

Academic workload as a predictor of medical students' psychological distress: findings from Zimbabwean medical schools

¹Mqemane Tshababa, ²Temba Munsaka & ³Mokoena Patronella Maepa

Abstract

Medical education is one of the most rigorous and demanding training programs in higher education. Medical students are expected to cope with long hours of study, to be more resilient to deal with the distress that comes from the medical training. The objective of this paper was to explore the extent to which academic workload can predict medical students' psychological distress at two emerging medical schools in Zimbabwe. The probability sampling methods were used to select the respondents of this study. One hundred and twenty-three medical students were selected using stratified sampling technique and the simple random sampling technique. The respondents' ages ranged from 18 to 47. The data for the study were collected using self-reported structured questionnaire. The data were entered into SPSS version 28 and analysed using regression analysis. The computed quantitative data showed significant relationships between academic workload and medical students' psychological distress. Academic demands explained a significant amount of variance in psychological distress, $F(1, 61) = 7.847$, $p = 0.007$, $R^2 = .114$, $R^2_{adjusted} = .099$. About 9.9% of variability in distress experienced by medical students is caused by academic workload. The regression coefficient ($B = 0.338$, 95% CI [1.178, 2.054]) indicated that for every unit increase in academic workload, the psychological distress score increased by 0.435 points. Based on the findings, it is recommended that medical students be trained on peer to peer counselling to provide counselling to each other before the arrival of qualified and experienced therapists.

Keywords: coping mechanisms, academic demands, distress, mental health, policy

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About the authors:

¹Corresponding author. Ph.D. Postdoctoral Research Fellow, Department of Clinical Psychology, School of Medicine, Sefako Makgatho Health Sciences University, South Africa. Email: mqemanetshababa@gmail.com

²MSc in Clinical Psychology student. Department of Applied Psychology, Faculty of Social Sciences, Midlands State University, Zimbabwe. Email: syacibole@gmail.com

³Ph.D. Associate Professor, Department of Clinical Psychology, School of Medicine, Sefako Makgatho Health Sciences University, South Africa. Email: mokoenamepa@gmail.com



1. Introduction

Psychological distress arising from academic workload is a well-documented phenomenon among university students, and much of it is often attributed to factors such as examinations, intensive coursework, and fear of academic failure. When the workload is too heavy for students, it not only causes distress but can also lead to serious conditions such as burnout and depression. Therefore, learning environments in medical training schools should be conducive enough to enable students to thrive in their academic pursuits.

The literature is replete with studies investigating the association between academic demands and psychological distress among medical students (Wright & Mynett, 2019; Ragab et al., 2021; Paudel et al., 2024). For example, a study conducted in the United States by Barbayannis et al. (2022) sampled 843 college students and reported a positive correlation between academic workload and distress. The study utilized the 18-item Perception of Academic Stress Scale (PAS) to assess academic expectations, workload, and self-perception, alongside the 7-item Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS). Their findings highlighted the significant role of academic demands in shaping psychological outcomes. However, the study was conducted in a well-resourced university in a developed country, which differs considerably from the realities faced by medical students in Zimbabwe, where institutions often grapple with resource shortages. This discrepancy raises questions about whether similar academic pressures have comparable effects in more resource-constrained environments.

In France, Pelissier et al. (2021) surveyed 832 medical students and found that 75% experienced psychological distress, largely due to overwhelming coursework, academic competition, and emotional exposure to patient suffering. Comparable patterns were observed in Malaysia (Lugova & Hague, 2024; Le et al., 2025) and Mexico (Avila-Carrasco et al., 2023), where intense academic expectations contributed to elevated distress, particularly during the first year of study due to examinations and peer rivalry. Within the African context, Van der Merwe et al. (2020) conducted a cross-sectional study among South African medical students and identified high rates of burnout and emotional exhaustion linked to academic demands, emotional fatigue, and inadequate institutional support. Similarly, Chabili and Simuyemba (2020) found that more than 70% of Zambian medical students, especially those in their third year, reported psychological distress tied to academic pressure. These findings underscore the importance of exploring how similar stressors influence students in Zimbabwe's under-

resourced medical schools. The current study aims to examine how academic workload, a frequently cited global stressor, affects the mental health of medical students.

