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Exploring burnout in medical education: a mixed-method study among university of Ibadan medical students

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Abstract

Background Burnout is a pervasive issue among medical students, with implications for their mental health, academic performance, and future careers in healthcare. Medical students face unique stressors, including heavy academic workload, emotional demands and insufficient support, which may contribute to burnout. In Nigeria, where medical students also grapple with socioeconomic challenges, the prevalence and causes of burnout remain underexplored. This study aims to investigate the prevalence of burnout, its contributing factors, and the role of support systems among medical students at the University of Ibadan, Nigeria.

Method A mixed-methods approach was employed, combining both quantitative and qualitative data. The study involved 355 medical students from the University of Ibadan, spanning second to sixth years, who completed a self-administered online survey. The quantitative component assessed burnout using the Oldenburg Burnout Inventory for Students (OLBI-S) and social support using the Multidimensional Scale of Perceived Social Support (MSPSS). The qualitative component consisted of a focus group discussion (FGD) with 11 participants, exploring their perceptions of burnout, coping mechanisms, institutional support and factors contributing to burnout. Data from both components were triangulated for comprehensive analysis.

Results The survey found that 81.1% of participants were classified as experiencing burnout, with high academic workload and lack of breaks as the primary contributing factors. Female students (91.7%, $p < 0.001$) and those in advanced years (600 level, $p = 0.004$) reported significantly higher levels of burnout. While 59.2% of students reported strong social support, particularly from family, only 3.9% had ever utilised the College's counselling services, highlighting a gap in institutional support. The FGD revealed that students rely heavily on peer support, family, social events and religious gatherings to cope with burnout. However, dissatisfaction with the College's counselling services was prevalent, as they were seen as ineffective and underutilised.

Conclusion The high prevalence of burnout among medical students at the University of Ibadan underscores the need for systemic reforms in medical education. Key recommendations include more frequent academic breaks, improved infrastructure and enhanced institutional support services. Efforts to address burnout should focus on

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fostering a more supportive academic environment. These findings are crucial for developing interventions aimed at improving the mental health and well-being of medical students in Nigeria and similar contexts.

Keywords Burnout, Social support, Institutional support, Oldenburg, Mental health, University of Ibadan

Introduction

Medical students form the bulk of the country's future healthcare workforce [1]; hence their mental health is an issue of great significance. With the growing evidence supporting the increased prevalence of burnout, it warrants urgent attention and intervention as they have implications for their professionalism, academic outcomes and overall health [2, 3]. In Nigeria, this situation is particularly dire as medical students, who apart from the pressures of medical education have to grapple with worsening socioeconomic situations [4].

Despite the significant progress that has been made, medical education in Nigeria is not immune to the general problems of undergraduate training plaguing the country. Notable among these are poor funding, high lecturer/student ratios, poor facilities and inadequate accommodation, among others [5]. Other emerging issues peculiar to medical education include the need for regular curriculum review, adoption of simulation and training of physician-scientists, providing an opportunity to obtain multiple certifications within the same span of years [6].

Amidst these issues, increased attention is being given to the mental health of medical students while in medical school. Multiple studies have shown negative trends in the mental well-being and burnout among medical students [7–10]. Burnout is a syndrome resulting from long-term exposure to occupational stress, expressed as feelings of exhaustion, negativism towards one's job, and a diminished sense of accomplishment/ efficiency [11].

Medical students experience significant stress during their training in medical school [12, 13]. At the point of admission, most students are in their late adolescence/ early adulthood with little experience outside of their homes, which increases susceptibility to mental health challenges [8]. A study presented comparative data showing an increase of mental health diagnosis from 1.8% before admission into medical school to 5.7% while in medical school [8]. It could be debated, however, that the reason for the higher rates of diagnosis could be a better access to professional services in the clinical settings where medical students are being trained.

A study on burnout among medical students in Kathmandu reported a prevalence of 66% [3]. Another study done in Nigeria found that 85% and 77% of respondents met criteria for disengagement and exhaustion domains of the Oldenburg Burnout Inventory respectively [8]. A systematic review of studies across countries showed an overall prevalence of 37.23% [14].

Burnout among medical students is expected to get worse at higher levels of training, coupled with the challenges of an evolving health care system, and thus demands careful monitoring [7, 10, 12]. In the clinical years, students have numerous lectures, clerkships and long hours of ward rounds which contributes to increased stress levels [7]. In contrast, a study conducted among third and fourth-year medical students showed that clinical workload and other associated peculiarities may not be contributory to burnout [15]. An important consideration for this disparity would be the drivers of burnout in different geographical contexts.

