Research Paper

Anxiety, Depression, and Their Related Factors Among Parents/Guardians of Students Affected by Nigerian University Staff Strikes

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ABSTRACT

Background and Purpose: In literature, the psychological states of students' parents/guardians have been neglected when assessing the negative effects of university strikes. This study aims to determine the anxiety and depression among parents/guardians of students during the university staff strike in Nigeria and identify the determinant factors and predictors.

Materials and Methods: This cross-sectional study was conducted on 214 healthy adults (parent/guardians of students) aged 22-73 years during the university staff strike in 2022 in Nigeria. Their psychological states, and socio-demographic/economic characteristics were evaluated using a structured questionnaire, the general anxiety disorder 7-item scale, and the patient health questionnaire 2-item. Data were analyzed using descriptive statistics, logistic regression analysis, and the Pearson correlation test. The significant level was set at 0.05.

Results: Most of the participants were in mid-late adulthood (78%) and female (57%). The prevalence of anxiety and depression was 62.1% and 27.6%, respectively. Gender (P=0.052), level of education (P=0.001), frequency of leaving home per week (P=0.048), and number of children in the university (P=0.001) were significantly associated with anxiety. Depression was significantly associated with the level of education (P=0.019), steady family income (P=0.016), and type of exercise (P=0.059). The level of education (OR=4.185, 95% CI, 1.531%, 11.436%, P=0.005) and number of children in the university (OR=0.340, 95% CI, 0.157%, 0.735%, P=0.006) could significantly predict anxiety, while knowing a worker/student who died during the strike (OR=2.018, 95% CI, 1.01%, 4.033%, P=0.047) predicted depression.

Conclusion: The university staff strikes in Nigeria pose a major threat to the psychological health of students' parents/guardians. A high level of education, male gender, less frequency of leaving home, and more number of children in the university are related to increased anxiety in parents/guardians. Also, a low level of education, a steady family income and engagement in aerobic exercise are related to decreased depression. We recommend parents to regularly engage in aerobic exercise, and jobs should be provided to them during strikes to boost their family income.

Keywords: General anxiety, Depression, Employee strike, Universities, Parents, Students

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Introduction

Strike action is gradually becoming a norm in Nigerian public universities. Although strike actions may be a potent means of revitalizing public universities, the distress caused to the beneficiaries is enormous [1]. Since the first industrial action in 1981, about 24 strike actions have been embarked upon by the Academic Staff Union of Universities (ASUU) [1-2]. The academic community and the general population have lost approximately 29 years and 7 months due to strike actions [2]. The ASUU is a trade union founded in 1978, an offshoot of the Nigerian Association of Teachers (NAT) [1]. The union is responsible for ensuring conducive work and learning conditions in public universities of Nigeria [2].

The sole funding source for public universities in Nigeria is the education budget given by the federal government [2]. The low budget allocation for education (8.4%) and other inconsistencies in the dealings of the federal government and the cohort of academic staff have led to a need to devise the method of incessant and indefinite strike actions, which not only negatively affect students' future and enthusiasm towards knowledge acquisition but also causes distress to their parents and guardians [1]. Staying at home for a long or unpredictable duration during a strike is a source of worry for the parents and guardians of students since it incurs extra expenses for the families. Furthermore, there is a burden of extended parental sponsorship until graduation from the university [3]. Extra off-campus accommodation fees also have to be settled to retain the student accommodation occupancy rate even during the strike. Uncertainties about students' future have compelled their parents to send them to private or foreign institutions despite the outrageous financial conditions [2, 4].

