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GLOBAL DISPARITIES IN MENTAL WELLBEING: COMPARING PSYCHOSOCIAL FACTORS AMONG MEDICAL STUDENTS IN BIRNIN KEBBI, NIGERIA AND DEVELOPED NATIONS.

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ABSTRACT

Objective: The study examines the prevalence of psychological distress; the factors associated with stress and adopted coping mechanisms among medical students during their medical training at a Nigerian university. The research questions in this study focus on identifying the factors that contribute to stress among medical students and examining how these factors affect their academic performance while attending a tertiary Federal institution in Kebbi State, Nigeria.

Aims: The aims of the study are to determine the prevalence of stress and to determine the risk factors of stress among Nigeria medical students at college of health sciences, Federal University, Birnin Kebbi, Nigeria. The objectives of the study are composed of three questions: To evaluate the prevalence of stress among medical students. Secondly, to determine factors related to stress among medical students. Finally, to determine if familial factors can affect students' performance

Method: This study used a face-to-face survey that included a standardized instrument to evaluate psychological distress (Kessler-10) and Likert-based survey items that examined stress levels related to study and examination, family relationships, physical/ psychological problems and finances. Non-parametric descriptive statistics were used to examine the prevalence of psychological distress and sources of stress.

Results: The survey students (100 % response). 33.0 % of the students reported normal levels of psychological distress on the K10 (M=19, SD=2.5), and a subgroup reported high to very high levels of psychological distress. A small proportion of students also reported seeking assistance from a physician when experiencing extreme levels of distress.

Conclusion: The findings demonstrate that students experience psychological distress arising from multiple stressors, underscoring the need for medical schools to serve as pivotal partners in fostering student well-being through the promotion of self-care, education on burnout prevention, and the implementation of targeted support programs for at-risk students.

***Key words**: stress, tolerance, medical students*

INTRODUCTION

Medical education is widely acknowledged as a highly intensive process, demanding substantial time, commitment and mental effort [1]. The rigour of the curriculum, frequent assessments, and clinical demands all contribute to an inherently stressful learning environment [1]. Research demonstrates that undergraduates in medical school programmes report higher levels of distress compared with their non-medical peers [2].

The negative consequences of this stress are numerous [1]. Stress for example correlates with impaired attention, reduced concentration, diminished decision-making capacity and weakened interpersonal relationships with patients [3]. These impairments may contribute not only to student dissatisfaction and a sense of inadequacy during clinical training and can also potentially impact patient care and community health outcomes in the longer term [4]. Importantly, stress is not experienced uniformly: for some students the demands of medical training may function as eustress that promotes growth, whereas for others the same demands become detrimental dependant on individual coping mechanisms and psychosocial resources [5].

In a cross-sectional study among medical students in Nigeria, average nightly sleep duration was reported as just 5.74 hours, with nearly 30% rating their sleep quality as poor; associations were detected between irregular bedtimes, night-time coffee consumption and poorer academic outcomes [6]. Another cross-sectional study in Western Nigerian reported a high prevalence of psychological distress and burnout among medical students [7]. The two reported sources of stress in the study were financial (75.6%) and interpersonal relationships (30.1%) respectively [7]. Another Nigerian study reported a higher prevalence of distress rate compared to other similar studies in developed nations such as the United Kingdom (6.6%) and Germany (3.4%) among clinical medical students respectively [8]. Furthermore, in a study of post-COVID cohorts in China, the prevalence of sleep disorders among medical students was estimated at 82.3%, particularly among those with depressive symptoms or at higher academic levels [9]. The interrelationship is further clarified by a mediation analysis which revealed that poor sleep quality contributes to academic burnout through elevated perceived stress [10].

Burnout is increasingly recognized in medical students, characterized by emotional exhaustion, cynicism or depersonalization and reduced professional or academic efficacy [11]. A recent study among Chinese medical students found that emotional exhaustion and cynicism increased with advancing study years, and female students were more vulnerable [12]. Another international meta-analysis confirmed that cognitive empathy is negatively associated with burnout among medical students [13]. In a conflict-affected region, high levels of emotional exhaustion and low professional efficacy were observed among medical students, with social isolation and symptoms of anxiety/depression as significant predictors [14]. These findings build on earlier literature which reported high rates of depression, anxiety and suicidal ideation in medical student cohorts [15, 16].