The factors causing burnout include study, relationships, financial challenge, negative attitude of trainers, academic workload, extensive stay in school, insufficient time for recreation, physical demand/stress [7, 8, 16]. Burnout has also been linked to negative outcomes such as decreased academic performance, increased absenteeism, sleep deprivation, thoughts of dropping out of school, decreased empathy, cheating/dishonest behaviours, substance use, medical errors, suicidal ideations and depression [7, 12, 14, 17].

Despite limited research on burnout among medical students in Nigeria, no studies have specifically investigated the factors driving burnout or offered recommendations to enhance the well-being of these students. This single-center study addresses this gap by employing both quantitative and qualitative methods to comprehensively investigate the prevalence of burnout, the availability of institutional support, the key drivers of burnout, and providing actionable recommendations to improve the well-being of medical students at the University of Ibadan.

Methods/design

Study Site and Location: This study was carried out among undergraduate students enrolled in the MBBS degree programme in the College of Medicine, University of Ibadan, Nigeria. The undergraduate MBBS degree programme in the College of Medicine is a six-year programme divided into three phases namely: preliminary, preclinical and clinical. The preliminary comprises of two semesters of basic science courses; the preclinical comprises of three semesters of basic medical sciences in anatomy, physiology and biochemistry; and the clinical comprises of seven semesters of basic clinical and full clinical courses. The preliminary and preclinical students are domiciled in the main University of Ibadan campus while the clinical students are domiciled in the College of

Medicine which is located in the premises of the University College Hospital, Ibadan.

Study Design: The study adopted a mixed-method approach with the aim of gaining an in-depth knowledge on the subject matter.

Sampling Technique and Sample Size: This study utilised a convenience sampling method while ensuring adequate representation across the surveyed classes. The sample size was determined using Slovin's formula for finite populations: $(n = N/(1 + Ne^2)$ where 'n' is the calculated sample size, 'N' is the population size and 'e' is the margin of error. Given a population size of 900 and margin of error of 0.05, the sample size for this study is 277. Therefore, a minimum of 277 students will be recruited to participate in this study.

Participants and procedure: Participants comprise of medical students from second year to final year. First year (preliminary) students were excluded as they are not officially recognised as students of the College until promotion into preclinical school. The quantitative section used a self-administered online survey, which was shared across to all students from the second year to final year. The questionnaire collected sociodemographic data, burnout level using the Oldenburg Burnout Inventory Adapted for Students (OLBI-S), social support using the Multidimensional Scale of Perceived Social Support (MSPSS), institutional support and an open-ended question to assess the factors engendering burnout. The OLBI-S has been used in a study among medical students in Kathmandu [3] while the MSPSS has been used in a study among stroke survivors in Hong Kong [18]. The qualitative component of the study involved a focus group discussion (FGD) with eleven participants, who were randomly selected from students across 2nd to 6th year classes that had participated in the study, ensuring a diverse representation from various academic levels. Only one FGD session was conducted, as information saturation was reached during this session. FGD questions involved discussion on perception of the prevalence of burnout among medical students in the University of Ibadan, perception of support and institutional resources available to help students cope with burnout, factors contributing to burnout and recommendations to improve the well-being of students and in creating a more supportive and sustainable learning environment. Participants were assured of their confidentiality and were encouraged to be exhaustive with their points after which informed consent was taken. The FGD was sequential as each question was discussed exhaustively before moving to the next. A high-quality recording device was used in recording the FGD session. The moderators of the FGD, who were part of the researchers, are knowledgeable in conducting FGD. The FGD session was conducted in December 2023 and lasted approximately 100 min.

Study duration: Data was collected over the course of four weeks, between November and December 2023.

Data Analysis: The quantitative data was exported to IBM SPSS version 26 for analysis. Descriptive statistics such as percentages, mean and standard deviation were used to summarise sociodemographic variables into tables. Inferential statistics were also conducted at a 5% level of significance. Reliability analysis was performed to assess the internal consistency of the OLBI-S using Cronbach's alpha, which was found to be 0.809. The OLBI-S consists of two subscales: exhaustion and depersonalisation, with each subscale containing 8 items (4 positively worded and 4 negatively worded statements). The responses were recorded on a Likert scale ranging from 1 (strongly agree) to 4 (strongly disagree). For the eight negatively worded statements on both subscales, responses were reversed (i.e., 1 became 4, 2 became 3, 3 became 2, and 4 became 1). The OLBI-S was used to categorise respondents into four burnout categories: non-burnout (neither exhausted nor disengaged), disengaged only, exhausted only, and burnout (both disengaged and exhausted), using a cut-off score of ≥ 2.25 for exhaustion and ≥ 2.1 for disengagement [19]. The MSPSS was used to measure individual perceptions of support from family, friends, and a significant other. This scale consists of 12 questions, with four questions dedicated to each support category. The responses were recorded on a seven-point Likert scale ranging from 1 (very strongly disagree) to 7 (very strongly agree). A mean score between 1 and 2.9 was considered as low support, 3 to 5 as moderate support, and 5.1 to 7 as high support. Frequencies and percentages were generated for institutional support. Open-ended questions on factors contributing to burnout were grouped into themes, with separate categories for preclinical and clinical students. The FGD was manually coded by two independent researchers on the team, and discrepancies in coding were resolved through discussion. Thematic analysis followed Braun and Clarke's six-step framework [20]. The qualitative data from the FGD was triangulated with the quantitative results to provide a more comprehensive understanding of the burnout experience among medical students.