Medical students frequently experience psychological distress throughout their training, often due to demanding curricula, lack of leisure time, and pressure from family expectations (Reddy et al., 2018; Tian-Ci Quek et al., 2019; Feng et al., 2022). Studies from Nepal (Paudel et al., 2024; Kaphle et al., 2024) also associate distress with frequent assignments and examinations, pointing to the need for more supportive and flexible academic structures. In India, Solanky et al. (2012) found that nearly 97% of first-year medical students experienced psychological distress caused by academic pressures, language difficulties, and an overwhelming syllabus. By contrast, in Zimbabwe, English is the primary language of instruction from an early age, suggesting that stress is more likely to stem from academic demands rather than language barriers. Ragab et al. (2021) identified time pressure, workload, examination frequency, and fear of failure as common stressors among students. Global evidence (Fung, 2019; Shah et al., 2021; Johns et al., 2022) reinforces the notion that academic workload is a pervasive source of stress in medical education. Nevertheless, the extent and nature of its impact may vary considerably depending on institutional resources and support systems, which are often limited in Zimbabwe.

Assessments, whether assignments, tests, or examinations, are routinely cited as among the most anxiety-inducing elements of academic life. Research by Elsalem et al. (2020) and Russell et al. (2021) documented strong links between examination-related stress and heightened student anxiety. Similarly, Patel et al. (2025) found a high burden of stress among first-year Indian medical students, mainly caused by academic pressure, time management challenges, and self-expectation-related issues. Other studies (Nandamuri & Gowthami, 2011; Bedewy & Gabriel, 2015; Harikiran et al., 2012) have highlighted that academic overload, reduced physical activity, and extensive examinations significantly contribute to distress. Weber et al. (2019) further noted that cumulative testing increases psychological pressure, particularly during periods of waiting for results.

Despite the limited number of Zimbabwean studies on this topic, the psychological impact of assessments warrants deeper exploration. Mittal and Kumar (2018), in a Karachi-based study, found that although many students reported stress before examinations, mild levels sometimes enhanced performance, indicating that stress responses vary individually. Cipra and Müller-Hilke (2019), in a study conducted in Sweden, found that anxiety levels

spiked just before examinations and were influenced by students' learning strategies. Surface learners reported higher anxiety levels, whereas strategic learners managed stress more effectively. However, self-report bias in such studies may limit the accuracy of findings (Bispo-Junior, 2022; Bergen & Labonté, 2020). Weber et al. (2019) also found that fear of failure was a primary source of stress among German medical students, although not all stress was perceived as harmful; some students viewed it as a motivational force. Similarly, Sujatha and Subhalakshmi (2016) examined the impact of assignments on medical students' psychological distress and found that assignments and examinations induced moderate to severe anxiety among Indian students.

In Reddy et al.'s (2018) Indian study, psychological distress was linked to examinations and coursework. However, the study's reliance solely on quantitative measures overlooked deeper qualitative insights. Examinations contribute significantly to stress due to their volume and complexity. As Banerjee (2001) reported, thousands of student suicides in India have been linked to examination-related stress. Kumari and Jain (2014) identified factors such as poor time management, limited revision time, and outdated examination systems as major stressors. Examination anxiety is further compounded by family expectations (Zheng et al., 2023). Continuous assessments, particularly in medical education, are mentally taxing (Hill et al., 2018; Campbell et al., 2018). Medical students often juggle dense assignments within short timeframes, thereby increasing distress levels (Rani, 2017). Preston et al. (2020) highlighted the demanding nature of medical examinations, which assess theoretical, practical, and clinical competencies over extended periods, thus amplifying preparation-related stress.

