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Influence of Pharmacy Curriculum on mental health of students in Nigeria: The Learners' perspectives

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ABSTRACT

Background: There is growing evidence suggesting that pharmacy students face multiple stressors, including academic overload, that may be at odds with mental well-being. This study aimed to evaluate the influence of pharmacy curriculum design and delivery on the mental health of undergraduate students, and their coping strategies.
Methods: This study was a cross sectional survey using a validated 35-item self-administered questionnaire. Pharmacy undergraduate students of a public University were purposively selected for this study. Seven questions assessed the participants' socio-demographics, while eight questions on a Likert scale evaluated the components within the pharmacy curriculum that may affect students' mental health. A-14 item pre-validated Warwick–Edinburgh Mental Wellbeing Scale (WEMWBS) was used to assess the mental well-being of the participants, while the remaining six questions assessed the participants' coping mechanisms to stress.
Results: Of the 211 participants, 106 (50.2%) were males, 183(86.7%) strongly agreed and agreed that the workload of pharmacy school can affect students' mental health. Overall, the participants had a mental well-being mean score of 45.27±11.33 on WEMWBS scale. The participants (50; 23.7%, $p<0.001$) had always resorted to taking alcohol or substances to make them feel better.
Conclusion: The pharmacy curriculum in Nigeria may affect students' mental health. The workloads do not favor the mental well-being of students. Many participants chose alcohol or substances as a coping strategy for academic stress.

Introduction

The mental health of students in pharmacy schools has become a critical area of concern in recent years. There is growing evidence suggesting that pharmacy students face many challenges including academic culture, curriculum overload and pressure to succeed, which negatively impact on their learning experience, and at odds with their mental well-being[1,2]. The World Health Organization (WHO) conceptualizes mental health as a "state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community[3]". Mental health is not just the absence of mental ailment but also encompasses an individual's ability to achieve their capacity, cope with stress, be maximally productive, and contribute meaningfully to society[4].

In many countries, including Nigeria studies indicate a rising prevalence of mental challenges, including depression, stress, self-harm and suicides among pharmacy students[5-8]. Mental well-being not only impact on education but also has social and economic consequences[8]. Although many factors contribute to the mental well-being of undergraduate students, school curriculum seems to be a significant part of it[5,9,10]. The rigorous and highly demanding nature of the pharmacy school curriculum, characterized by

academic workload, extensive and challenging coursework, prolonged lecture periods, and a lack of leisure time, has been reported as the most documented cause of stress among pharmacy students, which in turn affects their overall well-being[6,9].

Studies indicate that pharmacy students globally have adopted various coping mechanisms including spending time with family and friends, drinking alcohol, and praying and maintaining control over the situation[11,12]. Adaptive strategies such as active coping, acceptance, planning, effective time management, regular exercise, meditation and emotional eating have been frequently reported as common stress coping strategies among students[13,14].

The pharmacy curriculum in Nigeria has been continually reviewed over the years to incorporate emerging knowledge, new methods of offering professional services, and changing societal needs[15]. Approximately 90% of these courses require practical training. Various assessment methods, including continuous assessments and end-of-semester exams, are integrated for accurate evaluation. The minimum pass mark for any coursework is 50, and a minimum CGPA of 2.5/5.0 is required for graduation[16]. Understanding the influence of curriculum on the mental well-being of pharmacy students is vital, not only for optimization of the learning process and improving their academic performance. It can-also assist education policy-makers, faculty and administrators to design and implement support systems that alleviate stress and promote mental well-being of students[10,17]. In Nigeria, there is a dearth of studies about the influence of undergraduate pharmacy curriculum on the mental health of students. This study aimed to evaluate the influence of pharmacy curriculum design and delivery on the mental health of undergraduate students, and their coping strategies.