Result

The sociodemographic characteristics of participants have been presented in Table 1. A total of 355 students completed the online survey. There were more male than females (ratio 1.45:1). The mean age of participants was 22 ± 2.44 with 51.8% of participants in the age range of 18 to 22 years and 44.2% in the age range of 23 to 27 years. The highest proportion of participants came from the 200 and 500 level classes with 82 (23.1%) and 88 (24.8%) responses respectively while 300 level class has 64 (18.0%), 400 level class has 69 (19.4%) and 600 level class

Table 1 Sociodemographic characteristics

Sociodemographic variable		Frequency	%
Age	18–22	184	51.8
Mean(SD): 22.63(2.44)	23–27	157	44.2
	28–32	13	3.7
	> 32	1	0.3
Sex	Male	210	59.2
	Female	145	40.8
Level	200	82	23.1
	300	64	18.0
	400	69	19.4
	500	88	24.8
	600	52	14.6
Religion	NA	2	0.6
	Islam	49	13.8
	Christianity	304	85.6
Accommodation	Outside	41	11.5
	Inside	314	88.5
Diagnosed of Mental Health	No	344	96.9
	Yes	11	3.1
On Medication for Mental Health Condition	No	350	98.6
	Yes	5	1.4
Working in paid position outside medical school	No	290	81.7
	Yes	65	18.3
Engagement in extracurricular activities	Slightly	123	34.6
	Moderate	126	35.5
	Very	106	29.9

Table 2 Burnout categories

		Frequency	%
CATEGORISATION	NON-BURNOUT	22	6.2
	DISENGAGED	26	7.3
	EXHUASTED	19	5.4
	BURNOUT	288	81.1

has 52 (14.6%) of the total response. Most participants identified with the Christianity religion (85.6%, 304). Most participants reside in the accommodation provided by the school management (ratio 7.66:1). 11 students (3.1%) reported a history of mental health diagnosis while 5 (1.4%) reported to be currently on medication for a mental health condition. 65 participants representing 18.3% were working on a paid position in combination with medical school activities. On extracurricular engagement, data shows that 29% (106) are very engaged in extracurricular activities, 35.5% (126) are moderately engaged in extracurricular activities and 34.6% (123) are slightly engaged in extracurricular activities.

Measurement of burnout

The disengagement subscale of the OLBI-S has a mean of 2.456 ± 0.776 while the exhaustion subscale has a mean of 2.643 ± 0.776. Also, the mean total score under the disengagement subscale was 19.651 ± 2.198 while the exhaustion subscale has a mean total score of 21.146 ± 2.196. As summarised in Tables 2 and 288 participants (81.1%) fell under the burnout category, 19 (5.4%) under disengaged category, 26 (7.3%) under exhausted category and 22 (6.2%) under the non-burnout category. Also, the detailed distribution of responses to the OLBI-S items is presented in Table 3.

Perceived social support

Table 4 shows that a majority (59.2%) of students reported high levels of perceived social support, with family being the most prominent source (68.2%). Friends and significant others were also notable sources of support, with 53.2% and 44.2%, respectively, reporting high levels of support from these groups.

Awareness, utilisation and satisfaction with the college of medicine support service

Regarding institutional support, only 59.7% of participants were aware of the College of Medicine's counselling unit. However, utilisation of the service was low, with