The prevalence of psychological distress has been reported among the parents of college students during the COVID-19 pandemic, and three stressors have been identified including worrying about the food supply for children, worrying about children's future, and worrying about children's mental health [5]. There is scant research on the psychological distress of parents and guardians of students caused by incessant strike actions. Psychological distress is seen to be heightened in pandemic and epidemic situations. For example, there was an increased rate of anxiety, fear, poor sleep, depression [6, 7], and suicide [8, 9] during the COVID-19 pandemic. Psychological distress, including stress, anxiety, and depression, are common psychological disorders in the world and have a role in increasing morbidity and mortality rates [10-12]. Psychological distress also has a negative effect on the level of physical activity (PA) [13]. A sedentary lifestyle has a devastating effect on the function of body systems, such as the cardiovascular system [14-18]. The U.S. Department of Health and Human Service (HHS) [19] has recommended that all adults should engage in moderate PA for at least 30 minutes daily or vigorous PA for at least 15 minutes, 5 days a week. However, evidence has shown that, during health crises such as COVID-19, many people cannot comply with the recommendation for PA [20].

There is a lack of study on how the psychological distress caused by the ASUU strike affected the PA of parents whose children's academic progress was stalled. Prevalence of psychological distress and other consequences of the ASUU strike action have been reported in faculty staff and students of public institutions in Nigeria [2-4, 21, 22]. There is a dearth of evidence on the impact of ASUU strike actions on the parents and guardians of college students. A comprehensive study in this field is necessary. In this regard, this study aims to determine the predictors of anxiety and depression among parents/guardians of children whose academic progress was stalled by the ASUU strike actions. The results of this study can help in developing targeted psychological and physical interventions for parents and guardians of students at risk for psychological disorders in Nigeria.

Material and Methods

Study design and participants

This cross-sectional survey recruited both male and female adults aged 22-73 years (mean age=44.023±11.274) using a non-probability sampling technique during the ASUU staff strike in 2022 in Nigeria. The sample size was determined based on a previous study by Ewah et al. [20] who recruited 205 subjects during the COVID pandemic. In our study, 214 people were recruited who were the parent/guardians of children from the ASUU. Those who can read and write in English, the active users of social media such as Facebook, WhatsApp, LinkedIn, Telegram or Messenger, and those residing in Nigeria during the data collection period were included in the study. Those who had a disease that could affect their memory, having children studying in private universities, or those in diaspora were excluded. A detailed explanation of the study methods can be found in our previous studies [22, 23].

Data collection

A structured questionnaire was used using to collect information including age, sex, marital status, occupation, place of residence, level of education, family income, frequency of leaving home, having worry about the children's education, the trust in Nigeria public university education, tendency to send the children to study abroad or in private universities, positive attitude towards the university strike, frequency/duration/type/place of exercise, history of death among university lecturers/students amid strike, hours spent watching TV, living arrangement, and number of children studying in the university. The structured questionnaire was a modified version of a previously used questionnaire called the physical and socio-economic psychological distress questionnaire (PASDQ) [23] designed for workers participating in industrial action. The internal consistency of the questionnaire was confirmed with a Cronbach's α of 0.67-0.93. The test re-test reliability was determined by testing the scale on 28 people (aged 19-53 years) at a 7-day interval and calculating the intraclass correlation coefficient (ICC) which was in a range of 0.26-0.88.

The anxiety was assessed using the generalized anxiety disorder 7-item (GAD-7) scale with a Cronbach's α of 0.911. The items are rated on a four-point Likert scale from 0 (not at all) to 3 (almost every day) and the total score ranges from 0 to 21; a score of ≤4 show no anxiety while a score of >4 shows severe anxiety [24].

Depression was assessed using the patient health questionnaire (PHQ-2; sensitivity=12.3-90.6; specificity=65.4-99.8, and positive predictive value=36.9-92.9). The two items of this self-administered questionnaire are rated from 0 (not at all) to 3 (nearly every day) [25]. The total score ranges from 0 to 6. A score of 3 is the optimal cut-point; if the score is ≥3, it shows the risk of greater major depressive disorder and the need for further screening by the 9-item PHQ [25].