Methods

Study design and setting

This study was a cross-sectional survey using a validated 35-item self-administered questionnaire among undergraduate pharmacy students of Olabisi Onabanjo University (OOU), Sagamu Campus, Ogun State, southwest Nigeria, between 17th February and 29th June 2024. The University is a public university owned by the Ogun State government. The University was the first state-owned institution to offer pharmacy in Nigeria. Pharmacy students in the University usually have their pre-professional study (100 level) at the main campus of the University located at Ago-iwoye before proceeding to the Pharmacy school at Sagamu for their professional training. The teaching hospital of the University is within the same vicinity as the School of Pharmacy.

Study population/eligibility criteria

The study was carried out among purposively sampled pharmacy students in their professional years of study for the B. Pharm degree (200-500 level). Eligible participants who had not returned from SIWESS (Students Industrial Work Scheme), on leave of absence and those who were not available in school at the time of data collection were excluded.

Questionnaire design and validation

The validated 35-item questionnaire was designed after a thorough review of similar studies[5,9,10]. The paper-based questionnaire was sectioned into four parts. Section A consists of seven sociodemographic questions, including age, sex and religion while section B consists of eight questions on a Likert scale which was used to evaluate factors within the pharmacy curriculum that may affect students' mental health. Section C assessed the mental health and well-being of students using a pre-validated Warwick–Edinburgh Mental Well-being Scale (WEMWBS)[18]. The WEMWBS is a 14-item scale covering subjective well-being and psychological functioning to address aspects of positive mental health. Section D, consisting of six questions assessed the coping mechanisms of pharmacy students to stress. A few questions from the Cope questionnaire were adapted in this study[19]. The questionnaire was content-validated by two experts in clinical pharmacy with at least 15years of clinical practice and teaching. The pretest was carried out among 38 students in a neighboring pharmacy school in Lagos State. The feedback was used to rephrase three questions which were found to be ambiguous. The questionnaire comprising sections A and B was assessed for reliability using the Cronbach Alpha test which gave a value of 0.82. The validated questionnaire was administered to the participants in their classes during their free periods and was collected immediately after completing their responses.

Sample size estimation

At the time of this study, 374 students were enrolled at the study site (pharmacy, OOU). The Yamane formula was used to determine the sample size[20]. Using the enrolled

number of 374 and assuming a 50% response distribution, a 5% margin of error and a 95% confidence level, the minimum sample size was estimated to be 190. With the addition of 10% for potential non-response rate, the maximum estimated sample size was calculated to be 209.

Data management and analysis

The data was initially entered into the Microsoft Excel® and manually cleaned, double-checked for entry errors and was exported to and analyzed with the Statistical Product and Service Solutions (SPSS version 25 (IBM, Corp.)®. The data were primarily analyzed using descriptive statistics including frequency and percentage. Kruskal-Wallis test was used to determine the differences in participants' responses for questions on the Likert scales. The results from the WEMWBS scores were interpreted. All the 14 items are positively worded with "none of the time" allocated 1 and "all of the time" =5. The total mental wellbeing scores were estimated from a minimum of 14 to a maximum of 70 for each participant. The total mental well-being scores was classified into three groups, high (61–70) levels, medium (43–60) and low (14–42) [21,22]. Multivariate regression analysis was carried out to determine the association between mental scores and the participants' views of the curriculum. $P<0.05$ was considered significant.

Ethical consideration

The Ethics Committee of Olabisi Onabanjo University Teaching Hospital, Sagamu, granted approval for the study under registration number OOUTH/HREC/775/2024AP. Permission of the class leader was sought and granted before the commencement of the study. The participants signed an informed consent form, which was attached to the questionnaire.

Results

Sociodemographic of the participants

Table 1 shows the sociodemographic characteristics of the participants. Of the 250 questionnaires administered, only 211 (84.4%) were properly completed and found usable. Among the 211 participants, 106 (50.2%) were males and 206 (97.6%) were single.