Although much of the literature emphasises mental health outcomes, physical health outcomes among medical students are less frequently studied but appear to worsen over time [17]. It is accepted that chronic sleep deprivation and elevated levels of stress hormones, such as cortisol may lead to disrupted circadian rhythms and oxidative stress [17].

The sources of student stress are well-documented and include academic pressures, social and personal issues, financial constraints, and intense competitive selection processes for medical programmes [18] [19]. In many cases, students enter medical education unprepared psychologically for the demands and lifestyle changes required [20]. More recent work emphasises that factors such as a negative school environment, lower collective self-esteem and lower psychological capital heighten the risk of burnout among medical students [21].

Medical students experience significant levels of stress; therefore, it is crucial to determine the prevalence and risk factors of stress among students of the newly established Federal University Birnin Kebbi, Medical School, as it impacts not only their health but also their academic performance throughout various stages of their training [22] [23].

To address these concerns, we conducted a study with the aim of assessing the levels of psychological distress among Federal University Birnin Kebbi undergraduate medical students and identifying its underlying sources.

Problem statement

University student life is subject to many kinds of stress compared to students studying in developed nations; and the sources of student stress can include academic pressures, social or personal issues and the challenges medical students have to face as part of a rigorous curriculum and the learning they undertake to deal with emotionally difficult experiences [24]. It is usually observed that medical students undergo tremendous stress during various stages of their medical education.

In addition to coping with the normal stressors of everyday life, medical sciences students must deal with stressors specific to medical school, which include information and input overload, financial indebtedness, lack of leisure time, and pressures of work, work relationships and career choices [25].

There is increased interest among medical educators and administrators to promote a culture of wellness, professionalism, self-care, and help seeking in medical students.

This study hopes to investigate the causes of stress among medical students using a self-administered questionnaire, focused on familial factors, health status factors, social as well as method of learning and examinations.

Rationale of the study

The impact of academic stress is very high as it affects the student's psychological well-being resulting in poor academic performance which ultimately reduces their ability of delivering quality care to the patients after becoming doctors [26]. There is strong relationship between stress and depression [27], drug abuse, suicide and anxiety [3]. However, melatonin plasma levels in stressed individuals were shown to reduce significantly in addition to poor sleep [17]. All these factors added together, may be a causal factor in the rising level of mental illness seeing in higher institutions [28].

METHODOLOGY

Study design

This is a survey study designed to investigate stress among medical students at the college of health sciences, Federal University, Birnin Kebbi, Kebbi state, Nigeria from November 2021 - February 2022. A questionnaire was administered to the students and the necessary data variables were collated. A sample size of 100 was determined to be required for statistical significance.

Validity

A pilot study was conducted to ensure feasibility of the study and detect possible flaws in the instrument used. Content validity was achieved by having the data collection instrument reviewed by the researcher.

Reliability

Reliability was maintained by ensuring consistency and accurate recording of data. Data collection was done by the researcher. Similar to previous reliability studies, this 100 patient sample size was calculated by using the formula n = Z2 pq/ d2 (n= desired sample size, Z= standard normal deviate, p= proportion in the target population estimated to have a particular characteristic, q= 1-p (proportion in the target population not having the particular characteristics), d= degree of accuracy required) assuming a two sided; <5% margin of error and power of 80%. This was determined to be representative of the population under study, taking into consideration possible refusal. Sample inclusion and exclusions were strictly followed.

Study site

The study was conducted at the college of health sciences, Federal University Birnin Kebbi, Kebbi state, Nigeria. The University was a new institution established in 2013. At the time of this study, only preclinical programs were accredited by the regulatory bodies such as Medical and Dental Council of Nigeria (MDCN) and National University Commission (NUC) for undergraduate year one, year two and year three medical students.

Study population

All male and female students in all 3 years of study in the college of health sciences Federal University Birnin Kebbi (20 medical students were in first year, 36 from second year and 43 from third year).