We used both face-to-face and online methods to collect data. In the online method, the questionnaires were distributed using social media platforms. In the face-to-face survey, printed questionnaires were used. Before data collection, an ethical approval was obtained from the Human Research Ethics Committee of the University of Medical Sciences (UNIMED), Ondo State, Nigeria. The subjects were informed about the study objectives and their informed consent to participate was obtained. They were informed that their participation was voluntary and their information would be kept confidential. The subjects were informed that the findings of the study would be made available for them but no gift, pledge or reward was offered to them.

Data analysis

The collected data was entered into Microsoft Office Excel and were cleansed and coded to make them readable by SPSS software, version 23, which was used for the analysis. The data were described using descriptive statistics (frequency, percentage, Mean±SD). The normality of data distribution was examined by the Kolmogorov–Smirnov test and non-normal data were transformed to log 10. The related factors and predictors of anxiety and depression were investigated using Pearson's correlation test and Logistic regression analysis, respectively. P<0.05 was considered statistically significant.

Results

Most of the participants were in mid-late adulthood (75.2%), and the rest were in early adulthood (24.8%). Most of them were female (57%) than male (43%); married/divorced-widowed (83.6%) than single (16.4%); workers in the non-governmental sector (55.1%) than in the government sector (44.9%); residing in Southern Nigeria (92.5%) than Northern Nigeria (7.5%); and with tertiary education (79.9%) than primary/secondary education (20.1%). The majority had steady family income (62.1%), were afraid of their children's education (90.2%), had lost trust in Nigeria's public education (84.1%), and would prefer their children to study abroad or in a private university (92.5%). Moreover, the majority perceived the strike as "not positive" (60.7%), had exercise <3 days/week (79%), had aerobic exercises (76.6%), had exercise outdoor (64%), and spent ≤3 hours daily watching TV (86%). The majority also were living with family members (90.7%), had <2 children in the university (69.2%), and believed that, to solve the strike in the future, the government should respect their previous agreement with the strikers (56.1%). The prevalence of anxiety and depression among the subjects was 62.1% and 27.6%, respectively (Table 1).

Factors associated with depression and anxiety during the strike

The results of the Pearson correlation test for the factors associated with anxiety and depression are presented in Table 2. Gender (χ^2=3.773, P=0.052), level of education (χ^2=10.645, P=0.001), frequency of leaving home per week (χ^2=3.92, P=0.048), and number of children in the university (χ^2=11.231, P=0.001) were significantly associated with anxiety. The parents/guardians who were males were more anxious (69.6%) than females (56.6%). Those with primary/secondary education were more anxious (83.7%) than those with tertiary educa-

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Table 1. Sociodemographic characteristics of participants (n=214)

Characteristics		No. (%)
Gender	Male	92(43)
	Female	122(57)
Age (y)	Early adulthood (18-35)	53(24.8)
	Middle/late adulthood (≥36)	161(75.2)
Marital status	Married/divorced/widowed	179(83.6)
	Single	35(16.4)
Occupation	Worker in the government sector	96(44.9)
	Worker in the private sector	118(55.1)
Place of residence	Southern Nigerian	198(92.5)
	Northern Nigerian	16(7.5)
Level of education	Primary/secondary education	43(20.1)
	Tertiary education	171(79.9)
Frequency of leaving home (times/week)	≤5	124(57.9)
	>5	90(42.1)
Steady family income	Yes	133(62.1)
	No	81(37.9)
Worry about the children's future	Agree	193(90.2)
	Degree	21(9.8)
Lost trust in Nigerian public education	Agree	180(84.1)
	Disagree	34(15.9)
Tendency to send the child to study abroad/ other institutions	Agree	198(92.5)
	Disagree	16(7.5)
Positive attitude towards the strike	Yes	84(39.3)
	No	130(60.7)
Frequency of exercise (days/week)	<3	169(79)
	>3	45(21)
Type of exercise	Aerobic	164(76.6)
	Anaerobic	50(23.4)
Place of exercise	Indoor	77(36)
	Outdoor	137(64)