Table1: The demographic characteristics of participants

Variable	Group	Frequency	Percentage
Age			
	16-20	102	48.3
	21-25 years	90	42.7
	26-30 years	14	6.6
	31-35 years	2	0.9
	36-40 years	3	1.4
Gender			
	Male	106	50.2
	Female	105	49.8
Religion			
	Christianity	140	66.3
	Islam	60	28.4
	Others	11	5.2
Marital status			
	Single	206	97.6
	Married	5	2.4
Disability			
	Yes	1	0.4
	No	210	99.5

Source of educational funding			
	Self-sponsored	69	32.7
	Part-sponsorship	96	45.5
	Full sponsorship	46	21.8
Level in School	200	56	26.5
	300	51	24.2
	400	43	20.4
	500	61	28.9

The participants' perceptions of the pharmacy curriculum

Table 2 shows participants' perceptions of curriculum components' effect on the mental health of students. The majority of the participants, 132(62.5%) strongly agreed that the workload of pharmacy school can affect students' mental health. There was a significant difference in opinion among the participants regarding the statement that the curriculum adequately addresses mental health (83; 39.3%; $p<0.001$).

Table 2: The participants' perceptions of pharmacy curriculum and mental health

Variable	200L N (%)	300L N (%)	400L N (%)	500L N (%)	Total N (%)	Kruskal-Wallis p- value
The workload of pharmacy school can affect students' mental health						
Strongly agree	56(26.5)	16(7.6)	15(7.1)	45(21.3)	132(62.6)	
Agree	0(0.0)	35(16.6)	12(5.7)	4(1.9)	51(24.2)	
Neutral	0(0.0)	0(0.0)	10(4.7)	4(1.9)	14(6.6)	0.001
Disagree	0(0.0)	0(0.0)	3(1.4)	4(1.9)	7(3.3)	
Strongly disagree	0(0.0)	0(0.0)	3(1.4)	4(1.9)	7(3.3)	
The year allotted for training is not adequate compared to the workload of pharmacy school						
Strongly agree	52(24.6)	0(0.0)	16(7.6)	42(19.9)	110(52.1)	
Agree	4(1.9)	48(22.7)	0(0.0)	19(9.0)	71(33.6)	
Neutral	0(0.0)	3(1.4)	5(2.4)	0(0.0)	8(3.8)	0.393
Disagree	0(0.0)	0(0.0)	18(8.5)	0(0.0)	18(8.5)	
Strongly disagree	0(0.0)	0(0.0)	4(1.9)	0(0.0)	4(1.9)	
The coursework materials are too bulky						
Strongly agree	13(6.2)	0(0.0)	15(7.1)	30(14.2)	58(27.5)	
Agree	43(20.4)	18(8.5)	0(0.0)	31(14.7)	92(43.6)	
Neutral	0(0.0)	33(15.6)	6(2.8)	0(0.0)	39(18.5)	<0.001
Disagree	0(0.0)	0(0.0)	17(8.1)	0(0.0)	17(8.1)	
Strongly disagree	0(0.0)	0(0.0)	5(2.4)	0(0.0)	5(2.4)	
The coursework materials are irrelevant to the field of study						
Strongly agree	0(0.0)	0(0.0)	11(5.2)	0(0.0)	11(5.2)	
Agree	10(4.7)	0(0.0)	4(1.9)	0(0.0)	14(6.6)	
Neutral	23(10.9)	0(0.0)	0(0.0)	28(13.3)	51(24.2)	<0.001
Disagree	23(10.9)	40(19.0)	6(2.8)	19(9.0)	88(41.7)	
Strongly disagree	0(0.0)	11(5.2)	22(10.4)	14(6.6)	47(22.3)	

