Discover Education

https://doi.org/10.1007/s44217-026-01849-4

Article in Press

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Received: 24 March 2026

Accepted: 24 June 2026

Published online: 25 July 2026

Cite this article as: Namwase J., Omolo R.O., Katushabe G. *et al.* Burnout and associated factors among postgraduate students at Mbarara University of Science and Technology in Southwestern Uganda. *Discov Educ* (2026). https://doi.org/10.1007/s44217-026-01849-4

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Burnout and associated factors among postgraduate students at Mbarara University of Science and Technology in Southwestern Uganda

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ABSTRACT

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Background: Burnout is a growing concern among postgraduate students due to sustained academic and clinical demands. Characterized by emotional exhaustion, depersonalization, and reduced personal accomplishment, burnout negatively affects mental well-being, academic performance, and quality of patient care. Although high levels of burnout have been reported among postgraduate trainees globally, evidence from Uganda, particularly at Mbarara University of Science and Technology (MUST), remains limited. This study aimed to determine the prevalence of burnout and identify associated factors among postgraduate students at MUST, Uganda.

Methods: A cross-sectional study was conducted among 193 postgraduate students. Burnout was measured using the Maslach Burnout Inventory–Human Services Survey (MBI-HSS), comprising emotional exhaustion (EE), depersonalization (DP), and personal accomplishment (PA) subscales. Burnout syndrome was defined as high EE (>26), high DP (>9), and low PA (≤33) according to established MBI cut-offs. Bivariable and multivariable logistic regression analyses were performed to identify factors independently associated with burnout, with results reported as odds ratios (ORs) with 95% confidence intervals and statistical significance set at $p < 0.05$.

Results: The prevalence of burnout syndrome among postgraduate students was 13.5% (95% CI: 8.9–19.8). Burnout was independently associated with a history of academic retakes (AOR = 7.85; 95% CI: 2.43–27.84; p =<0.001) and working without study leave (AOR = 7.29; 95% CI: 1.06–44.32; p = 0.044).

Conclusion: Burnout was observed among a notable proportion of postgraduate students at MUST and was significantly associated with academic retakes and employment without study leave, highlighting the impact of academic progression challenges and work–study imbalance on student well-being. Early identification and

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targeted institutional interventions are needed to support postgraduate students and reduce burnout risk.

Keywords: *Burnout, Academic performance, Postgraduate Students, Maslach Burnout Inventory, Uganda.*

Introduction

Burnout is a psychological syndrome resulting from chronic exposure to prolonged academic or occupational stress and is characterized by emotional exhaustion, depersonalization or cynicism, and reduced personal accomplishment or academic efficacy (Maslach and Jackson, 1981, Demerouti, 2024). Burnout has traditionally been described among helping professionals such as physicians, nurses, teachers, and psychologists due to the emotionally demanding nature of their work (Kovbuz, 2025, Maslach et al., 1997). However, increasing evidence shows that burnout also affects university students, particularly postgraduate trainees who are exposed to sustained academic, clinical, and research-related pressures (Chong et al., 2025). In the present study, postgraduate students refer to individuals enrolled in advanced academic training beyond the undergraduate level, including, master's degree, doctoral, and residency training programmes at Mbarara University of Science and Technology (MUST).

Globally, burnout among postgraduate and health-professional trainees remains a major public health and educational concern. A systematic review by Naji et al. (2021) (Naji et al., 2021) reported a pooled burnout prevalence of 47.3% among postgraduate medical trainees worldwide, while prevalence estimates among university students vary widely depending on the population studied and burnout definitions applied. These findings highlight burnout as an increasingly important

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challenge affecting student well-being, academic performance, and professional development.

In Africa, high levels of burnout have been reported among health sciences students and medical trainees, including 64.4% among health sciences students in Ethiopia (Tlili et al., 2021), 41.7% among resident doctors in Nigeria (Ogboghodo and Edema, 2020), 79.9% among medical students in Egypt (Atlam, 2018), and 54.5% among medical students in Uganda (Kajjimu et al., 2021). These findings underscore the substantial burden of burnout across African settings and emphasize the need for context-specific evidence to inform interventions aimed at improving student well-being.

