38.2)	68 (27.3)	181 (72.7)
26-51	45 (66.2%)	23 (33.8)	33(48.5%)	35 (51.5%)
$\chi 2$	0.428		11.079	
p-value	0.513		0.001*	
Student category				
Undergraduate	163(59.7%)	110(40.3)	72 (26.4)	201 (73.6)
postgraduate	36 (81.8%)	8(18.2%)	29 (65.9)	15 (34.1)
$\chi 2$	7.928		27.282	
p-value	0.005*		0.000*	
Type of university				
State	33 (55.9%)	26 (44.1)	19(32.2)	40(67.8)
Federal	166(64.3%)	92 (35.7)	82(31.8)	176(68.2)
$\chi 2$	1.453		0.004	
p-value	0.228		0.950	
Marital status				
Married	20 (83.3%)	4(16.7%)	14 (58.3)	10 (41.7)
Single	179(61.1%)	114(38.9)	87 (29.7)	206 (70.3)
$\chi 2$	4.696		8.382	
p-value	0.030*		0.004*	
Residence				
Southern Nigeria	176 (61.8%)	109 (38.2)	89 (31.2%)	196 (68.8)
Northern Nigeria	23 (71.9%)	9 (28.1%)	12 (37.5%)	20 (62.5)
$\chi 2$	1.261		0.521	
p-value	0.261		0.470	
Steady Family income				
Yes	91 (74.6%)	31 (25.4)	54 (44.3%)	68 (55.7%)
No	108 (55.4%)	87(44.6)	47 (24.1%)	148 (75.9%)
$\chi 2$	11.846		14.049	
p-value	0.001*		0.000*	
Leaving home				
≤5 times	133 (61.0%)	85 (39.0)	58 (26.6%)	160 (73.4%)
> 5 times	66 (66.7%)	33 (33.3)	43 (43.4%)	56 (56.6%)
$\chi 2$	0.933		8.881	
p-value	0.334		0.003*	
Afraid of my future				
Agree	185 (62.1%)	113 (37.9)	89 (29.9%)	209 (70.1%)
Disagree	14 (73.7%)	5(26.3%)	12 (63.2%)	7 (36.8%)
$\chi 2$	1.029		9.119	
p-value	0.310		0.003*	
Lost interest				
Agree	98 (56.0%)	77(44.0)	39 (22.3%)	136 (77.7%)
Disagree	101(71.1%)	41(28.9)	62 (43.7%)	80 (56.3%)
$\chi 2$	7.676		16.500	
p-value	0.006*		0.000*	
Contemplating dropping out of school				
Agree	47 (51.6%)	44(48.4)	17 (18.7%)	74 (81.3%)
Disagree	152(67.3%)	74(32.7)	84 (37.2%)	142 (62.8%)
$\chi 2$	6.764		10.213	
p-value	0.009*		0.001*	
Do you see any positive about the strike?				
Yes	79 (67.5%)	38(32.5)	50(42.7%)	67 (57.3%)
No	120(60.0%)	80(40.0)	51(25.5%)	149(74.5%)
$\chi 2$	1.787		10.100	
p-value	0.181		0.001*	
Frequency of exercise				
< 3 days/week	161(61.7%)	100(38.3)	87(33.3%)	174(66.7%)
> 3 days/week	38(67.9%)	18(32.1)	14(25.0%)	42 (75.0%)
$\chi 2$	0.751		1.475	
p-value	0.386		0.225	
Place of exercise				
Exercise at home	112(66.7%)	56(33.3)	57(33.9%)	111(66.1%)
Exercise out of home	87(58.4%)	62(41.6)	44(29.5%)	105(70.5%)
$\chi 2$	2.315		0.704	
p-value	0.128		0.402	
Hours spent watching television				
≤ 3 hours daily	162(64.5%)	89 (35.5)	85(33.9%)	166(66.1%)
> 3 hours daily	37 (56.1%)	29 (43.9)	16(24.2%)	50 (75.8%)
$\chi 2$	1.609		2.229	
p-value	0.205		0.135	
Living condition				
Living alone	44 (60.3%)	29 (39.7)	23(31.5%)	50 (68.5%)
Living with family	155(63.5%)	89 (36.5)	78(32.0%)	166(68.0%)
$\chi 2$	0.254		0.005	
p-value	0.614		0.941	
Do you know any student that died during the strike?				
Yes	79 (61.7%)	49 (38.3)	23(18.0%)	105(82.0%)
No	120(63.5%)	69 (36.5)	78(41.3%)	111(58.7%)
$\chi 2$	0.103		19.086	
p-value	0.749		0.000*	