Students also impose academic pressure on themselves in their pursuit of outperforming peers. From early education, many learners develop a competitive mindset that persists throughout their academic journey. Although this drive for excellence can be motivating, it has also been linked to elevated stress levels, particularly in higher education. Research by Abdulghani et al. (2011) and Posselt and Lipson (2016) consistently demonstrates a strong association between academic competition and psychological distress among university students. Posselt and Lipson's (2016) cross-disciplinary study aligns with findings by Abouammah et al. (2020), who employed qualitative methods to explore medical students' and interns' experiences, highlighting the intense stress induced by competitive learning environments. These studies suggest that, beyond external academic demands, much of the

psychological strain in medical education stems from internalized expectations and the desire for academic recognition.

Although medical students may appear to study fewer subjects than students in other faculties, their coursework in disciplines such as anatomy, physiology, psychiatry, immunology, and chemical pathology is rigorous and demanding. While Posselt and Lipson's qualitative approach captured rich personal narratives, it lacked the broader empirical generalizability that mixed-methods or quantitative research might provide. Baer (2011) introduces the concept of academic entitlement, wherein students expect favorable grades regardless of effort, thereby increasing pressure on academic staff. Cook and Crewther (2019) further argue that the psychological and physiological consequences of competition can impair students' cognitive functioning and learning outcomes, underscoring the dual nature of academic competition, which can be both motivational and detrimental.

Curriculum design remains a vital area of inquiry across disciplines, with each field tailoring educational content to align with professional competencies. According to El-Astal (2023), a curriculum constitutes a structured instructional plan outlining who teaches, what is taught, which resources are used, and how learning outcomes are assessed. Studies by Promsri (2019) and Lopes et al. (2020) suggest that students in non-medical disciplines generally adapt to their curricula with minimal psychological distress; however, these findings may not be directly applicable to medical education, where training has immediate implications for patient care and public safety.

Medical education is uniquely demanding, as it prepares students for high-stakes clinical responsibilities. Psychological strain during this formative period may compromise decision-making and professional competence. It is therefore essential to examine whether the structure and rigor of medical curricula contribute to student distress. Research by Makela et al. (2018), Wright and Mynett (2019), and Zainal et al. (2022) highlights variations in curriculum formats but consistently affirms that medical programs maintain high levels of academic intensity. For instance, the University of Cape Town's Bachelor of Medicine and Bachelor of Surgery (MBChB) program spans six years, integrating semester-based modules with mandatory internships and community service (Shabalala, 2019). Similarly, medical schools in Zimbabwe follow a dual-phase model: an initial focus on biomedical sciences (Years 1–3), followed by immersive clinical training (Years 4–6). The clinical phase is

particularly intensive, often involving direct patient care and practical assessments, thereby exacerbating students' stress levels (Wright & Mynett, 2019).

Furthermore, Muth and Loerbroks (2019) note that rigid attendance policies and dense academic schedules further heighten stress. To mitigate these pressures, Bergmann et al. (2019) recommend incorporating innovations such as e-learning and virtual simulations to promote flexibility and personalized learning. Nonetheless, curriculum reforms may produce unintended consequences. At Oregon Health and Science University, a transition to a competency-based model with frequent assessments resulted in increased student stress, particularly due to accelerated timelines for foundational science modules (McKerrow et al., 2020; Robinson et al., 2023). Despite these insights, McKerrow et al. caution against generalizing such outcomes to institutions operating under more traditional educational structures.

Academic workload can also be conceptualized in terms of semester duration and the pressures associated with extended academic terms. Bilgin et al. (2017) and Gallardo-Lolandes (2020) found that longer semesters are associated with heightened psychological distress among university students. Conversely, Goppert and Pfof (2021) reported higher student satisfaction and lower stress levels during shorter academic terms, such as summer semesters, although their study did not directly establish a causal relationship between stress and semester duration.

While some scholars, including Chamberlin et al. (2018) and Yayla and Cevik (2022), argue that competition can enhance motivation and academic engagement, they also acknowledge the subjective nature of psychological distress. For some students, competition triggers anxiety and emotional exhaustion; for others, it serves as a motivational catalyst. This variability aligns with Lazarus and Folkman's Transactional Theory of Stress and Coping, which posits that individuals' appraisals of stressors as either threats or challenges are central to their emotional and psychological responses.