Postgraduate students experience unique stressors that extend beyond routine academic demands. These include balancing coursework, research activities, publication expectations, teaching responsibilities, clinical duties for health-professional trainees, financial obligations, employment commitments, and family responsibilities (Allen et al., 2022, Bhatti et al., 2018). Burnout among postgraduate students commonly manifests through emotional exhaustion, persistent fatigue, reduced motivation, cynicism toward academic work, impaired concentration, reduced academic efficacy, sleep disturbances, and psychological distress (Grech, 2021, Chong et al., 2025). Studies have shown that burnout negatively affects academic performance, research productivity, learning engagement, mental well-being, and professional functioning, and may contribute to course failure, dropout intentions, substance use, and poor quality of patient care among clinical trainees (Allen et al., 2022, Rigg et al., 2013).

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Most previous studies in Uganda and other low- and middle-income countries have focused primarily on undergraduate medical students, resident doctors, or health sciences trainees, with limited attention given to postgraduate students across diverse academic disciplines. Furthermore, institutional and contextual factors associated with burnout among postgraduate students at MUST remain poorly understood despite increasing postgraduate enrolment and growing academic demands within higher education institutions. Understanding the prevalence and factors associated with burnout in this population is important for informing institutional mental health support strategies, improving academic well-being, and promoting successful postgraduate training outcomes. Therefore, this study aimed to determine the prevalence of burnout and identify factors associated with burnout among postgraduate students at Mbarara University of Science and Technology in Southwestern Uganda.

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Methods

Study Design: A cross-sectional study design was employed, and the study was conducted between September 2024 and March 2025.

Study Setting: The study was conducted at Mbarara University of Science and Technology (MUST), a public university in Mbarara City, South Western Uganda. MUST has two campuses: Mbarara town Campus and Kihumuro Campus, and hosts approximately 6,043 undergraduates and 584 postgraduate students including 318 in faculty of medicine, 110 in faculty of science, 20 in faculty of interdisciplinary studies, 94 in faculty of business and management sciences, 42 in faculty of computing and informatics. The university comprises six faculties and is affiliated with Mbarara Regional Referral Hospital, a 600-bed teaching hospital serving several

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surrounding districts. Postgraduate students are admitted through an online system and engage in coursework, research, teaching, and, for clinical disciplines, patient care. The study population included 584 postgraduate students across various faculties, excluding the Faculty of Applied Science and Technology, which has no postgraduate enrolment.

Study population and sampling: The study participants were postgraduate students at Mbarara University of Science and Technology (MUST). A list of postgraduate students was obtained from the Office of the Academic Registrar and organized according to faculty. The study initially employed a stratified sampling approach, with faculties considered as strata to ensure representation of postgraduate students across different academic disciplines. Proportional allocation was used to estimate the number of participants required from each faculty based on postgraduate student enrollment.

The sample size was calculated using Epi Info StatCalc at a 95% confidence level, a burnout prevalence of 27% obtained from a previous study among university students in low- and middle-income countries (Kaggwa et al., 2021), and a 5% margin of error. A design effect of two (2) was applied to account for potential variability across faculty strata and to improve representativeness of the sample drawn from multiple academic disciplines. This yielded a minimum sample size of 190 participants. After adjusting for a potential 10% nonresponse rate, the final target sample size was increased to 209 participants.

Due to logistical feasibility and ease of access to postgraduate students across different faculties, data collection was conducted using an online questionnaire developed through Google Forms (Google LLC, Mountain View, California, USA). The

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survey link was distributed electronically through postgraduate students' WhatsApp groups and institutional communication platforms with the assistance of postgraduate class representatives and administrators. The communication platforms used were those routinely employed for official academic communication among postgraduate students.

The online survey link directed participants to an introductory information page outlining the study objectives, procedures, eligibility criteria, potential risks and benefits, voluntary nature of participation, confidentiality measures, contact details of the principal investigator, and participants' right to withdraw from the study at any time. Participants were required to provide electronic informed consent before accessing the questionnaire. Those who declined consent were automatically exited from the survey. Participants completed the questionnaire anonymously and at their convenience. Periodic reminder messages were sent through the same communication platforms during the data collection period to encourage participation and improve the response rate. Of the 209 targeted participants, 193 completed questionnaires were included in the final analysis, yielding a response rate of 92.3%.