*= p- value < 0.05, level of significance for Chi-square test

The variable that added significance to the model were student category (OR =3.545, 95% CI= 1.260-9.976, p = 0.017), Family income (OR = 0.518, 95% CI= 0.285-0.942, p = 0.031), leaving home (OR =

2.182, 95% CI= 1.199-3.973, p = 0.011), lost interest in my studies (OR = 2.407, 95% CI= 1.267-4.575, p = 0.007) and frequency of exercise (OR = 0.419 95% CI= 0.186-0.944, p = 0.036). The odds of developing anxiety were 3.545 times, higher among students who were undergraduate than postgraduate, students who answered yes to steady family income had 0.518 times less likelihood of developing anxiety. Additionally, students who leave their homes ≤5 times/week had a 2.182 times higher likelihood of anxiety than those who leave home > 5 times/week, and students who agree that they have lost interest in their studies had a 2.407 times higher likelihood of anxiety than those who disagree. The odds of having anxiety was 0.419 times less among students whose frequency of exercise was <3 days/week than those whose frequency of exercise was >3 days/week. All other variables were not significant p > 0.05 see Table 3.

Table 3. The predictors of anxiety and depression among students during the strike

Variables	OR	95% CI for OR		p-value
		lower	upper	
	Anxiety			
Gender	1.088	0.595	1.991	0.783
Age (years)	0.989	0.887	1.103	0.840
Age category	1.370	0.398	4.717	0.618
Student category	3.545	1.260	9.976	**0.017***
Type of university	0.850	0.401	1.803	0.672
Marital status	1.169	0.275	4.972	0.832
Residence	0.818	0.296	2.262	0.699
Steady Family income	0.518	0.285	0.942	**0.031***
Leaving home	2.182	1.199	3.973	**0.011***
Afraid of my future	1.091	0.324	3.674	0.888
Lost interest	2.407	1.267	4.575	**0.007***
Contemplating dropping out of school	1.319	0.607	2.870	0.484
Do you see any positive about the strike	0.575	0.315	1.049	0.071
Frequency of exercise (Days)	0.419	0.186	0.944	**0.036***
Duration exercise (minutes)	0.995	0.989	1.001	0.123
Place of exercise	0.762	0.419	1.385	0.372
Hours spent watching television (hours)	0.828	0.380	1.806	0.635
Living condition	0.992	0.478	2.062	0.984
Do you know any student that died during the strike	1.786	0.630	5.063	0.275
If yes, how many?	1.394	0.882	2.204	0.154
	Depression			
Gender	1.012	0.592	1.729	0.966
Age (years)	0.969	0.873	1.077	0.563
Age category	0.529	0.177	1.579	0.254
Student category	2.153	0.756	6.134	0.151
Type of university	1.563	0.814	3.001	0.180
Marital status	0.596	0.140	2.530	0.483
Residence	1.492	0.596	3.739	0.393
Steady Family income	0.501	0.291	0.864	**0.013***
Leaving home	1.206	0.692	2.103	0.509
Afraid of my future	0.949	0.290	3.104	0.931
Lost interest	1.688	0.950	2.998	0.074
Contemplating dropping out of school	1.312	0.714	2.410	0.382
Do you see any positive about the strike	1.022	0.590	1.769	0.938
Frequency of exercise	1.431	0.729	2.809	0.298
Duration exercise	1.001	0.996	1.007	0.595
Place of exercise	0.779	0.464	1.307	0.345
Hours spent watching television	0.775	0.419	1.434	0.417
Living condition	0.982	0.523	1.845	0.955
Do you know any student that died during the strike	1.058	0.519	2.157	0.876
If yes, how many	0.922	0.725	1.173	0.511