Data collection

A cross-sectional questionnaire-based survey was conducted among college of health sciences undergraduate medical students in year 1 (UGY-1), year 2 (UGY-2) and year 3 (UGY-3), at Federal University, Birnin Kebbi, Kebbi State, Nigeria from November 2021 to February 2022. All male and female students in these years of study were invited to participate. All participants were provided with a self-administered questionnaire. Permission was obtained from the college of health sciences and research ethics committee at Federal Medical Centre, Birnin Kebbi before administering questionnaires. A self-administered questionnaire of 5 sections was constructed to determine the factors that may cause stress among medical students. The 5 sections include demographic data, factors related to the content of the curriculum and method of learning and exams, familial factors, health status factors and social factors as well as a separate section for stress score risk factors and coping mechanisms. A Likert scale with 3 points for responses was used. Questionnaires were administered to participants 2 months before end-semester examinations, to minimize the extra stress symptoms. Data collection was performed over 3-4 months. The questionnaires were distributed to the participants during face-to-face sessions inside the lecture halls separately, and according to the year of study. The process of filling in the questionnaires took one day to complete and the forms were returned the following day. A score for stress was calculated using the mean score for all risk factors related to the stress section in the questionnaire and divided into stressed and not stressed. The mean score of all risk factors was calculated. All participants below the mean score were considered as not stressed students and all participants above the mean score were considered as stressed students.

The Kessler Psychological Distress Scale (K10): is a brief screening scale that use five-value response options for each question,

1. All the time,
2. Most of the time,
3. Some of the time,

4. A little of the time,
5. None of the time;

The maximum score is therefore 50- indicating severe distress, and the minimum score is 10, indicating no distress. Items 3 and 6 were not asked if the response to the preceding question is 'none of the time'.

Data analysis

Each data collection form was assigned a serial number. Data was entered, checked for data entry errors, explored and cleaned. Data was interpreted using a p-value of 0.05 with two tailed directions and confidence interval of 95%. Descriptive analysis was used to express the data in the form of frequency, percent, mean and standard deviation and graphs. Initial comparisons were done using Chi-Square test for categorical variables, and student-t-test for quantitative variables. The risk factors for stress among medical students were obtained using the logistic regression analysis. The dependent variable was the presence and absence of stress in all the students. All statistical analyses were performed using the Statistical Package for Social Science (SPSS) version 17.0 (SPSS Inc. Headquarters, Chicago, Illinois, USA).

Ethics

Permission to conduct the study was obtained from the Federal Medical Centre committee on research. The students' confidentiality was always maintained, anonymity was upheld, and students were assigned research numbers and codes. Access to the data collected was limited to the researcher and was securely stored.

An Information letter was shared among the participants, explained in detail about what is required from them. A Consent letter was provided to the students to read before agreeing to participate.

RESULTS

From a sampling frame of 99 medical students enrolled at the college of health sciences, Federal University Birnin Kebbi. All the 99 students completed the survey. This final sample (n = 99) consisted of 99 undergraduate medical students, representing a 100 % response rate (Table 1). The sample was composed of 40 females aged 17– 23 (M=19; SD=2.5) and 59 males aged 16–24 (M=21, SD=3.6). The medical students included 20, UGY-1, 36, UGY-2 and 43, UGY-3, students.

Psychological Distress

Results of the Kessler psychological distress showed that of the 99 respondents, 33 (33.0%) were within the normal range of distress (K10 = 1-19). The remaining 20 (20.0%) indicated mild-moderate levels of psychological distress (K10 = 20-24). A total of 22 (22.0%) were ranked having (K10 = 25-29) moderate psychological distress (Table 1). Finally, a total of 24 (24.0%) students showed a very high K10 total score of ≥30 psychological distress (Figure 1). On average, female undergraduate medical students showed higher K10 scores than their male counterparts (10.0±2.3 vs. 8.4±2.1).

Table 1: Prevalence of Psychological Distress Among UGY-1, UGY-2 and UGY-3 Medical Students

Level of Psychological Stress (Kessler-10 score Range)	UGY-1 Medical Students (n =20)	UGY-2 Medical Students (n =36)	UGY-3 Medical Students (n =43)
Normal (0-19)	10 (49.5%)	13 (35.8%)	10 (23.0%)
Mild-moderate (20-24)	3 (14.9%)	5 (13.8%)	12 (27.6%)
Moderate (25-29)	5 (24.8)	8 (22.0%)	9 (20.7%)
High to very high (> 30)	2 (10.0%)	10 (27.5%)	12 (27.6%)

*n = 99

Sources of stress and coping mechanism

Students were asked to rate the level of stress they experienced from various life issues, including studies and examinations, relationships, physical or medical problems, as well as family and

financial challenges (Table 2). The analysis involved tallying the frequency of each challenge reported as “very stressful” or “extremely stressful.” For both three classes of medical students, study and examination was the most frequently reported source of stress (n = 43, 43.0%) followed by family issues (n = 20, 20.0%). Relationships were the least reported among the medical students (n = 8, 8.0%). However, financial challenges were the third most frequently reported issue by medical students indicating the importance of money in medical education (n = 16, 16.0%).