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Inclusion and exclusion criteria: The study included all postgraduate students currently enrolled at Mbarara University of Science and Technology (MUST) during the study period, irrespective of study mode (full-time or part-time). In this study, postgraduate students were defined as students enrolled in master's degree, doctoral, and clinical residency training programmes at MUST. To ensure adequate exposure to the postgraduate academic environment, only students who had spent at least three months in their respective training programmes were eligible for inclusion. Students who were not formally registered during the study period, those who had spent less than three months in their programmes, undergraduate students,

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and postgraduate students who declined to provide informed consent were excluded from the study.

Data collection procedures: Data were collected using a structured, self-administered questionnaire developed by the research team after reviewing similar published studies (Haile et al., 2019). The questionnaire items were adapted to the context of postgraduate students in Ugandan universities. To ensure clarity, relevance, and appropriateness of the items, the draft instrument was pretested among five postgraduate students at Bishop Stuart University in Mbarara City, an institution with a student population comparable to the study setting. The pretest assessed the clarity of wording, appropriateness of response options, and overall comprehensibility of the questionnaire. Feedback from the participants indicated minor ambiguities in the wording of some items and redundancy in a few response options. These issues were addressed by revising the phrasing of several questions and simplifying response categories before the questionnaire was finalized. The final version was then administered to study participants, who were instructed to select the response that best reflected their experiences.

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Data collection tools: A structured self-administered questionnaire was used to collect data. Part A captured sociodemographic information, such as age, sex, religion, marital status, employment status, presence of study leave, year and course of study, year of enrollment, latest CGPA, history of retakes or repeated academic years, self-employment, and scholarship status among others while Part B consisted of the Maslach Burnout Inventory-Human Services Survey (MBI-HSS), a validated instrument used to assess burnout The MBI-HSS comprises three subscales: emotional exhaustion (9 items), depersonalization (5 items), and personal accomplishment (8 items) (Allen et al., 2022, Gelaw et al., 2023, Maslach et al., 1997,

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Maslach and Jackson, 1981). Each item is rated on a 7-point Likert scale ranging from 0 (“never”) to 6 (“always”), with higher scores indicating greater burnout. Standard cut-off values were used to categorize emotional exhaustion, depersonalization, and personal accomplishment into low, moderate, and high levels.

Study Variables

Dependent Variable

The dependent variable was burnout syndrome. Burnout syndrome was defined according to standard MBI-HSS criteria as the simultaneous presence of high emotional exhaustion (EE >26), high depersonalization (DP >9), and low personal accomplishment (PA ≤33). Participants meeting all three criteria were classified as having burnout syndrome. This definition of burnout was adopted based on previous literature (Kajjimu et al., 2021, Haile et al., 2019, Dyrbye et al., 2009). The MBI-HSS has been validated in student populations and has internal consistency of each latent factor greater than 0.7 with values of 0.77, 0.72, and 0.81 for emotional exhaustion, professional efficacy, and cynicism, respectively (Kajjimu et al., 2021).

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Independent Variables

The independent variables included age (continuous), sex (male, female), nationality (Ugandan, non-Ugandan), marital status (married, single, other), employment status (yes, no), study leave status (yes, no), working without study leave (yes, no), self-employment status (yes, no), history of academic retakes (yes, no), and repeated academic year (yes, no). Employment status referred to whether a participant reported having formal employment in addition to postgraduate training at the time of the study. Study leave referred to official employer-approved leave granted to employed students to allow participation in postgraduate training activities. Working

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without study leave referred to employed postgraduate students who continued working while undertaking postgraduate training without formal study leave approval from their employer. Self-employment referred to participants engaged in income-generating activities or business ownership independent of formal salaried employment. Academic retakes referred to repeated examination attempts or repeated coursework due to previous academic failure. Repeated academic year referred to repetition of an entire academic year or level of study because of unsatisfactory academic progress. Scholarship status referred to whether a participant received financial sponsorship or funding support for postgraduate training.

Data quality control: To ensure data quality, the questionnaire was prepared in English and reviewed by the study team for clarity, completeness, and consistency prior to administration. Participants were provided with a brief explanation of the study objectives, potential benefits, and minimal risks, and were assured that their responses would remain confidential and used solely for research purposes. The questionnaire had been pretested prior to the main study to improve clarity and contextual relevance, and the results of the pretest were not included in the final analysis. During data collection, completed questionnaires were checked for completeness and consistency before entry into the database. Any incomplete or inconsistent responses were verified where possible. Participation was voluntary, and respondents were informed of their right to decline participation or withdraw from the study at any time during questionnaire completion.