Characteristics		No. (%)
Hours spent watching TV (per day)	≥3	184(86)
	>3	30(14)
Living arrangement	Living alone	20(9.3)
	Living with family members	194(90.7)
Knowing any student/worker who died during the strike	Yes	78(36.4)
	No	136(63.6)
Number of children in the university	<2	148(69.2)
	2-5	66(30.8)
How to curb the future strikes	Government should respect agreements	120(56.1)
	Salary increments for academic staff	28(13.1)
	Revitalization of universities	24(11.2)
	Increase of budget for education	35(16.4)
	Use of a university-friendly platform to pay lecturers	7(3.3)
GAD score	≤4 (no anxiety)	81(37.9)
	>4 (anxiety)	133(62.1)
PHQ-2 score	Less than the optimal cutoff point (No depression)	155(72.4)
	3 or higher (risk of major depressive disorder)	59(27.6)

tion (56.7%). Those who left home ≤5 times/week were more anxious (67.7%) than those left home >5 times/week (54.4%). Those with <2 children studying in the university had less anxiety (54.7%) than those with 2-5 children (78.8%).

Depression was significantly associated with educational level (χ^2=5.503, P=0.019), steady family income (χ^2=5.849, P=0.016), and type of exercise (χ^2=3.554, P=0.059). The parents/guardians with primary/secondary education had higher depression (41.9%) than those with tertiary education (24%). Those with a steady family income had lower depression (21.8%) than those with no steady income (37%). Those engaged in aerobic exercises had lower depression (24.4%) than those engaged in anaerobic exercises (38%).

Predictors of depression and anxiety during the strike

The predictors of anxiety and depression were determined using the logistic regression analysis. For the anxiety, the model was significant (χ^2=37.46, P=0.015). Based on the Nagelkerke R^2, the model was able to explain 21.9% of the variance in anxiety, and a non-significant chi-square with a P>0.05 indicated that the data fit well to the model and correctly classified 70.56% of the case. The variables that added significance to the model were educational level (odds ratio [OR]=4.185, 95% CI, 1.531%, 11.436%, P=0.005) and number of children in the university (OR=0.34, 95% CI, 0.157%, 0.735%, P=0.006). The likelihood of developing anxiety was 4.185 higher among the parents/guardians with primary/secondary education than among those with tertiary education. Also, those who had <2 children in the university affected by the strike were 0.34 times less likely to develop anxiety than those with 2-5 children in the university (Table 3).

The model for depression was not significant (χ^2=26.49, P=0.188). Based on the Nagelkerke R^2, the model could explain 16.8% of the variance in depression, and a non-significant chi-square with P>0.05 indicated that the data fit well to the model and correctly classified 78.04%

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Table 2. Prevalence of depression and anxiety based on sociodemographic characteristics

Variables		No. (%)			
		Depression		Anxiety	
		No	Yes	No	Yes
Gender	Male	65(70.7)	27(29.3)	28(30.4)	64(69.6)
	Female	90(73.8)	32(26.2)	53(43.4)	69(56.6)
	χ^2	0.255		3.773	
	P	0.613		0.052*	
Age (y)	18-35	39(73.6)	14(26.4)	20(37.7)	33(62.3)
	≥36	116(72)	45(28)	61(37.9)	100(62.1)
	χ^2	0.047		0	
	P	0.828		0.984	
Marital status	Married/divorces/widowed	130(72.6)	49(27.4)	70(39.1)	109(60.9)
	Single	25(71.4)	10(28.6)	11(31.4)	24(68.6)
	χ^2	0.021		0.734	
	P	0.885		0.392	
Occupation	Worker in the government sector	68(70.8)	28(29.2)	35(36.5)	61(63.5)
	Worker in the private sector	87(73.7)	31(26.3)	46(39)	72(61)
	χ^2	0.222		0.143	
	P	0.637		0.705	
Place of residence	Southern Nigeria	146(73.7)	52(26.3)	74(37.4)	124(62.6)
	Northern Nigeria	9(56.3)	7(43.8)	7(43.8)	9(56.3)
	χ^2	2.267		0.256	
	P	0.132		0.613	
Level of education	Primary/secondary education	25(58.1)	18(41.9)	7(16.3)	36(83.7)
	Tertiary education	130(76)	41(24)	74(43.3)	97(56.7)
	χ^2	5.503		10.645	
	P	0.019*		0.001*	
Steady family income	Yes	104(78.2)	29(21.8)	52(39.1)	81(60.9)
	No	51(63)	30(37)	29(35.8)	52(64.2)
	χ^2	5.849		0.232	
	P	0.016*		0.63	