Table 2: Sources of stress rated as extremely stressful by UGY- 1, 2 and UGY-3 Medical Students

Sources of Stress	UGY- 1 Medical Students, n (%)	UGY- 2 Medical Students, n (%)	UGY- 3 Medical Students, n (%)
Study examination	10	15	18
Relationships	2	3	3
Physical/Psychological/ Medical Problems	1	4	7
Family	4	9	7
Financial	3	5	8

Table 3: Factors associated with stress among UGY-1, UGY-2 and UGY-3 Medical Students

SN	QUESTION UGY-1 (n =20)	YES	NO	QUESTION UGY-2 (n=36)	YES	NO	QUESTION UGY-3 (n =43)	YES	NO
	Are you living with your parents?	12	8	Are you living with your parents?	30	6	Are you living with your parents?	40	3
	Have you ever had resit/ repeat?	20	0	Have you ever had resit/ repeat?	12	24	Have you ever had resit/ repeat?	19	24
	Do you have problem concentrating before exams	8	12	Do you have problem concentrating before exams	8	28	Do you have problem concentrating before exams	10	23
	Do you finish all the curriculum before exams	8	12	Do you finish all the curriculum before exams	16	20	Do you finish all the curriculum before exams	15	28
	Number of exams is suitable for students to motivate them to study all the time	18	12	Number of exams is suitable for students to motivate them to study all the time	14	22	Number of exams is suitable for students to motivate them to study all the time	21	22
	Are there places for amusement in the university where students can use	6	14	Are there places for amusement in the university where students can use	11	25	Are there places for amusement in the university where students can use	18	25
	Do you have ultimate place for studying	12	8	Do you have ultimate place for studying	16	20	Do you have ultimate place for studying	19	24
	Does your family motivate you to study	20	0	Does your family motivate you to study	28	8	Does your family motivate you to study	40	3
	Does your family accept your career choice	20	0	Does your family accept your career choice	22	14	Does your family accept your career choice	22	21
	Do you think of your health status	17	3	Do you think of your health status	17	19	Do you think of your health status	39	4
	Do you organize and time your study period	11	9	Do you organize and time your study period	16	20	Do you organize and time your study period	16	30

	Does your family expected you to score higher marks	15	5	Does your family expected you to score higher marks	24	12	Does your family expected you to score higher marks	36	10
	Are you having difficulty in understanding information in text book	4	16	Are you having difficulty in understanding information in text book	13	23	Are you having difficulty in understanding information in text book	13	33
	Do you put great efforts in studying	20	0	Do you put great efforts in studying	20	16	Do you put great efforts in studying	30	16

***UGY-1** (p-value = 0.045), **UGY-2** (p-value = 0.839), **UGY-3** (p-value =0.453)

Students were also asked to mention the coping mechanism they employed in case they experienced any emotional disturbances while in the university. Of the students identified as having sought a personal coping mechanism (n = 58). The primary coping mechanism was discussing the issue with a fellow colleague and family member (n = 28, 28.0%), followed by listening to music (n = 10, 10.0%), reaching out to some lecturers for advice (n = 14, 14.0%). In extreme cases, students reported seeking for medical assistance from physicians in the hospital (n = 6, 6.0%).