The curriculum adequately addresses mental health						
Strongly agree	0(0.0)	0(0.0)	14(6.6)	4(1.9)	18(8.5)	
Agree	11(5.2)	0(0.0)	1(0.5)	16(7.6)	28(13.3)	
Neutral	16(7.6)	0(0.0)	0(0.0)	4(1.9)	20(9.5)	<0.001
Disagree	29(13.7)	39(18.5)	0(0.0)	15(7.1)	83(39.3)	
Strongly disagree	0(0.0)	12(5.7)	28(13.3)	22(10.4)	62(29.4)	
The mode of lecture delivery favors the mental health of students						
Strongly agree	0(0.0)	0(0.0)	9(4.3)	0(0.0)	9(4.3)	
Agree	11(5.2)	0(0.0)	6(2.8)	5(2.4)	22(10.4)	
Neutral	39(18.5)	0(0.0)	0(0.0)	21(10.0)	60(28.4)	<0.001
Disagree	6(2.8)	37(17.5)	0(0.0)	25(11.8)	68(32.2)	
Strongly disagree	0(0.0)	14(6.6)	28(13.3)	10(4.7)	52(24.6)	
There is no balance between theory-based learning and practical experiences in the curriculum						
Strongly agree	11(5.2)	0 (0.0)	17(8.1)	33(15.6)	61(28.9)	
Agree	33(15.6)	0(0.0)	0(0.0)	17(8.1)	50(23.7)	
Neutral	12(5.7)	32(15.2)	0(0.0)	11(5.2)	55(26.1)	<0.001
Disagree	0(0.0)	19(9.0)	15(7.1)	0(0.0)	34(16.1)	
Strongly disagree	0(0.0)	0(0.0)	11(5.2)	0(0.0)	11(5.2)	
The curriculum allows for extra-curricular activities that can improve student mental health						
Strongly agree	0(0.0)	0(0.0)	11(5.2)	0(0.0)	11(5.2)	
Agree	11(5.2)	0(0.0)	4(1.9)	3(1.4)	18(8.5)	
Neutral	20(9.5)	0(0.0)	0(0.0)	12(5.7)	32(15.2)	<0.001
Disagree	25(11.8)	32(15.2)	3(1.4)	18(8.5)	78(37.0)	
Strongly disagree	0(0.0)	19(9.0)	25(11.8)	28(13.3)	72(34.1)	

Assessment of mental well-being of participants

Table 3 presents the assessment of mental health well-being of the participants. Many of the participants 35(16.6%), rarely feel good about themselves while 69(32.7%) often feel interested in new things.

Table 3: The participants' perceptions of their mental wellbeing

Variable	None of the time n(%)	Rarely n(%)	Some of the times n(%)	Often n(%)	All of the time n(%)
I have been feeling optimistic about the future	3(1.4)	9(4.3)	47(22.3)	65(30.8)	87(41.2)
I have been feeling useful	9(4.3)	22(10.4)	56(26.5)	62(29.4)	62(29.4)
I have been feeling relaxed	24(11.4)	41(19.4)	72(34.1)	45(21.3)	29(13.7)
I have been feeling interested in other people	13(6.2)	66(31.3)	77(36.5)	36(17.1)	19(9.0)
I have had energy to spare	37(17.5)	65(30.8)	69(32.7)	33(15.6)	7(3.3)
I have been dealing with problems well	15(7.1)	40(19.0)	73(34.6)	63(29.9)	20(9.5)
I have been thinking clearly	20(9.5)	40(19.0)	89(42.2)	43(20.4)	19(9.0)
I have been feeling good about myself	5(2.4)	35(16.6)	82(38.9)	62(29.4)	27(12.8)
I have been feeling close toother people	13(6.2)	57(27.0)	65(30.8)	44(20.9)	32(15.2)
I have been feeling confident	20(9.5)	35(16.6)	70(33.2)	56(26.5)	30(14.2)
I have been ableto make up my own mind about things	16(7.6)	30(14.2)	59(28)	73(34.6)	33(15.6)
I have been feeling loved	16(7.6)	37(17.5)	62(29.4)	69(32.7)	27(12.8)
I have been interested in new things	16(7.6)	37(17.5)	62(29.4)	69(32.7)	27(12.8)
I have been feeling cheerful	24(11.4)	16(7.6)	85(40.3)	49(23.2)	37(17.5)

Overall assessment of participants mental wellbeing

Table 4 presents the overall assessment of mental health and well-being of the participants. Overall, the participants had a mental well-being mean score (±SD) of 45.27 (±11.33), with 126 (59.7%) participants having a medium well-being, while 62(29.4%) had low well-being.