Data management and analysis: Data collected through Google Forms were exported to Microsoft Excel and subsequently imported into STATA version 17 (StataCorp LLC, College Station, Texas, USA) for cleaning and statistical analysis. Data

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were stored on a password-protected computer accessible only to the research team. Descriptive statistics were used to summarize participant characteristics. Categorical variables were presented as frequencies and percentages, while continuous variables were summarized using measures of central tendency and dispersion. Associations between independent variables and burnout were assessed using the Chi-square test or Fisher's exact test where appropriate.

Bivariable logistic regression analysis was performed to examine the relationship between each independent variable and burnout. Variables with a p-value ≤0.25 in bivariable analysis, together with variables considered biologically or contextually relevant based on existing literature, were included in the multivariable logistic regression model to control for potential confounding effects and identify factors independently associated with burnout. Adjusted odds ratios (AORs) with 95% confidence intervals (CIs) were reported for variables retained in the final model. Statistical significance was considered at $p < 0.05$.

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Results

A total of 209 postgraduate students accessed the online questionnaire. Of these, 193 completed it fully and were included in the final analysis, giving a response rate of 92.3%. The mean age of participants was 32 ± 6 years with (range of 27-40 year). Most respondents were male 144 (74.6%), Ugandans 175(90.7%), married 104(53.9%), and employed 122(63.2%). Age did not differ significantly between those with and without burnout (p=0.061), Table 1.

Table 1: Characteristics of postgraduate students at Mbarara University of Science and Technology, September 2024 - March 2025 (N=193)

Characteristics	Overall	Burnout

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	N=193 n/N (%)	Present (N=26) n (%)	Absent (N=167) n (%)	P-value
Sex				1.000
Male	144(74.6)	19(73.1)	125(74.9)	
Female	49(25.4)	7(26.9)	42(25.2)	
Nationality				0.476
Ugandan	175(90.7)	25(96.2)	150(89.8)	
Non-Ugandan	18(9.3)	1 (3.9)	17(10.2)	
Marital status				0.817
Married	104(53.9)	13(50.0)	91(54.5)	
Single	85(44.0)	13(50.0)	72(43.1)	
other	4(2.1)	0(0.0)	4(2.4)	
Has a Job				1.000
No	71(36.8)	10(38.5)	61(36.5)	
Yes	122(63.2)	16(61.5)	106(63.5)	
study leave (among employed)				0.085
No	162(83.9)	25(96.2)	137(82.0)	
Yes	31(16.1)	1(3.8)	30(18.0)	
No study Leave but still works				0.135
No	97(50.3)	9(34.6)	88(52.7)	
Yes	96(49.7)	17(65.4)	79(47.3)	
Self-employed				0.148
No	169(87.6)	20(76.9)	149(89.2)	
Yes	24(12.4)	6(23.1)	18(10.8)	
Any Retakes				0.002*
No	167(86.5)	17(65.4)	150(89.8)	
Yes	26(13.5)	9(34.6)	17(10.2)	
Repeated Academic Year				0.070
No	172(89.1)	20(76.9)	152(91.0)	
Yes	21(10.9)	6(23.1)	15(9.0)	

*Significant p-values

Prevalence of burnout among postgraduate students at Mbarara University of Science and Technology

The overall prevalence of burnout among postgraduate students at Mbarara University of Science and Technology was 13.5% (95% CI: 8.9–19.8). Of the 193 participants included in the study, 26 met the criteria for burnout syndrome, while

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167 did not. The distribution of participants with and without burnout is illustrated in Figure 1.