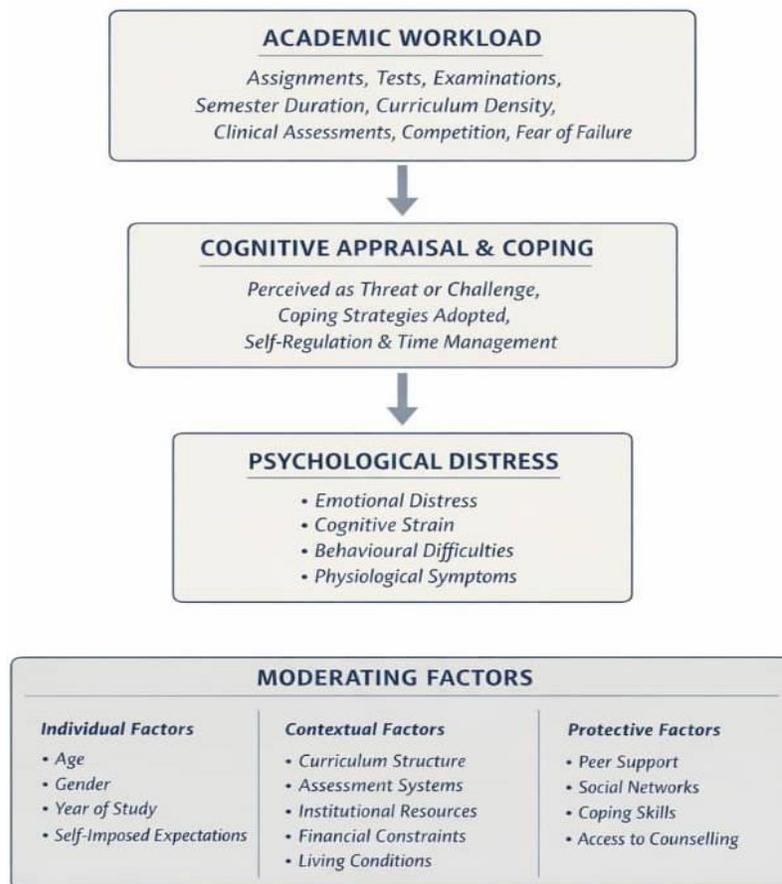
This study is grounded in Lazarus and Folkman's (1984) Transactional Model of Stress and Coping. As previously noted, the model proposes that students' appraisals of academic workload determine whether it functions as a stressor or a motivator (Biggs et al., 2017). Psychological distress arises from individuals' evaluations of environmental demands relative to their available coping resources. In medical education, workload, including the volume of coursework, assessments, semester duration, and clinical requirements, constitutes a primary

stressor. Distress occurs when these demands are appraised as overwhelming and unmanageable. Coping responses and psychological outcomes are shaped by individual, contextual, and protective factors.

Figure 1 presents the conceptual framework guiding this study, illustrating how academic workload influences psychological distress through cognitive appraisal and coping processes, while accounting for individual and contextual moderating variables.

Figure 1

Conceptual framework



The moderating factors highlight the need for targeted investigations into how academic workload predicts psychological stress among medical students specifically. Findings by Koschel et al. (2017) and Pitt et al. (2018) suggest that extended semesters contribute to sleep deprivation, anxiety, and other symptoms of distress among medical students. Koschel et al.'s quasi-experimental study, which examined both physiological and

subjective stress responses toward the end of a semester, found only a weak correlation between objective and perceived stress levels. Their research points to the benefits of wellness initiatives but also underscores the limitations of experimental designs in capturing the nuanced realities of academic stress. This study therefore, sought to answer the question; to what extent does academic workload predict psychological distress among medical students in Zimbabwean medical schools?