Table 4: The mental wellbeing of participants based on level of study

Class	Level	Frequency	Percentage
200	Low (14-42)	26	46.4
	Medium(43-60)	30	53.6
	High (61-70)	0	0.00
300	Low (14-42)	0	0.00
	Medium(43-60)	36	70.6
	High (61-70)	15	29.4
400	Low (14-42)	15	34.9
	Medium(43-60)	20	46.5
	High (61-70)	8	18.6
500	Low (14-42)	21	34.4
	Medium(43-60)	40	65.6
	High (61-70)	0	0.00

Coping mechanisms among the participants

Table 5 presents the coping mechanisms of participants to stress. About a quarter of the participants (50;23.7%, p<0.001) have always resorted to taking alcohol or substances to make them feel better while only 18 (8.5%; p<0.001) claimed to have been concentrating their efforts on addressing the challenges they are facing.

Table 5: The coping mechanisms to stress among the participants

Variable	200L	300L	400L	500L	Total	Kruskal-Walis p-value
I have been seeking refuge in work or other pursuits to distract myself						
Never	22(10.4)	0(0.0)	17(8.1)	20(9.5)	59(28.0)	
Rarely	0(0.0)	20(9.5)	26(12.3)	15(7.1)	61(28.9)	
Sometimes	4(1.9)	27(12.8)	0(0.0)	15(7.1)	46(21.8)	<0.001
Often	30(14.2)	4(1.9)	0(0.0)	11(5.2)	45(21.3)	
Always	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	
I have been actively working to improve the situation						
Never	30(14.2)	18(8.5)	12(5.7)	6(2.8)	66(31.3)	
Rarely	22(10.4)	2(0.9)	15(7.1)	23(10.9)	62(29.4)	
Sometimes	0(0.0)	0(0.0)	0(0.0)	19(9.0)	19(9.0)	<0.001
Often	4(1.9)	27(12.8)	2(0.9)	13(6.2)	46(21.8)	
Always	0(0.0)	4(1.9)	14(6.6)	0(0.0)	18(8.5)	

I have been resorting to alcohol or substances to make me feel better						
Never	52(24.6)	0(0.0)	31(14.7)	15(7.1)	98(46.4)	
Rarely	0(0.0)	14(6.6)	0(0.0)	0(0.0)	14(6.6)	
Sometimes	0(0.0)	6(2.8)	4(1.9)	18(8.5)	28(13.3)	<0.001
Often	4(1.9)	1(0.5)	3(1.4)	13(6.2)	21(10.0)	
Always	0(0.0)	30(14.2)	5(2.4)	15(7.1)	50(23.7)	
I have been seeking help and advice from people						
Never	30(14.2)	0(0.0)	20(9.5)	2(9.5)	52(24.6)	
Rarely	0(0.0)	0(0.0)	5(2.4)	0(0.0)	5(2.4)	
Sometimes	0(0.0)	7(3.3)	1(0.5)	18(8.5)	26(12.3)	<0.001
Often	4(1.9)	16(7.6)	6(2.8)	13(6.2)	39(18.5)	
Always	22(10.4)	28(13.3)	11(5.2)	28(13.3)	89(42.2)	
I have been saying to myself that the situation isn't real						
Never	33(15.6)	0(0.0)	33(15.6)	25(11.8)	91(43.1)	
Rarely	14(6.6)	0(0.0)	0(0.0)	7(3.3)	21(10.0)	
Sometimes	9(4.3)	15(7.1)	0(0.0)	11(5.2)	35(16.6)	0.003
Often	0(0.0)	36(17.1)	5(2.4)	10(4.7)	51(24.2)	
Always	0(0.0)	0(0.0)	5(2.4)	8(3.8)	13(6.2)	
I have been concentrating my efforts on addressing the challenges I am facing						
Never	30(14.2)	18(8.5)	12(5.7)	6(2.8)	66(31.3)	
Rarely	22(10.4)	2(0.9)	15(7.1)	23(10.9)	62(29.4)	
Sometimes	0(0.0)	0(0.0)	0(0.0)	19(9.0)	19(9.0)	<0.001
Often	4(1.9)	27(12.8)	2(0.9)	13(6.2)	46(21.8)	
Always	0(0.0)	4(1.9)	14(6.6)	0(0.0)	18(8.5)	