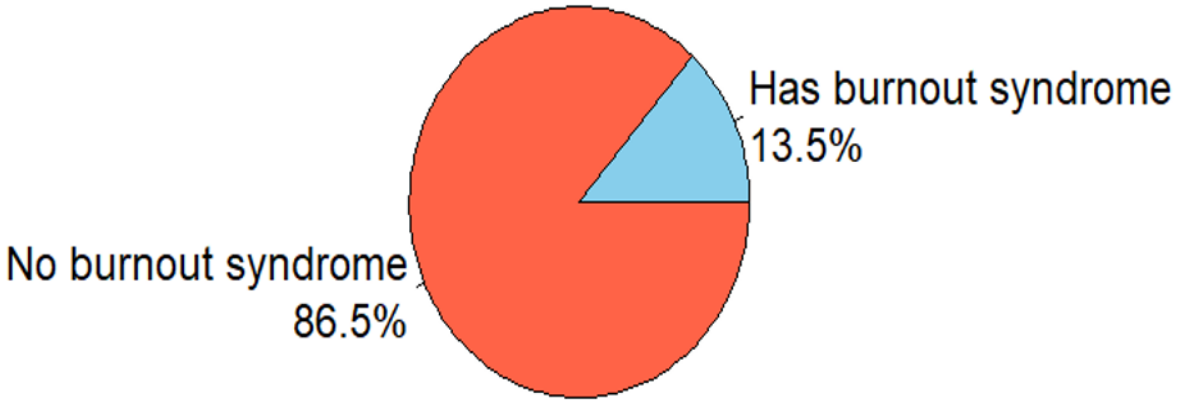


Figure 1: Prevalence of Burnout among postgraduate students at Mbarara University of Science and Technology

Factors Associated with Burnout among postgraduate students at Mbarara University of Science and Technology

Bivariable and multivariable logistic regression analyses were performed to identify factors associated with burnout among postgraduate students. Variables entered into the multivariable model were selected based on bivariable analysis ($p \leq 0.25$) and conceptual relevance informed by previous literature on burnout among postgraduate and health-professional trainees. In the adjusted analysis, students with a history of academic retakes had significantly higher odds of burnout compared with those without retakes (AOR = 7.85; 95% CI: 2.43–27.84; p = <0.001). Similarly, students who were employed without study leave had significantly higher odds of burnout compared with those who had study leave (AOR = 7.29; 95% CI: 1.06–44.32; p = 0.044). Other variables, including age, sex, marital status, employment status,

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self-employment, and repeated academic year, were not independently associated with burnout after adjustment for potential confounding factors (Table 2).

Table 2: Bivariable and multivariable logistic regression analysis of factors associated with burnout among postgraduate students at Mbarara University of Science and Technology, September, 2024 - March 2025 (N=193)

Variable	**Bivariate Analysis**		**Multivariable Analysis**	
	Crude Odds Ratio (95% CI)	**p-value**	**Adjusted Odds Ratio (95% CI)**	**p-value**
Sex				
Female	1.00		1.00	
Male	0.91(0.37 – 2.47)	0.847	1.19(0.45 – 3.55)	0.732
Age	0.97(0.82 – 0.99)	0.057	0.89 (0.77 – 1.00)	0.066
Marital status				
Other	1.00		1.00	
Married	1.33(0.13 – 179.40)	0.847	0.34(0.02 – 52.44)	0.560
Single	1.68(0.16 – 226.90)	0.718	0.17(0.01 – 27.10)	0.378
Has a Job				
No	1.00		1.00	
Yes	0.92(0.4-2.22)	0.849	0.27(0.05-1.79)	0.163
No study Leave but still works				
No	1.00		1.00	
Yes	2.10(0.91 – 5.19)	0.091	7.29(1.06 – 44.32)	**0.044***
Self-employed				
No	1.00		1.00	
Yes	2.48(0.82 – 6.74)	0.850	2.83(0.87 – 8.79)	0.082
Any Retakes				
No	1.00		1.00	
Yes	4.67(1.76 – 12.00)	0.001	7.85(2.43 – 27.84)	**<0.001***
Repeated any academic year				
No	1.00		1.00	
Yes	3.04(0.99 – 8.46)	0.039	2.34(0.65 – 7.85)	0.186

* Significant p-values

Discussion:

This study investigated the prevalence and factors associated with burnout among postgraduate students at MUST. The overall prevalence of burnout syndrome was

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13.5%, while academic retakes and employment without study leave were independently associated with burnout.

Although this prevalence appears lower than many estimates reported in the literature, it still represents a meaningful burden within this academically demanding population. The prevalence observed in this study is consistent with lower-range estimates reported among postgraduate students and health-professional trainees in low- and middle-income countries (LMICs), where burnout prevalence has varied from 10% to 55% (Youssef, 2016, Altannir et al., 2019), and from 3% to 88% specifically among postgraduate medical trainees (Naji et al., 2021). For example, burnout prevalence of 13.4% was reported among family medicine residents in Saudi Arabia (Aldubai et al., 2019), while systematic reviews among university students have reported similarly variable prevalence estimates depending on burnout definitions and study populations (Kaggwa et al., 2021, Abraham et al., 2024).