2. Materials and Methods

2.1. Study Site and Design

This quantitative study employed a correlational research design and was carried out at two medical schools in Zimbabwe. Both institutions are faculties within public universities and have been operational for approximately 15 years. The medical schools are located in separate administrative provinces in Zimbabwe.

2.2. Participants

Since the study involved two separate medical schools, the researchers wanted to make sure that students from both institutions were fairly represented. To do this, they used a stratified sampling method, treating each school as its own distinct group, or “stratum.” First, they calculated the total number of students across both schools. Then, they figured out what percentage of that total came from each school. These percentages were used to determine how many students to include from each institution in the final sample.

Once the researchers knew how many students to include from each school, they used a simple random sampling technique to choose the actual participants. 123 medical students participated in the study. The average age of the respondents was 24 years, and they represented every level of the medical program from first-year students all the way up to the sixth level.

Table 1 shows various biographical variables examined in the study to see the extent to which these stress factors were able influence the strength and the direction of the relationships between variables.

Table 1*Biographical data (n=123)*

Biographical variable	Biographical description	Frequency	Percentage (%)
Gender	Male	65	52.8
	Female	58	47.2
Age	18-22 years	70	57
	23-27 years	51	41
	28-32 years	01	0.8
	33-50 years	01	0.8
Relationships status	Single and dating	66	53.6
	Single and not dating	56	45.5
	Married	1	0.8
Academic year	First year	21	17.0
	Second year	32	26.0
	Third year	28	22.8
	Fourth year	18	14.6
	Fifth year	24	19.5
	O level	35	28.4
Educational qualification of parents	Diploma	22	17.9
	Degree	12	9.8
	Post Graduate	11	8.9
	Other	43	35.0
Family Income status per month in USD	1-200	16	13.0
	201-400	34	27.6
	401-500	10	8.1
	500 and above	56	45.5
	No response	7	5.7
Ethnicity	African	122	99.2
	European	1	0.8
	Asian	0	0

2.3. Instrument

Data were collected using a Revised Student-Life Stress Inventory which measures the relationship between academic workload and psychological distress. The Revised Student Stress Scale was pilot tested by administering it to a small sample of medical students chosen from the target population to identify and remove ambiguously phrased and culturally sensitive items before the full implementation. This 21-item Likert-scale instrument is a condensed and refined version of the original 51-item tool developed in 1991. Responses are rated from 1 (no stress) to 5 (extreme stress) and the instrument assesses five categories of stressors frustration,

conflict, pressure, change, and self-imposed stress—as well as four types of stress reactions: physiological, emotional, behavioural, and cognitive. Total scores were interpreted as follows: 84–105 indicating severe distress, 63–84 moderate distress, and 42–63 mild distress. The instrument demonstrated good internal consistency in this study, with a Cronbach’s alpha of .789.

2.4. Procedure

Hard-copy questionnaires were administered in person to students enrolled across all six years of the MBBS programme. 123 participants were given the questionnaires to fill in and they all submitted completed questionnaires after 48 hours. The response rate was therefore, 100%.

2.5. Data Analysis

Data were processed and analysed using SPSS version 28. The data were first checked for normality using the Shapiro–Wilk Test. After determining normality, linear regression was conducted to evaluate the strength and direction of this relationship. The Analysis of Variance (ANOVA) was performed to assess whether perceived academic workload and resulting stress varied significantly across different year levels.

2.6. Ethical Consideration

The Medical Research Council of Zimbabwe granted ethical approval for the study (approval number MRCZ/A/2798). Written informed consent was obtained from all participants, who were also informed of their right to withdraw from the study at any point. Throughout the research process, ethical principles such as non-maleficence and beneficence were strictly upheld.

3. Results

Table 2 presents the descriptive statistics illustrating the extent to which academic workload and related stressors contribute to psychological distress among medical students. The table summarizes the number of respondents (N), mean scores, standard deviations, skewness, and kurtosis values for each identified stressor. These statistics provide insight into the central tendencies, variability, and distribution patterns of responses.