Multivariate regression analysis

Table 6 shows the association between respondents' perceptions of pharmacy curriculum and mental scores. The perceptions of respondents regarding the question, "There is no balance between theory-based learning and practical experiences in the curriculum" ($p<0.001$), as well as the question, "The curriculum adequately addresses mental health," were both significantly associated with their mental scores ($p<0.001$). The year allotted for training was not adequate compared to the workload of pharmacy school, and this was negatively associated with the mental well-being score ($\beta=-0.199$, $p=0.001$).

Table 6: Multivariate regression analysis

Variables	Standardized coefficient(B)	T	95% CI Lower bound-(Upper bound)	p-value
The workload of pharmacy school can affect student's mental health	-0.101	-2.187	-2.21-(-0.114)	0.03
The year allotted for training is not adequate compared to the workload of pharmacy school	-0.199	-3.232	-3.608- (-0.874)	0.001
The coursework materials are too bulky	0.058	0.819	-0.929- (2.247)	0.414
The coursework materials are irrelevant to the field of study	0.297	4.616	1.831- (4.562)	<0.001
The curriculum adequately addresses mental health	0.312	6.565	1.961- (3.649)	<0.001
The mode of lecture favors the mental health of students	0.125	1.909	-0.043- (2.631)	0.058
There is no balance between theory-based learning and practical experiences in the curriculum	0.283	4.393	1.459-(3.835)	<0.001
The curriculum allows for extra-curricular activities that can improve student mental health	0.175	2.533	0.387- (3.105)	0.012

Discussion

This study aimed to evaluate the influence of pharmacy curriculum design and delivery on the mental health and well-being of students in a Nigerian University and found that nearly two-thirds of the participants had a medium mental well-being. The majority of the participants strongly agreed and agreed that the workload of pharmacy school can affect students' mental health.

In this study, the majority of participants strongly agreed or agreed that the workload of pharmacy can affect students' mental health and that the 5-year allotted for training was not adequate compared to the workload of the pharmacy school curriculum. These views were further strengthened with the negative association between the participants' mental wellbeing score and these factors. These observations indicate that both the workload and training time can potentially affect the mental well-being of pharmacy students. The finding of this study corroborates the report of a similar study among pharmacy students in America[9]. It is important to note however that, the curriculum establishes a minimum of 15 weeks for lectures[23], the inconsistencies in the Nigerian education system especially, industrial actions by the University unions have not favored the implementation of this. Hence, the whole curriculum which should be spaced, is taught within shorter periods. There is a need for pharmacy schools to consistently abide by the time stipulations for training of students and avoid the "rush" to complete a semester, which is usually the case after any industrial action. The policy makers should strengthen their oversight functions to ensure pharmacy training comply with the duration and quality stipulated.

This study revealed that while the majority of the participants disagreed or strongly disagreed that the coursework materials are irrelevant to pharmacy, they, however appeared to concur that the mode of delivery did not favor the mental health of students. This finding underscores the significance of teaching methods in students' well-being and academic performance[15]. Previous studies have revealed that curricular designs that incorporate online coursework, prerecorded lectures, promote active in-class learning and reduce time spent in class, tend to improve students' well-being and examination scores[9,24]. The implication of this study finding is that Nigerian pharmacy schools need to move away from a complete dependence on didactic teaching to the use of modern teaching aids and techniques. The emphasis on physical attendance in classrooms needs to be reviewed.