Differences between our findings and studies reporting substantially higher prevalence may partly reflect methodological differences in burnout definition. In the present study, burnout syndrome was defined using the simultaneous presence of high emotional exhaustion, high depersonalization, and low personal accomplishment according to the Maslach Burnout Inventory-Human Services Survey (MBI-HSS), which is considered a stricter definition of burnout (Dyrbye et al., 2009). By contrast, some studies classified burnout based on elevated scores in only one burnout domain, particularly emotional exhaustion, resulting in higher prevalence estimates. Additionally, the present study included both clinical and non-clinical postgraduate students enrolled in master’s and postgraduate professional training programs at Mbarara University of Science and Technology, whereas studies reporting substantially higher prevalence frequently focused exclusively on medical residents

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and clinical trainees exposed to intense clinical workloads and prolonged working hours (Naji et al., 2021, Fernando and Samaranayake, 2019).

A prevalence of 13.5% nonetheless suggests the presence of a subgroup of postgraduate students vulnerable to impaired academic functioning and psychological well-being. Previous studies have demonstrated that burnout among university students is associated with poorer mental health, reduced academic engagement, emotional exhaustion, and decreased academic performance (Madigan et al., 2024, Chong et al., 2025). These findings highlight the need for institutional strategies specifically targeting academically vulnerable students and postgraduate learners balancing employment without study leave, including academic mentorship, psychosocial support services, and flexible academic scheduling.

Academic retakes emerged as a strong independent predictor of burnout, with students who had retakes being nearly eight times more likely to experience burnout compared with those without retakes. While the magnitude of this association was relatively high, the direction of effect is consistent with existing literature demonstrating associations between academic difficulties, psychological distress, and burnout among students (Mamun et al., 2021, Chong et al., 2025). Broader evidence among medical and postgraduate learners similarly shows elevated burnout among individuals experiencing delayed academic progression and poor academic performance (Imtiaz et al., 2026). Variations in effect size across studies may partly reflect differences in burnout measurement approaches. Whereas some studies assessed burnout using single-domain emotional exhaustion scores, the present study employed the stricter three-domain MBI-HSS definition requiring concurrent high emotional exhaustion, high depersonalization, and low personal accomplishment (Bagatini et al., 2026).

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In postgraduate settings characterized by demanding academic workloads and high professional expectations, academic retakes may undermine self-confidence, disrupt peer progression, and increase financial and time-related pressures. These stressors may cumulatively heighten vulnerability to burnout. At the same time, the reverse relationship is also plausible, whereby burnout itself contributes to poor academic performance, decreased concentration, reduced engagement, and increased risk of academic failure. This bidirectional relationship suggests a potentially cyclical interaction between burnout and academic difficulties, highlighting the importance of interventions that simultaneously support both academic performance and student well-being.

Being an employed student without study leave was also independently associated with burnout, with affected students having sevenfold higher odds of burnout compared with their peers. The dual burden of employment and postgraduate study may generate sustained physical, emotional, and mental exhaustion, consistent with established theories linking role overload and role conflict to burnout (Drăghici and Cazan, 2022). Similar findings have been reported among working postgraduate students within the health profession, who are exposed to excessive workload and limited organizational support (Lai et al., 2025, Cornér et al., 2023). Evidence from higher-education settings further suggests that employed students managing demanding or inflexible work schedules experience higher stress levels, poorer well-being, and reduced academic performance (Rigg et al., 2013). In contexts where postgraduate training coexists with financial obligations and demanding employment responsibilities, inadequate workplace flexibility may substantially increase vulnerability to burnout, consistent with the findings of the present study.

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In the present study, several sociodemographic variables including sex, marital status, employment status, self-employment status, and repeated academic year were not independently associated with burnout after adjustment for potential confounders. Although previous studies have sometimes reported higher burnout among female students and younger trainees, findings remain inconsistent across settings (Kajjimu et al., 2021, Tlili et al., 2021). The absence of statistically significant associations in this study may suggest that postgraduate academic pressures affect students relatively similarly across demographic categories within the MUST environment. Similarly, although repeating an academic year showed increased crude odds of burnout, the association did not remain statistically significant after multivariable adjustment, suggesting that more immediate academic stressors such as academic retakes and balancing employment without study leave may have stronger influence on burnout risk in this population.