Table 3 Distribution of participants response to OLBI-S

Positively worded questions	**Strongly Agree *n* (%)**	**Agree *n* (%)**	**Disagree *n* (%)**	**Strongly Disagree *n* (%)**	**SUM ± SD**
I always find new and interesting aspects in my studies **D**	43 (12.1)	246 (69.3)	58 (16.3)	8 (2.3)	2.087 ± 0.6067
I can tolerate the pressure of my studies very well **E**	26(7.3)	214(60.3)	98(27.6)	17(4.8)	2.298 ± 0.6730
I find my studies to be a positive challenge **D**	40(11.3)	235(66.2)	68(19.2)	12(3.4)	2.146 ± 0.6474
After a class or after studying, I have enough energy for my leisure activities **E**	15(4.2)	131(36.9)	160(45.1)	49(13.8)	2.685 ± 0.7603
This is the only field of study that I can imagine myself doing **D**	43(12.1)	104(29.3)	143(40.3)	65(18.3)	2.647 ± 0.9159
I can usually manage my study related workload well **E**	23(6.5)	210(59.2)	109(30.7)	13(3.7)	2.315 ± 0.6840
I feel more and more engaged in my studies **D**	17(4.8)	178(50.1)	140(39.4)	20(5.6)	2.459 ± 0.6768
When I study, I usually feel energised **E**	15(4.2)	126(35.5)	175(49.3)	39(11.0)	2.670 ± 0.7257
Negatively worded questions	**Strongly Agree n (%)**	**Agree n (%)**	**Disagree n (%)**	**Strongly Disagree n (%)**	**SUM ± SD**
There are days when I feel tired before I arrive at school **E**	130(36.6)	189(53.2)	29(8.2)	7(2.0)	3.245 ± 0.6841
It happens more and more often that I talk about my studies in a negative way **D**	30(8.5)	113(31.8)	183(51.5)	29(8.2)	2.406 ± 0.7583
After a class or after studying, I tend to need more time than in the past to relax and feel better **E**	58(16.3)	178(50.1)	107(30.1)	12(3.4)	2.794 ± 0.7478
Lately, I tend to think less about my academic tasks and do them almost mechanically **D**	30(8.5)	145(40.8)	152(42.8)	28(7.9)	2.499 ± 0.7605
While studying, I often feel emotionally drained **E**	27(7.6)	121(34.1)	172(48.5)	35(9.9)	2.394 ± 0.7680
Over time, one can become disconnected from this type of study **D**	58(16.3)	216(60.8)	65(18.3)	16(4.5)	2.890 ± 0.7184
Sometimes I feel sickened by my studies **D**	26(7.3)	169(47.6)	122(34.4)	38(10.7)	2.515 ± 0.7823
After a class or after studying, I usually feel worn out and weary **E**	48(13.5)	182(51.3)	111(31.3)	14(3.9)	2.743 ± 0.7358

Table 4 Perceived level of social support

Category		**Frequency**	**%**
Total	Low support	19	5.4
	Medium support	126	35.5
	High support	210	59.2
Family	Low support	14	3.9
	Medium support	99	27.9
	High support	242	68.2
Friends	Low support	17	4.8
	Medium support	149	42
	High support	189	53.2
Significant other	Low support	42	11.8
	medium support	156	43.9
	High support	157	44.2

only 3.9% of students having ever used it. Despite this, among those who used the service, 85.7% expressed a willingness to recommend it to others, indicating some level of satisfaction with the service, as presented in Table 5.

Factors contributing to burnout

In Table 6, the most prevalent factors identified by clinical students were overbearing academic workload (25%), physical demands and stress (18%) and lack of adequate breaks (14%). Preclinical students also reported overbearing academic workload (27%), physical demand/stress (20%) and emotional disturbance (13%) as major contributors as presented in Table 7. Additionally, poor support from senior colleagues, negative attitudes from lecturers, and lack of feedback mechanisms were highlighted as critical contributors to burnout. Participants also reported dissatisfaction with the lack of basic amenities such as power and water, which compounded their stress levels.

Statistical associations with burnout

Chi-square analysis revealed significant associations between sociodemographic factors and burnout. Female students reported significantly higher levels of burnout (91.7%) compared to male students (73.8%) ($p < 0.001$).

Table 5 Awareness, utilisation, and satisfaction with the college of medicine support service

Concerning College of Medicine Support Service:	Response	Frequency	%
Awareness of COMUI Support Service	YES	212	59.7
	NO	143	40.3
Utility of the COMUI Support Service	YES	14	3.9
	NO	341	96.1
Willing to use the COMUI Support Service among students who are not aware	Not willing	35	24.5
	Neutral	39	27.3
	Willing	69	48.2
Rating of the COMUI support service among students who have used it.	3 stars	4	28.6
	4 stars	9	64.3
	5 stars	1	7.1
Willingness to Recommend the COMUI support service among students who have used it	Yes	12	85.7
	No	2	14.3

Table 6 Clinical school (factors causing burnout)