Many of the participants in this study strongly agreed or agreed that there is no balance between theory-based learning and practical experience in the pharmacy curriculum. This view suggests that the B. Pharm curriculum in Nigeria is not well integrated. A similar observation had earlier been reported among students of pharmacy schools in Nigeria[15]. Curriculum integration helps to improve learning experience, decrease stress and can potentially influence mental health positively

A large proportion of the participants disagreed and strongly disagreed that the curriculum adequately addresses mental health. This finding corroborates an earlier study in Nigeria[25]. Many of the participants disagreed and strongly disagreed that the curriculum allows for extra-curricular activities that can improve student mental health. This points to a potential gap in the availability and accessibility of such activities. While the pharmacy curriculum in its current form does address some aspects of student well-being, there is a clear need for further improvements focusing on reducing the academic burden, providing adequate mental health support, and promoting a healthier balance between academic and personal life for pharmacy students.

The prevalence of mental well-being observed in this study (10.9%, 59.7% and 29.4%) for low, medium and high mental well-being respectively, is similar to (8.1%, 57% and 34.9%) reported among undergraduate pharmacy students in 14 different countries using the same instrument[10]. There were variations in the prevalence of mental well-being across the levels of study. This observation is consistent with the finding of a study among college students in the United States[26]. This variation may be due to the differences in academic requirements at different levels of pharmacy study[27]. Students in lower-level courses may experience stress linked to adapting to a new school environment, establishing new relationship and grasping new concepts in courses. Meanwhile, higher-level students are faced with stressors relating to more complicated assignments including research and dissertation work as well as post-graduation expectations[26]. However, while low mental wellbeing was observed across other levels of study, such was not reported among the 300-level students. This finding is unexpected and may need further research. This is because the class has the largest workload in the pharmacy curriculum. However, a study

among American students reported that increasing a workload may not necessarily affect students' performance and mental well-being[28]. However, it is postulated that the finding of this study may be because of the mental preparedness of the participants for the challenges of the level which is well known by pharmacy students in the school. This finding highlights the importance of individualizing any adaptation and support strategies to improve the mental well-being based on the needs and demands of students' educational programs.

In this study, the participants adopted various coping mechanisms. The coping mechanisms mentioned are categorized into problem-focused, emotion-focused and avoidant-coping mechanisms, according to brief Cope mechanism[19]. However, the majority appear to favor seeking help and advice from people which is a problem-focused coping mechanism to resolve their mental challenges. This preference may be because it is the most commonly available and culturally acceptable option in the Nigerian system.

Strength and Limitations of the study

This study may be the first in Nigeria that explored the various factors in the pharmacy curriculum that can affect the mental health of students. The study brought to the fore the variations in the mental well-being of students at different levels of pharmacy study and how various components of the curriculum affect each level differently. However, the study has limitations, including the study design. The cross-sectional design of the study only provides a snapshot of data at one point in time, limiting the ability to draw causal inferences. Additionally, the use of self-reported questionnaires could introduce bias, as responses may not always be accurate or reflective of true experiences. Since the study was conducted at a single institution, the findings may not be generalizable to other universities in Nigeria. The mental health assessment using the WEMWBS, while validated, may not capture specific mental health disorders that students might experience. The purposive sampling technique, a form of non-probability sampling, might further limit the representativeness of the sample. Lastly, there is a potential for response bias, because the participants in this study may differ significantly in characteristics from the general cohort, and this may potentially influence the findings.

Conclusion

This study concluded that the Bachelor of Pharmacy curriculum in Nigeria may affect students' mental health. The workload and the length of training based on the curriculum do not favor the mental well-being of students. The pharmacy curriculum appears not to be well integrated for a good learning experience. The participants tend to favor seeking help and advice from people to resolve their mental challenges. There is a need for pharmacy faculty to do more towards reducing the academic burden and promoting a healthier balance between academic and personal life for pharmacy students. The use of modern teaching aids and techniques should be incorporated into pharmacy education in Nigeria while the compulsion of physical attendance in classrooms by students for some courses should be de-emphasised. Mental health support services should be provided in pharmacy schools.

Conflict of Interest: none

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