Strengths and Limitations: This study provides institution-specific evidence on burnout among postgraduate students at MUST, including students enrolled in master's degree, doctoral, postgraduate diploma, and clinical residency training programs. This broader inclusion of both clinical and non-clinical postgraduate trainees contributes to the limited literature on burnout among diverse postgraduate student populations in LMICs. However, several limitations should be considered when interpreting the results.

This study's cross-sectional design limits causal inference, preventing determination of whether identified factors lead to burnout or result from it. Reliance on self-reported data introduces potential recall and reporting biases. This was mitigated by using validated survey tools, and participants were assured of anonymity to encourage honest responses. The study was conducted at a single institution, which

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may reduce generalizability to other universities. While acknowledging this limitation, the study design ensured a representative sample from the study site, and the results were contextualized within existing literature to highlight similarities and differences. Because data collection was conducted using an online survey distributed through institutional communication platforms, there was limited control over participant access to the questionnaire link, which may have introduced the possibility of unauthorized responses and potentially impacted data quality. This was mitigated by screening the responses for inconsistencies, and participation was tracked to ensure that the majority of the data came from the intended population.

Although the Maslach Burnout Inventory–Human Services Survey (MBI-HSS) is a widely used and internationally recognized tool for assessing burnout, it has not been formally validated among postgraduate students in our context. Cultural and contextual differences in the interpretation of burnout-related items may have influenced participants' responses, potentially leading to misclassification or underestimation of burnout prevalence. Consequently, the findings should be interpreted with caution.

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Conclusion

Burnout affects a notable proportion of postgraduate students at MUST, with a prevalence of 13.5%. Academic retakes and employment without study leave were independently associated with burnout, underscoring the influence of academic progression challenges and work–study imbalance in shaping postgraduate student well-being. Addressing these modifiable factors through targeted academic assistance, flexible study leave arrangements, and strengthened mentorship could help reduce burnout and promote student well-being. Integrating mental health

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support within postgraduate training programs and increasing awareness of healthy workload management should be prioritized by university leadership.

Future studies should employ longitudinal or mixed-method designs to clarify causal pathways and examine institutional contributors to burnout. Such evidence will be essential for informing policies that foster supportive, sustainable academic environments conducive to both high performance and psychological health.

Recommendation

To address burnout among postgraduate students, MUST should consider the following actions to improve student well-being and contribute to a more supportive and sustainable postgraduate training environment: 1. Enhance academic mentorship and advising systems, with structured remediation and close monitoring for students facing academic retakes. 2. Establish clear and flexible study-leave policies for employed postgraduate students, developed in collaboration with employers to reduce work–study conflict 3. Integrate mental health support into postgraduate programs, including routine screening, early identification, and referral pathways for burnout, and 4. Promote healthy workload management and self-care through targeted training, orientation sessions, and ongoing professional development.

List of abbreviations

MBI-HSS: Maslach Burnout Inventory – Human Services Survey

EE: Emotional Exhaustion

DP: Depersonalization

PA: Personal Accomplishment

AOR: Adjusted Odds Ratio

CI: Confidence Interval

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MUST: Mbarara University of Science and Technology

LMICs: Low- and Middle-Income Countries

Declarations

Ethical approval: This study was conducted in accordance with the principles of the Declaration of Helsinki. Ethical clearance was obtained from the Research and Ethics Committee of Mbarara University of Science and Technology (approval number MUST-2024-1375). Administrative clearance was also obtained from the Academic registrar of Mbarara University of Science and Technology.

Consent to Participate: Written informed consent was obtained electronically from all participants prior to participation in the study. Participation was voluntary, and respondents were informed of their right to withdraw from the study at any time without any consequences.

Consent to publish: Not applicable.

Availability of data and materials: The datasets generated and/or analyzed during the current study are available from the corresponding author upon reasonable request.

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Competing interests: The authors declare no competing interests related to this work.

Funding: This study did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Authors' contributions: JN, ROO, GK and RT contributed to study conception and data analysis. ROO wrote initial manuscript draft, JN, ROO, TB and MRR contributed to interpretation of data and revision of the manuscript. SM and GZR provided scientific guidance and supervision throughout the project. All authors have read and approved the final manuscript.

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Acknowledgements: We appreciate the postgraduate students of Mbarara University of Science and Technology for their participation in this study.

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