*= p- value < 0.05, level of significance for Logistic Regression

For depression, the model was significant X^2 (20) = 34.22, p = 0.025. The model was able to explain 14% (Nagelkereke R^2) of the variance in depression. The Hosmer-Lemeshow test showed a non-significant Chi-square with p = 0.586, indicating that the data fit well with the model. The model correctly classifies 65.9% of cases. Additionally, 33.1% of the subjects who had a likelihood of developing major depression were predicted by the model to have a likelihood of major depression (Sensitivity), and 85.4% of the subjects with no likelihood of major depression were correctly predicted by the model to have no depression (specificity). Additionally, of cases predicted as having a likelihood of major depression 57.35% were correctly predicted (positive predictive value) and the negative predictive value was 68.27% meaning that of all cases predicted as not having a likelihood of major depression 68.27% were correctly predicted. The variable that added significance to the model was steady family income (OR =0.501, 95% CI= 0.291-0.864, p = 0.013), lost interest in my studies was nearly but not a significant predictor of depression (OR =1.688, 95% CI= 0.950-2.998, p = 0.074). The odds of having a likelihood of major depression were 1.688 times greater in those who agree that they have lost interest in their studies than those who disagree, while those who answered yes to steady family income had 0.501 times less likelihood of developing major depression.

DISCUSSION

This study aimed to determine the physical, socioeconomic, and psychological impact of the ASUU strike on university students at public universities in Nigeria. Therefore, we determine the associating and predicting factors of anxiety and depression among university students following the disruption of academic activities by strike embarked by university workers in public universities in Nigeria. This report is currently lacking in the literature since they are not fully explored. Psychological distress is experienced to be heightened among students during health distress and we hypothesized that this distress would worsen when student's academic activities are being truncated by strikes embarked by teachers. Probing to explore the physical and psychological impact of strikes especially among students may offer possible ways to avert it. The prevalence of anxiety among the students was 68.8% while that of depression was 37.2%, therefore the students were more anxious than depressed. The prevalence of psychological distress among students in this study was therefore higher than that reported in a similar study among students in Nigeria, Brazil, India, and Ethiopia.[13-18] The subject characteristics that were significantly associated with depression were student category, marital status, family income, lost interest in my studies, and contemplating dropping out of school. Undergraduate students showed an increased level of depression than postgraduate, while students who were married were less likely to be depressive than those who were single. Students who had a steady family were less likely to be depressive than those with none. Students who agreed that they have lost interest in their studies or were contemplating dropping out of school were more likely to be depressed than those who disagreed. As regards anxiety, their significant associating characteristics were age, student category, marital status, family income, leaving home, being afraid of my future, lost interest in my studies, contemplating dropping out of school, seeing anything positive about the strike, and knowing a student that died during the strike. Similarly, undergraduate students had a higher level of anxiety than postgraduate while married students were less likely to be anxious than those who were single. Students with a steady family income were less likely to be anxious than those with none while students who leave home less often had an increased level of anxiety than those who leave home more often per week. Accordingly, Students who agree that they were afraid of the future of their education, that they have lost interest in their studies, and that they were contemplating dropping out of school had a higher level of anxiety than those who disagree. However, students who saw something positive about the strike were less likely to be anxious than those who do not, while those who know a student that died during the strike had a higher level of anxiety than those who do not. Similarly, a study conducted among Malaysian university students during the COVID-19 lockdown reported that students with a low family income had higher levels of both anxiety and depression than those with a high family income.[23] However, there was no significant association between anxiety and depression with gender or physical activity level. This finding was inconsistent with a similar study conducted among university student in Northern Italian Bangladesh, and Malaysia which found that the likelihood of developing anxiety and depression were higher in females than males[31,23] and that increase physical activity may be protective against

depression.[32]

In this study, the significant predictors of anxiety were student category, family income, leaving home, loss of interest in my studies, and frequency of exercise. However, family income was the only significant predictor of depression, although lost interest in my studies was nearly but not a significant predictor of depression. Among the stressors of the strike, lack of a steady family income was an outstanding stressor and it may be implicated that students that lost interest in their studies or were afraid of the future of their education, reduced frequency of leaving home, and contemplating dropping out of school. Similar findings were seen during the health distress caused by the COVID pandemic where financial lack stood out as a major stressor and kept students disturbed about how they were going to complete their studies.[33] The disruption of academic activities where students were made to stay at home away from learned course content for a long time and the negative news about the death of a colleague may be implicated in the poor mental health of the students during this strike. Our implication for worsening psychological distress is similar to that of Libert et al. where an abrupt interruption in studies was implicated for the worsening existing mental health as a result of exposure to negative COVID-related information with resultant unsettled accumulated thoughts.[34]