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Variables		No. (%)			
		Depression		Anxiety	
		No	Yes	No	Yes
Frequency of leaving home (times/week)	≤5	87(70.2)	37(29.8)	40(32.3)	84(67.7)
	>5	68(75.6)	22(24.4)	41(45.6)	49(54.4)
	χ^2	0.76		3.92	
	P	0.383		0.048*	
Worry about the children's future	Agree	142(73.6)	51(26.4)	76(39.4)	117(60.6)
	Disagree	13(61.9)	8(38.1)	5(23.8)	16(76.2)
	χ^2	1.292		1.951	
	P	0.256		0.162	
Lost trust in Nigerian public education	Agree	128(71.1)	52(28.9)	69(38.3)	111(61.7)
	Disagree	27(79.4)	7(20.6)	12(35.3)	22(64.7)
	χ^2	0.987		0.112	
	P	0.321		0.738	
Tendency to send the child to study abroad/ other institutions	Agree	144(72.7)	54(27.3)	78(39.4)	120(60.6)
	Disagree	11(68.8)	5(31.3)	3(18.8)	13(81.3)
	χ^2	0.117		2.682	
	P	0.732		0.101	
Positive attitude towards the strike	Yes	61(72.6)	23(27.4)	32(38.1)	52(61.9)
	No	94(72.3)	36(27.7)	49(37.7)	81(62.3)
	χ^2	0.002		0.004	
	P	0.96		0.953	
Frequency of exercise	<3 days/week	124(73.4)	45(26.6)	62(36.7)	107(63.3)
	>3 days/week	31(68.9)	14(31.1)	19(42.2)	26(57.8)
	χ^2	0.358		0.463	
	P	0.55		0.496	
Type of exercise	Aerobic	124(75.6)	40(24.4)	65(39.6)	99(60.4)
	Anaerobic	31(62)	19(38)	16(32)	34(68)
	χ^2	3.554		0.949	
	P	0.059		0.33	
Place of exercise	Indoor	52(67.5)	25(32.5)	27(35.1)	50(64.9)
	Outdoor	103(75.2)	34(24.8)	54(39.4)	83(60.6)
	χ^2	1.445		0.397	
	P	0.229		0.529	

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Variables		No. (%)			
		Depression		Anxiety	
		No	Yes	No	Yes
Hours spent watching TV (per day)	≤3	131(71.2)	53(28.8)	68(37)	116(63)
	>3	24(80)	6(20)	13(43.3)	17(56.7)
	χ^2	1.001		0.446	
	P	0.317		0.504	
Living arrangement	Living alone	14(70)	6(30)	7(35)	13(65)
	Living with family	141(72.7)	53(27.3)	74(38.1)	120(61.9)
	χ^2	0.065		0.076	
	P	0.798		0.783	
Knowing any student/ worker who died during the strike	Yes	51(65.4)	27(34.6)	24(30.8)	54(69.2)
	No	104(76.5)	32(23.5)	57(41.9)	79(58.1)
	χ^2	3.051		2.616	
	P	0.081		0.106	
Number of children in the university	<2	112(75.7)	36(24.3)	67(45.3)	81(54.7)
	2-5	43(65.2)	23(34.8)	14(21.2)	52(78.8)
	χ^2	2.532		11.231	
	P	0.112		0.001*	

*Significance based on the chi-square test (P<0.05).

of the case. The only variable that added significance to the model was "knowing a worker/student who died during the strike". The likelihood of having depression was 2.018 higher among those who knew a worker or student who died during the strike than those with no such knowledge (Table 3).