Table 2*Descriptive statistics*

	N	Mean	Std Deviation	Skewness	Kurtosis
Conflict with authority (deans, police, professors, etc.)	109	1.79	.771	1.373	3.904
Academic workload (assignments, tests, examinations, semester duration, fitting in all the work, failing classes)	69	1.93	1.204	.663	-1.320
Procrastination - Wanting to go have fun but needing to study	109	1.95	1.265	1.598	1.481
Life transitions (moving, etc.)	100	2.05	.770	.996	2.797
Not enough friends	109	2.14	.887	.861	1.382
Campus environment (e.g., fitting in, values conflict)	109	2.17	.731	.586	1.357
Getting nothing done. Balancing school work and fun	109	2.24	.952	.750	.268
Demands of school work	100	2.25	.947	.861	.465
Religious/other cultural conflicts	109	2.26	.985	.231	-.736
Loss (death or separation from someone close)	109	2.29	.864	.267	.325
Inadequacy of living arrangements	109	2.30	.752	1.034	2.931
Self-doubt and negative self-talk	109	2.33	.933	.613	.129
Issues with family (parents, siblings) – family expectations, family’s dependence, homesickness, lack of understanding/support	109	2.37	.868	.593	1.335
Racial or Ethnic Discrimination (Feeling like you need to work harder to prove yourself)	100	2.37	1.220	.786	-.004
Future planning, decision making – What will I major in, do in the future, will it all work out?	99	2.42	1.238	1.413	.611
Separation, conflict with partner or friends	109	2.51	.801	.230	1.275
Your health	100	2.54	.846	1.660	2.629
Drug and alcohol problems	109	2.75	1.081	.556	-.137
Health of parent, friend or other	109	2.76	.781	.686	.980
Valid (listwise)	50				

Table 3 presents the results of a one-sample t-test examining psychological distress among 103 participants. The mean psychological distress score is 4.29, with a standard deviation of 0.77, indicating moderate variability. The standard error of the mean is 0.056, suggesting a precise estimate of the average distress level in the sample.

Table 3*One-sample t-test results for psychological distress scores among participants*

	N	Mean	Std. Deviation	Std. Error Mean
Psychological distress	103	4.2853	.76547	.05572

Table 4 shows the one sample t-test parametric test statistic employed to establish if academic workload contributed to psychological distress of medical students.

Table 4*One-sample t-test results for academic workload*

	T	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Academic workload	11.392	102	.000	.63471	.7452	.5242

Test Value = 3

The regression analysis in Table 5 shows that academic demands significantly predict stress levels, with a moderate positive correlation. Academic pressures explain about 11.4% of the variation in stress. The model is statistically significant, and the Durbin-Watson value indicates no serious autocorrelation, confirming the reliability of the results. Overall, academic demands have a meaningful, though modest, impact on student stress.

Table 5*Regression model summary predicting stress from academic demand*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				Durbin- Watson	
					R Square Change	F Change	df1	df2		Sig. F Change
1	.338 ^a	.114	.099	.50731	.114	7.847	1	61	.007	2.037

a. Predictors: (Constant), academicdemands

b. Dependent Variable: Stress

The ANOVA results in Table 6 show that academic demands significantly influence stress levels, with a strong statistical significance ($p = .007$). The regression model accounts for a portion of the total variance in stress, confirming that academic pressures are a meaningful contributor to students' mental health challenges.

Table 6*ANOVA summary for regression model predicting stress from academic demands*

	Model	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2.020	1	2.020	7.847	.007 ^b
	Residual	15.699	61	.257		
	Total	17.719	62			

a. Dependent Variable: Stress

b. Predictors: (Constant), academic demands

Linear regression analysis was conducted to examine the association between academic demands and psychological distress among medical students, and to determine the extent to which academic demands account for variance in psychological distress. The results indicated a significant positive relationship between academic demands and students' distress levels. Specifically, as academic demands increase, the levels of psychological distress experienced by medical students at the two institutions also increase.