S/*N*	Factors	Frequency	%	Examples (Comments)
1.	Overbearing Academic Workload	97	25%	The workload in medical school is quite enormous with the short space of time; the volume of material to be studied; cumbersome workload; an ever-increasing workload; too much work without resting; them thinking we are robots; the fact that we are medical students doesn't mean we are not like other students or we don't have feelings.
2.	No breaks / extended stay	55	14%	Very few holidays; no break in-between academic activities; increased workload that is not properly spaced out and with minimal breaks; Insufficient break time; no break in-between postings and it's usually at a stretch; Long years of constant study (7 years) while your mates have already begun their lives.
3.	Physical Demand and Stress	68	18%	Long hours in school; a lot of lectures; lengthened ward rounds and having to stand for many hours; booklets and chasing of signatures; standing for long periods in school (clinic, ward rounds).
4.	Negative attitude of teachers towards teaching and students/ Non-supportive colleagues/work environment	36	9%	Toxic lecturers; negative comments from superiors in the hospital; monotonous teaching styles; lack of inspiring lecturers; constant mental abuse from superiors; demoralising comments from senior colleagues especially consultants; teaching modalities are not properly structured; lack of supportive senior figures; unkind senior colleagues; constant reprimand from consultants; toxic work environment; doctors being perverts and trying to avoid them.
5.	Inadequate time management	20	5%	Starting late; intense studies from accumulated workload; lack of planning and appropriate time management; taking on too many responsibilities; poor time management; procrastination; lack of self-study time before tests and examinations; being lazy; lack of balance.
6.	Financial challenge	32	8%	Not enough money to pay for my bills
7.	Lack of basic amenities	11	3%	Light (power supply issues); having to deal with no light for days on end; periodic blackouts; frequent lack of water and stress of getting water.
8.	Academic Challenges	7	2%	Failing exams; unhealthy competition within the system; unfair scoring system (closed marking, subjective exams like long case, negative markings); repeating a class; scoring less despite studying much
9.	Extracurricular activities	25	6%	Taking too many responsibilities; multi-tasking a lot of things on my plate; balancing academic with extracurriculars; worthwhile extracurricular activities that has not been achieved because of your studies; extracurricular activities that creep in until I read to pass tests and exams alone.
10.	Emotional disturbance	37	10%	Weight of fear of failure; placing too much pressure on myself; high expectations from myself; being anxious; not having someone to share emotions with; high ended goals set for myself; mental health challenges; fears of academic failure; self-comparison with better classmates; comparison of students by higher ranked teachers; feeling of unworthiness; being betrayed by people you care about; continual sulking over things you can't change; fear of disappointing the one I love or not being enough; relationship conflicts; uncertainty of the future; background mental illness; pressure to excel and always come up on top; emotional abuse from derogatory words; family problems; perceived underachievement; stress from home.

Table 7 Preclinical school (factors causing burnout)

S/*N*	Factors	Frequency	%	Examples (Comments)
1.	Overbearing Academic Workload / prolonged irregular schedule	68	27%	Excess workload and non-proportionate time to cover the work; there's too much to take in all at once and not much time to actually study; the workload is too much; hectic schedule;
2.	Uninterested in school-work/finds it uninteresting / unorganised system/ perceived low reward system	16	6%	The fact that we don't even know the exact dates we are having most of our Cas (continuous assessment) makes me a bit demotivated; some departments don't even reward the hard work; negative mindset towards studies; long hours of boring lecturers; no evidence for work put in; lack of interest.
3.	Physical Demand, Stress and Illness	50	20%	Long classes; illness; distance of commute; preparing for test and exams; not resting enough.
4.	Feeding related challenges	10	4%	Forgetting to eat; not having food to eat; time spent cooking.
5.	Inadequate time management	19	8%	Poor scheduling; lack of adequate planning, lack of organised preparation; procrastination; little time to prepare for test; mismanagement of time.
6.	Financial challenge / work pressure	19	8%	Lack of funds; combining making money with medical school; lack of financial support; need to augment source of income.
7.	Lack of basic amenities	3	1%	No light; no water; uncomfortable hostel services.
8.	Academic Challenges	16	6%	Failure; finding it hard to grasp concept; frustration from forgetting stuff; repeated setback in academics; difficulty understanding some concepts.
9.	Extracurricular activities	14	6%	Little time to catch up with extracurricular activities; no social activities; accumulated extracurricular activities to carry out; over involvement in too many activities; need for high extracurricular achievement to be a globally competitive student.
10	Emotional Disturbance	33	13%	Just the thought of what to do is draining; lack of friendship; pressure; no support system; no one to talk to that will help; anxiety and nervousness; mental health issues; worry; hormones; fear of failure and disappointing myself and family; pressure from family; emotional trauma.