Discussion

Strikes by the university staff often disrupt the academic progress of students. For example, during strikes, the lecturers withhold their teaching, depriving students of learned courses and making them spend extra years to finish their courses. The parents/guardians of these students suffer from extra sponsorship costs even during the striking period. The burden of sponsorship from the time of admission to graduation is heavy [3]. Strikes contribute to this burden due to causing extra off-campus accommodation fees which have to be paid by their parents even during strikes. This results in concerns among parents about the future of their children's education and many parents may be forced to send them to study in strike-free institutions, even though it is expensive [2, 4]. Other studies also reported during the COVID-19 pandemic, parents had worry about their children's food supply, future, and mental health [5]. Previous studies has explored the impact of strikes on the psychological state of students and the academic staff [2, 4, 23], but not on the psychological state of parents and guardians whose children's academic progress is stalled by strikes. The current study, therefore, explored the related factors and predictors of anxiety and depression in parents/guardians whose children's education was disrupted by the ASUU strike in Nigeria. Additionally, we determined the prevalence of anxiety and depression in them and surveyed their perspectives on how to solve the strikes in the future. The prevalence of anxiety and depression in parents/guardians was 62.1% and 27.6%, respectively. Hence, they were more anxious than being depressed. This is consistent with the results of a similar study among students and lecturers during a university strike [22].

Table 3. Predictors of anxiety and depression in parents/guardians

	Variables	OR	95% CI		P
			Lower Bound	Upper Bound	
Anxiety	Gender	1.799	0.885	3.656	0.105
	Age (y)	0.988	0.948	1.029	0.558
	Age (category)	1.346	0.47	3.856	0.58
	Marital status	0.893	0.319	2.497	0.829
	Occupation	1.138	0.578	2.243	0.708
	Place of residence	1.419	0.435	4.622	0.562
	Level of education	4.185	1.531	11.436	0.005*
	Steady family income	1.297	0.645	2.608	0.465
	Frequency of leaving home	1.448	0.751	2.789	0.269
	Worry about the children's future	0.455	0.106	1.956	0.29
	Lost trust in public education	1.422	0.463	4.373	0.539
	Tendency to send the child to study abroad/private institutions	0.356	0.074	1.711	0.197
	Positive attitude towards the strike	0.832	0.43	1.608	0.584
	Frequency of exercise (d)	1.441	0.634	3.276	0.383
	Duration exercise (m)	1.001	0.99	1.012	0.873
	Type of exercise	0.823	0.373	1.816	0.63
	Place of exercise	1.438	0.726	2.849	0.297
	Hours spent watching TV	1.062	0.431	2.615	0.896
	Living arrangements	1.284	0.428	3.856	0.656
	Knowing a worker/student who died during the strike	1.571	0.806	3.059	0.184
	Number of children in the university	0.34	0.157	0.735	0.006*
Depression	Gender	1.126	0.535	2.373	0.754
	Age (y)	1.009	0.968	1.052	0.673
	Age (category)	1.306	0.417	4.089	0.647
	Marital status	1.539	0.503	4.704	0.45
	Occupation	1.272	0.615	2.632	0.517
	Place of residence	0.377	0.12	1.183	0.095
	Level of education	1.921	0.792	4.659	0.149
	Steady family income	0.563	0.276	1.152	0.116
	Frequency of leaving home	1.021	0.497	2.097	0.955