Table 7

Coefficients of linear regression predicting stress from academic demands

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1 (Constant)	1.616	.219		7.376	.000	1.178	2.054
Academic demands	.147	.053	.338	2.801	.007	.042	.253

Dependent variable: Stress

4. Discussion

The study sought to examine how academic demands predict psychological distress among medical students. With regard to biographical variables, only students' academic level appeared to influence the relationship between academic workload and distress. First-year students exhibited higher levels of distress compared to final-year students. This may be because first-year students have not yet developed effective coping strategies to manage academic stressors.

The finding that medical students experience distress emanating from academic workload confirms previous studies (Kurma, 2018; Reddy et al., 2018; Campbell et al., 2018; Hill et al., 2018; Weber et al., 2019; Cipra & Müller-Hilke, 2019; Ragab et al., 2021; Pelissier et al., 2021; Zheng et al., 2023), which consistently report that many students suffer psychological distress due to academic demands. Academic workload typically manifests in the form of numerous assignments, frequent tests, and demanding examinations.

The present study's finding that academic workload is positively correlated with psychological distress among medical students further aligns with research by Abdulghani et al. (2011), Baer (2011), and Posselt and Lipson (2016), who examined academic workload and distress in broader higher education populations and found that many students are vulnerable

to stress resulting from academic pressure. Similarly, Cook and Crewther (2019) and Abouammah et al. (2020), focusing specifically on medical students, reported that the highly competitive nature of medical education contributes to elevated levels of distress. A possible explanation for this competition may be the incentives and recognition awarded to top-performing students upon completion of the medical program, which may intensify grade-related pressure.

However, the finding that competition for grades increases distress contrasts with the results of Chamberlin et al. (2018) and Yayla and Cevik (2022), who found that academic competition enhanced performance and motivated students to exert greater effort in their studies. One possible explanation for this discrepancy is contextual differences. For example, Yayla and Cevik (2022) examined a Turkish sample of practicing teachers pursuing advanced degrees. These participants may have developed more effective coping mechanisms due to their professional experience, age, and maturity, leading them to perceive competition as motivational rather than stressful.

The current study also revealed that longer semesters at the two medical schools increase academic workload, which in turn contributes to psychological distress. Medical schools in Zimbabwe typically run semesters averaging five months, in contrast to general university programs, where semesters last approximately three to four months. The finding that longer semesters contribute to increased distress is consistent with studies by Bilgin et al. (2017), Pitt et al. (2018), and Gallardo-Lolandes (2020), which reported that extended academic terms are associated with higher levels of distress among university students. Prolonged semesters may intensify demands such as sustained academic engagement, depletion of financial and personal resources (e.g., food, toiletries, pocket money), and extended separation from family members, all of which may compound students' psychological strain.

5. Conclusion

Based on the results presented, the study concludes that there is a significant relationship between academic workload and psychological distress among medical students. The findings indicate that increased academic pressure is associated with heightened levels of psychological distress. As academic workload increases, psychological distress scores also rise. The study further concludes that additional factors, including personal life events,

students' financial status, and exposure to patient death, also contribute to psychological distress among medical students. Although these variables influence distress levels, the findings demonstrate that academic demands alone account for nearly ten percent of the variance in psychological distress, underscoring their substantial impact on students' well-being.

In light of these findings, the study recommends that medical students receive structured training in adaptive coping strategies to better manage psychological distress. Furthermore, it is recommended that peer-to-peer counseling programs be introduced to equip students with basic supportive skills, enabling them to provide early psychological assistance to their peers during the initial stages of distress.

Disclosure statement

The authors reported no potential conflict of interest.

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Institutional Review Board Statement

The study received ethical approval from the Medical Research Council of Zimbabwe (approval number MRCZ/A/2798).

AI Declaration

The authors acknowledge the use of Open AI's Chat GPT (GPT-4, 2025) for assisting in the advancement of wording, integration of cited works, and synthesizing language grammar. Although the AI-assisted tool improved language expression, the interpretations and analyses, as well as all content presented, are solely the responsibility of the authors and their scholarly judgment.

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