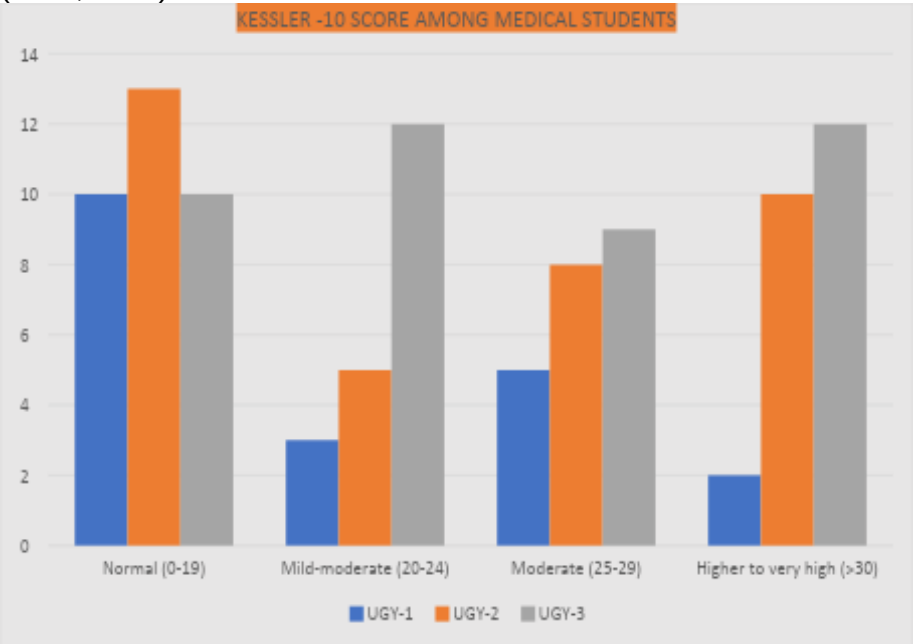

Figure 1: Prevalence of Psychological Distress Among UGY-1, UGY-2 and UGY-3 Medical Student

DISCUSSION

Although the prevalence of psychological distress among undergraduate medical students is well documented [29] [30] [31] [32]. There is paucity of research examining psychological distress in students attending Nigerian universities, particularly in Northern Nigeria. The aim of the study was to better understand how the Nigerian medical school experience impacts levels of trainee psychological distress, the sources of this distress, and the coping mechanism that students resorted to when experiencing emotional distress.

At least 22.0% of the total sample, the prevalence of the psychological distress (as indicated by K10 scores of ≥20) in undergraduate medical students (UGY-1, 2 and 3) highlights that the psychological distress, often in the form of anxiety and depression, is a common experience by medical trainees. The average K10 score (22.0) of our participants is higher than the average scores reported among Canadian and Australian medical students, whose average scores were 19.5 and 20.24 respectively [33] [34]. However, many African studies reported much higher

average K10 scores of 42.8% and 39.4% respectively [35] [36]. This is probably since all our participants are at preclinical level compared to their counterparts who are in both preclinical and clinical levels respectively. Whereas majority of the students in this study (33.0%) reported experiencing manageable levels of distress, falling within the normal range, a subset (24.0 %) of medical trainees who indicated high to very high levels of psychological distress (K10 scores ≥30) whereby raising concerns about the mental well-being of medical students. In this study, gender was the only demographic factor found to be associated with psychological distress, with females reporting greater levels of distress than males, which is consistent with an Ethiopian study [36]. Although other previous studies reported inconsistencies in the relationships between gender and distress [15]. Our finding is supported by several studies [37] [38]. Many studies reported women to be more prone to depression and anxiety than men [37]. Furthermore, female medical students more often report history of depression than men [38]. Several factors may explain this difference, including the multiplicity of demands within training programs, difficulty balancing intimacy and career, and /or limited number of female mentors in leadership positions [39].

Our findings show that study and examinations, family issues, and finances are among the most common sources of stress for undergraduate medical students. These results are consistent with a study conducted among Indian medical students in Sangareddy [40]. These results are consistent with other studies among medical students [41]. Many students perceived study and examination and stress associated with them as “normal” or “extremely stressful” in fact some students perceived it as beyond their capacity, as reported by other medical students [42]. The finding that medical students reported stress related to family being more problematic, relative to relationships, is consistent with our expectation.

The coping mechanism exhibited by medical students in this study indicated that majority of them resorted to discussing their problem with friends, followed by seeking medical help in the hospital. Finally, few students reported listening to music as a form of their coping mechanism to unwind their stress.

We think it is notable that medical students resorted to their friends as the most common support of choice when experiencing distress. This finding is consistent with a Saudi Arabian study of medical students [43]. Previous studies indicate that many individuals experiencing emotional problems are more likely to present physical problems to their medical practitioner, as opposed to psychological symptoms [44]. These findings, when taken together, suggest that many students attending their medical practitioner with physical complaints may have concurrent but unprecedented emotional or psychiatric problems. Given that nearly one-third of our medical student sample was experiencing clinical levels of distress and a subset reported severe form of distress, it is imperative that these physicians, who may be a student’s second point of contact, screen for psychological distress.

To our knowledge, this study represents the first of its kind to report on psychological distress, and sources of stress and coping mechanisms, using a Nigerian medical student cohort, particularly in Northern Nigeria. It is likely that anxiety and depression results from a variety of factors. This methodology may also result in students with an interest in mental or emotional issues, or those who were experiencing such issues at the time but were well enough to participate, being more likely to participate as demonstrated by hundred percent participation. This study only provides understanding of the Nigerian medical school experience at a single point in time. Building on the current research, future studies should utilize a longitudinal design.