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Variables	OR	95% CI		P
		Lower Bound	Upper Bound	
Worry about the children's future	0.28	0.066	1.193	0.085
Lost trust in public education	3.386	0.771	14.877	0.106
Tendency to send the child to study abroad/private institutions	0.537	0.127	2.276	0.399
Positive attitude towards the strike	0.991	0.49	2.004	0.98
Frequency of exercise (d)	0.807	0.351	1.856	0.614
Duration exercise (m)	0.996	0.985	1.007	0.484
Type of exercise	0.645	0.29	1.436	0.283
Place of exercise	1.215	0.6	2.463	0.589
Hours spent watching TV	1.371	0.477	3.941	0.558
Living arrangements	1.483	0.473	4.651	0.499
Knowing a worker/student who died during the strike	2.018	1.01	4.033	0.047*
Number of children in the university	0.782	0.371	1.648	0.519

(The left margin of the table is labelled vertically: Depression)

OR: Odds ratio.

*Significance based on the logistic regression analysis (P<0.05).

The factors associated with parents/guardians' anxiety were gender, educational level, frequency of leaving home per week, and number of children in the university. Fathers/male guardians were more anxious than mothers/female guardians, and those with primary/secondary education were more anxious than those with tertiary education. Also, those who rarely left home per week were more anxious than those with a higher frequency of leaving home, and those who had fewer children in the university had less anxiety than those with higher number of children.

The factors associated with parents/guardians' depression were educational level, steady family income, and type of exercise. Those with primary/secondary education had higher level of depression than those with tertiary education. Also, those with a steady family income had lower depression than who with no steady income. Regarding family income, the results are consistent with the results of a study that reported that lecturers and students with a steady family income were less depressed than those with no steady income [22]. The parents/guardians who engaged in aerobic exercises had lower depression than those engaged in anaerobic exercises. A plethora of studies have shown the health-enhancing benefits of regular engagement in PA/aerobic exercise and the relationship between PA and

psychological distress. For example, Mizrahi et al. [13] showed that psychological distress negatively affected the PA level. Engaging in PA ameliorates existing mental health problems such as depression and anxiety [26].

The significant predictors of parents/guardians' anxiety were educational level and number of children in the university. The risk of developing anxiety was higher in those with primary/secondary education than in those with tertiary education, and those with less than two children in the university were less likely to have anxiety than those with two or more children. A similar study on students identified that academic degree, family income level, leaving home, loss of interest in study, and frequency of exercise were significant predictors of anxiety [27].

The significant predictor of depression in parents/guardians was the knowledge of a worker/student who died during the strike. The risk of developing depression was higher among those who knew a university worker or student who died during the strike. This finding is consistent with a similar study which reported that the students who knew a student who died during the strike were more depressed than those who did not know [27].

Conclusion

University staff strikes pose a major threat to the psychological health of the parents/guardians of students. A high level of education, male gender, less frequency of leaving home, and more number of children in the university are related to increased anxiety in parents/guardians. Also, a low level of education, a steady family income and engagement in aerobic exercise are related to decreased depression. We recommend parents to regularly engage in aerobic exercise, and jobs should be provided to them during strikes to boost their family income.

Strength and limitations of the study

This study provided evidence on the impact of the university staff strikes in Nigeria on causing depression and anxiety among parents and guardians of students whose education progress was disrupted by the strike. However, the use of a non-probability sampling method and a cross-sectional design may impede finding a causal correlation between depression/anxiety and their related factors in parents/guardians. In addition, generalizing the findings to the parents/guardians of college students in other countries should be done with caution. Also, we estimated the PA level and the time spent sitting in participants, which might be higher or lower than the reported value. Moreover, the parents/guardians with depression were not further assessed by the 9-item PHQ.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Human Research Ethics Committee of the University of Medical Sciences (UNIMED), Ondo State, Nigeria. Informed consent to participate in the study was obtained from all parents.

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Authors contributions

Conceptualization and data analysis: Patrick Ayi Ewah; Data collection, writing, and final approval: All authors.

Conflict of interest

The authors declared no conflict of interest.

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