Table 8 Predictors of burnout

Sex			**NB**	**D**	**E**	**B**	***p* value**
	Male	Count	17 (8.1)	24 (11.4)	14 (6.7)	155 (73.8)	< 0.001
	Female	Count	5 (3.4)	2 (1.4)	5 (3.4)	133 (91.7)	
Level of Study			NB	D	E	B	0.004
	200	Count	4 (4.9)	8 (9.8)	11 (13.4)	59 (72.0)	
	300	Count	4 (6.3)	4 (6.3)	3 (4.7)	53 (82.8)	
	400	Count	9 (13.0)	3 (4.3)	3 (4.3)	54 (78.3)	
	500	Count	4 (4.5)	9 (10.2)	0 (0.0)	75 (85.2)	
	600	Count	1 (1.9)	2 (3.8)	2 (3.8)	47 (90.4)	
Accommodation Type			NB	D	E	B	
	Outside	Count	3 (7.3)	5 (12.2)	2 (4.9)	31 (75.6)	0.666
	Within	Count	19 (6.1)	21 (6.7)	17 (5.4)	257 (81.8)	
Religion			NB	D	E	B	
	NA	Count	0	0	1	1	0.526
	Islam	Count	5 (10.2)	1 (2.0)	3 (6.1)	40 (81.6)	
	Christianity	Count	17 (5.6)	25 (8.2)	15 (4.9)	247 (81.3)	
If working in a paid position			NB	D	E	B	0.350
	No	Count	16 (5.5)	19 (6.6)	17 (5.9)	238 (82.1)	
	Yes	Count	6 (9.2)	7 (10.8)	2 (3.1)	50 (76.9)	

Additionally, burnout increased with academic level, with the highest rates observed in the 600-level class, although the 400-level class showed lower burnout compared to the 300-level class ($p = 0.004$). Students living within the school hostel also reported higher levels of burnout compared to those staying outside the hostel, though this difference was not statistically significant ($p = 0.666$). Both religions exhibited similar burnout levels (Table 8).

Qualitative data result

To gain in-depth knowledge on the subject of burnout among medical students in the College of Medicine, University of Ibadan, a focus group discussion was conducted. The following themes emerged: (1) What the students think about the concept of burnout and its prevalence, (2) The different forms of support available to help students cope, (3) The institutional supports

available to ease burnout, (4) The various factors responsible for burnout, (5) Recommendations on improving the wellbeing of students.

Perception of burnout and its prevalence

The focus group discussions revealed that burnout is a significant issue among medical students at the College of Medicine, University of Ibadan (COMUI). Participants described burnout as a multifaceted experience of emotional, physical, and mental exhaustion, often arising when students are stretched beyond their coping capabilities. These sentiments were echoed in the quantitative results, where 81.1% of participants were categorised as experiencing burnout according to the OLBI-S.

One participant highlighted the pervasive nature of burnout, stating, "*Burnout is just a heightened sense of exhaustion, whereby you are emotionally, mentally, and physically exhausted*" (P3, 600 Level). This aligns with the findings that a large proportion of students are struggling with excessive stress, as seen in the quantitative data showing high rates of disengagement and exhaustion (mean scores of 2.456 ± 0.776 and 2.643 ± 0.776, respectively). Another participant emphasised that the stress faced by students has outgrown their coping mechanisms, saying, "*The stress we go through here is beyond coping mechanisms no matter how strong or good they are*" (P3, 400 Level). This view is supported by the fact that a substantial portion of the students (81.1%) identified as experiencing burnout, pointing to a systemic issue with burnout in the medical school environment.

Coping mechanisms: support systems beyond institutional aid

Participants identified several sources of support that help them manage burnout. Key among these were friendships within medical school, family support, social events and religious gatherings. The qualitative responses align with the quantitative finding that 59.2% of students reported high levels of perceived social support, especially from family (68.2%). One participant noted the value of friendships in providing mutual understanding and support, saying, "*Friendships within medical school are important because they understand what you are going through*" (P1, 600 Level).

Additionally, students mentioned that non-institutional support systems like social events and religious gatherings provided opportunities to destress. One student explained, "*Social events… that's why people say [maybe I am generalising] medical students party a lot. I don't think we necessarily are happy-go-lucky people, it's just that we want to take every opportunity to destress*" (P1, 600 Level). This notion complements the 59% of students reporting high levels of social support from friends and significant others, which likely contributes to their resilience against burnout.

Interestingly, a coping strategy that stood out was living outside the school environment. One participant mentioned that not staying in the school hostel allowed them to disconnect from academic pressures, providing a mental reset: "*When I'm going home and I'm seeing different sceneries, I'm able to wash my mind off whatever it is I had gone through during the day*" (P2, 500 Level). This reflects the broader theme that detaching from the academic environment temporarily can have a significant restorative effect, which might explain some of the variance in burnout levels across students living inside versus outside the school accommodation.