In this study frequency of exercise was a significant predictor of anxiety, where students who exercise less often had less anxiety than those who exercise frequently. This finding was consistent with the report of Mir et al., who found the likelihood of anxiety to be less among inactive than active students.[23] However, the duration of exercise was not a significant predictor of anxiety or depression. This finding may be because the duration, type, and intensity of exercise may elicit different effects on the mental health of individuals.[35] However, the optimal benefit of exercise in alleviating psychological distress is peaked at durations of 30–60 minutes and decline and even worsen at a duration exceeding 3 hours.[35] Contrarily, a lack of exercise aggravates preexisting anxiety and depression to domestic violence sexual violation, substance abuse, and crimes.[36-37] A lifestyle of frequent exercise requires self-disciple, it is also uncultured by many and habitual.[12] Most of this study subject exercised in the comfort of their homes than out of their home and may have been exercised for a longer duration than expected during the strike. It was previously unknown where most Nigerians exercise especially during the COVID pandemic lockdown[13], however, our studies showed that most student tends to exercise at their home.

Additionally, students who leave home ≤5 times/week had higher anxiety than those who leave home > 5 times/week, however students who leave home more often were less than those with a lesser frequency of leaving home. This finding is consistent with a similar study among university students in Malaysia which found that a higher frequency of leaving home results in a positive effect on the psychological states of students during the lockdown.[23] Frequent leaving home make people more sociable, which stimulate freedom and meeting with and making new friends which breeds positive thinking and excitement among student with a result of positive effect on mental health.[23] We therefore recommend that to reduce psychological distress during strikes parents should encourage their children to leave home more often by enrolling them in different skill acquisition programs like tailoring, computer training, and driving school. This would help to protect and strengthen the mental health of students during strikes. The Government may also protect the mental health of the students by honouring agreements reached with the striking workers to prevent the occurrence of strike.

Limitations of this study

This study has provided empirical evidence on the impact of the incessant strikes by identifying the possible associating and predicting factors of mental health among students. This evidence may be implemented as an intervention on preexisting mental health challenges among students through, helpful measures, health education, and promotions for those at risk of developing mental health.

The limitation of this study includes the use of a cross-sectional design and non-probability sampling which may challenge the generalization of results and may impede finding a causal relationship between the characteristics and the psychological state of the student. The direct comparison of the findings of this study with previous studies should be done cautiously. For example, why we determined the level of PA by assessing the frequency in days/week and duration of exercise in minutes/day, previous studies only classify their subjects into active and inactive. Additionally, other studies classified the family income of their subject into low and high while we dichotomized the family income into yes or no. The duration of exercise was

only estimates and may be less or more than reported values and students who showed a likelihood of depression would have been further assessed using PHQ-9, but this was not done. However, this study provided insight into the impact of incessant strikes on the psychological state of university students in Nigeria.

CONCLUSION

Generally, Anxiety and depression were both associated with steady family income, lost interest in my studies, and contemplating dropping out of school, student category, and marital status. Similarly, the significant predictor of anxiety and depression was steady family income. Leaving home, lost interest in my studies, and frequency of exercise also predicted anxiety. Students who exercised less often had less anxiety than those who exercise frequently. Students with a steady family income were less likely to be depressive and anxious than those with none. We therefore recommend that to reduce psychological distress during strikes parents should encourage their children to leave home more often by enrolling them in different skill acquisition programs like tailoring, computer training, and driving schools. The government should enhance the student's income by providing student bursaries, loans, and financial scholarship programs for students. Therefore, financial support and timely intervention strategies through participation in regular exercise may be useful in preventing and managing any pre-existing mental health among students.

ACKNOWLEDGMENTS

We acknowledge Prof Adewale Luqman Oyeyemi and Prof. AY Oyeyemi for their useful suggestion and guidance**.**

Disclosure statement: The authors have no conflict of interest associated with this manuscript

Author contributions: PAE conceived the idea to conduct this study and executed the data analysis. All authors (FAD, IDW, PAA, and PAE) participated in data collection, writing, and preparing manuscripts and have read and approved the publication of this Manuscript.

Conflict of interests: There is no conflict of interest associated with this manuscript.

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