A national longitudinal cohort study conducted in UK focused on factors that contributed to medical students' mental illness. The longitudinal data analysis of 407 students who completed the follow-up questionnaire showed that the following factors contributed to students' mental ill-health symptoms: less supportive educational climates that were more competitive and less

centralized around the students, lower feelings of belongingness, greater stigma towards mental ill-health, and lower intentions to seek help for mental ill-health. In summary, the study found a high prevalence of somatic symptoms and hazardous alcohol use among medical students and identified several school-related and attitudinal factors that contributed to their mental ill-health over time. What was learnt in this study was addressing these modifiable factors within medical schools to support the mental health and well-being of medical students could have a great impact on their mental health [46].

In the Uk, British Medical society completed an online survey on 84 students who responded to the survey. According to the results, 82% of respondents could be categorised as "disengaged" and 85% as "exhausted" using the Oldenburg Burnout Scale, and 29% of respondents received a mental health diagnosis while attending medical school. This illustrates the necessity of conducting further surveys with a larger sample size in order to obtain additional data on these elevated incidences of mental health problems [47].

The primary objective of medical education is to produce knowledgeable, competent, and professional physicians who can assess, treating, and managing illnesses, while also advancing medical science and promoting public health [45]. Given that the findings of this study indicate a considerable proportion of trainees experience psychological distress due to psychosocial stressors—and that one-third of students believe the university should offer additional mental and emotional health services—medical schools are uniquely positioned to foster trainee well-being. This can be achieved through the promotion of self-care practices, implementation of wellness interventions, education on burnout prevention, and the development of targeted support programs for at-risk and distressed students.

Despite the prevalence of psychological distress, less than one third of the students reported having sought help for mental or emotional reasons. The insight these students provided regarding their sources of stress and who they seek help from first (medical practitioners) may assist in screening and referring students for appropriate support. Universities have a role to play as they can impact the lives of their students by directing resources to provide support in these areas, offering workshops, and strategies that help students manage their academic, financial, and personal lives, and integrating topics such as the importance of self-care into the curriculum. To promote safe practice and longevity in this profession, we must support professionals and trainees in their efforts to monitor their own mental and physical health and to seek appropriate treatment.

Conclusion:

This research reveals a notable rate of psychological distress among undergraduate medical students in northern Nigeria, a group for which there has been limited empirical data. About 22% of participants scored above the threshold for psychological distress on the K10 scale, with nearly one-quarter experiencing moderate to severe levels of distress. These results highlight a significant presence of anxiety and depression symptoms within this group of trainees. While the average distress levels were lower than those reported in some African studies, they were higher than those found in Western student populations, underscoring the importance of understanding the specific stressors in Nigerian medical education. Gender was the only demographic factor linked to higher distress, with female students reporting significantly greater distress levels—a finding consistent with international research and reflective of the unique social, cultural, and institutional challenges faced by women.

The main sources of stress identified were academic demands, exams, family pressures, and financial difficulties. These findings align with global research, confirming that academic workload, family expectations, and economic challenges are common contributors to distress among medical students. Most students turned to their peers for emotional support, followed by seeking help from healthcare professionals, while only a small number used self-help methods like listening to music. This reliance on peers indicates a potentially strong informal support system but also suggests that formal mental health services may be underused.

Since fewer than one-third of students experiencing distress sought professional psychological help, there is a pressing need for medical schools to proactively identify and address distress. International studies, including long-term research from the UK, show that competitive academic environments, feelings of low belonging, stigma around mental health, and reluctance to seek help can worsen mental health over time. Tackling these changeable factors could greatly enhance student well-being and academic success(46,47).

Therefore, medical schools have a duty not only to train skilled future doctors but also to create environments that promote psychological resilience, encourage help-seeking, and support early intervention. Incorporating mental health education, expanding support services, and fostering self-care within the curriculum would be important steps toward reducing distress. Since this study provides a snapshot at one point in time, future longitudinal research is needed to monitor psychological well-being throughout medical training and to identify causes. Ultimately, supporting medical students' mental health is essential for protecting the future healthcare workforce and ensuring compassionate, sustainable medical care.

Disclosures *There are no conflicts of interest to report.*

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