Institutional support

While students recognised the existence of institutional support systems, particularly the 'Sponsor-a-Student Program' and bursaries, the College of Medicine's counselling services were often deemed ineffective. One participant commented on the importance of financial support in alleviating stress, saying, "*I have seen how [the Sponsor-a-Student Program] has been able to shift their mind… off financial stressors and focus more on school*" (P1, 500 Level). However, despite acknowledging financial assistance, the College's counselling unit was not seen as a reliable resource. Students described the counselling services as underutilised and ineffective, with one participant noting, "*It feels like a toxic relationship of some sort… I've never really seen other students being there to come and address their problems*" (P2, 500 Level). This lack of engagement with the counselling services aligns with the relatively low usage rates of the COMUI counselling unit, where only 3.9% of participants had utilised the service, as reflected in the quantitative data.

Factors contributing to burnout

The focus group discussion illuminated various factors contributing to burnout, many of which were echoed in the quantitative results. High academic workload was universally identified as a significant stressor, with students expressing that the demands of medical school are overwhelming. Participants noted that the stress is compounded by factors such as long hours, lack of breaks and emotional abuse from senior colleagues. One participant described the academic workload: "*The workload is quite enormous… an ever-increasing workload; too much work without resting*" (P1, 400 Level). This is consistent with the quantitative findings, where burnout was linked to the intensity of academic demands, as evidenced by the 81.1% of students categorised as burned out in the OLBI-S analysis.

Another critical factor contributing to burnout was the lack of adequate breaks. Participants were unanimous in

their opinion that the academic schedule's rigidity and the absence of sufficient breaks contribute significantly to their stress. One participant reflected, "*We are literally in school all year round and that is also contributing to burnout*" (P1, 600 Level). This sentiment is corroborated by the quantitative results, where burnout rates were highest among those at advanced levels (600 level), suggesting that accumulated academic pressure throughout the programme contributes significantly to student burnout.

Furthermore, students noted issues with the physical environment, particularly the lack of basic amenities such as electricity and water, which added another layer of stress. One student explained, "*We had 11 days or so with no light… how can you come back from the ward and there's no light?*" (P2, 400 Level). This kind of environmental stress can exacerbate burnout, as students are expected to continue their academic responsibilities regardless of these challenges.

Recommendations for improving student well-being

In terms of recommendations, participants suggested improving the availability of breaks, enhancing the living and learning environment and increasing the visibility and accessibility of institutional support services. One participant proposed, "*I think maybe 10 months in a year should suffice for clinical activities or school… maybe even just one week every quarter*" (P1, 600 Level). This recommendation aligns with the general desire for more balanced academic scheduling to prevent burnout.

Additionally, the need for improved sporting facilities and green spaces was frequently mentioned as a way to foster a healthier, more supportive environment. One participant emphasised, "*We need green spaces. Green spaces? Yes!*" (P3, 600 Level), suggesting that the physical environment plays a critical role in student well-being and should be prioritised.

Discussion

This study examined the prevalence of burnout among medical students at the University of Ibadan, focusing on the availability of support systems and the factors that contribute to burnout. A significant finding was the alarmingly high rate of burnout, with 81.1% of respondents meeting the criteria outlined by the Oldenburg Burnout Inventory for Students (OLBI-S). This figure aligns closely with a study by Ayinde et al., which reported that 84.6% of participants met the criteria for disengagement, while 77.0% exhibited signs of exhaustion [8]. These rates are notably higher than the global average; for instance, a study in Cyprus found a burnout prevalence of only 18.1% [21]., and Shrestha et al. reported that approximately 65.9% of medical students experienced burnout [3]. A separate investigation in Salzburg, Austria, indicated a burnout rate of 49% [9]. Chang et al. in their study also found a prevalence of 55% among respondents [2].

The variation in burnout prevalence can be attributed to several factors, including differing measurement tools and classification criteria for burnout, even within similar scales. Additionally, context-specific factors in Nigeria—such as educational infrastructure, teaching methodologies, and curriculum variability—may exacerbate these issues. Participants frequently cited excessive academic workload, physical stressors, and insufficient breaks as primary contributors to their burnout experiences.

Our findings revealed significant gender disparities in burnout rates, with female medical students experiencing notably higher levels (91.7%) compared to their male counterparts (73.8%). This pattern aligns with previous research by Kilic et al. and Worly et al. [22, 23], who both documented higher burnout rates among female students. Similarly, Irshad et al.'s study confirmed this gender-based disparity [24]. However, the underlying factors contributing to these gender differences in burnout prevalence remain to be fully understood.

A clear progression in burnout rates emerged across academic years, rising from 72% among second-year students to 90.4% among sixth-year students. This upward trend aligns with multiple studies that document increasing burnout prevalence as students advance through medical education [21, 22, 25–27]. Kilic et al. specifically highlight the transition from basic to clinical sciences in the third year as a critical stress point [22]. The escalating academic demands and more rigorous examination requirements in advanced years likely contribute to this progressive increase in burnout rates. Additionally, the emotional demands of clinical rotations, including direct patient interactions and exposure to varying medical conditions, likely contribute to this escalating burnout pattern.

A notable finding emerged regarding social support: despite the high burnout rates, 59.2% of students reported strong social support systems according to the Multidimensional Scale of Perceived Social Support (MSPSS), with family serving as the primary source. This aligns with Bolatov et al.'s research highlighting the connection between family dynamics and burnout levels - specifically, how family-related challenges correlate with increased burnout risk [28]. Additional studies have further reinforced the crucial role of psychosocial support in developing resilience against burnout [9].

A striking disparity emerged between awareness and utilisation of institutional support services: while 59.7% of students knew about these resources, merely 3.9% accessed them. Despite Chang et al.'s emphasis on the vital role of counselling services in student wellbeing, these institutional support systems remain largely

untapped [2]. This underutilisation may stem from a complex dynamic: students appear reluctant to seek help from the very institution they perceive as the source of their academic stress, suggesting an underlying distrust in the support system.

The findings from this study have significant implications for the mental health, academic performance, and overall well-being of medical students. The high prevalence of burnout, driven by factors such as excessive academic workload, physical stressors, time management issues, and insufficient breaks, underscores the urgent need for systemic reforms in medical education. Chronic burnout can have detrimental effects on students' mental health, leading to increased anxiety, depression, and emotional exhaustion, which in turn negatively impact their ability to focus, study, and perform academically [2, 3]. Poor time management and last-minute study habits, alongside excessive screen time, exacerbate these issues by limiting the time students have for rest and recovery, further impairing their cognitive function and emotional resilience. The resulting stress can lead to lower academic performance, as students struggle to meet deadlines or maintain consistent grades due to burnout. Additionally, the lack of breaks and relaxation contributes to deteriorating physical and mental health, reducing overall well-being. These implications highlight the need for institutions to prioritise student well-being by integrating structured breaks, better time management strategies, and mental health support into the academic curriculum to foster healthier, more balanced students capable of achieving their academic and personal goals.

This study has notable limitations that warrant consideration. The cross-sectional design prevents the establishment of causal relationships between variables, while the reliance on self-reported data introduces potential bias. Future research directions should encompass longitudinal studies to track the progression of burnout over time, as well as multi-institutional investigations comparing burnout rates across different Nigerian medical schools. Additionally, intervention studies are needed to develop and evaluate culturally appropriate solutions, alongside socioeconomic analyses examining the relationship between students' backgrounds and their vulnerability to burnout.

Conclusion

The strikingly high burnout rates discovered at Nigeria's pioneering medical school carry profound implications for medical education across the nation. As a leading institution, the experiences at the University of Ibadan College of Medicine likely reflect and influence patterns throughout other Nigerian medical schools. These findings emphasise the critical need for comprehensive interventions that are culturally attuned to address burnout in Nigerian medical education. Such interventions should encompass thoughtful curriculum reforms to create more balanced learning experiences, alongside enhanced support services that recognise cultural sensitivities. Additionally, improvements in infrastructure could help mitigate environmental stressors, while targeted support for female medical students could address their unique challenges. The implementation of financial support programs would further help alleviate the economic pressures that contribute to student burnout.

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Author contributions
AAA and DMA conceptualised the study. All authors were involved in quantitative data collection. AAA, DMA, TVA and OCF conducted the FGD. TVA wrote the introduction section. AAA wrote the methods/design and result section. DMA wrote the discussion section. AAA and DMA analysed the data. All authors read and approved the manuscript.

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Data availability
Data from this study will be available on reasonable request from the corresponding author.

Declarations

Ethics approval and consent to participate
Ethical approval was obtained from the University of Ibadan / University College Hospital (UI/UCH) Ibadan Ethics Committee with ethical approval number 23/0726. All research was performed in accordance with the Declaration of Helsinki. All participants signed an informed consent form prior to participation in the study.

Consent for publication
Participants were made aware of the purpose of the research and how their data would be used, ensuring their confidentiality and anonymity throughout the process. By agreeing to participate, the participants also consented to the publication of the study's findings.

Competing interests
The authors declare no competing interests.

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