IJMEAR | International Journal of Medical Education And Research
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ORIGINAL RESEARCH ARTICLE
Vol. 5 · No. 31 · June 2026

Impact of Academic Load on Lifestyle and Health of International Medical Students

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ABSTRACT

Background: Academic workload is a principal stressor negatively influencing the lifestyle and overall health of medical students. For international medical students, this burden is compounded by additional challenges including cultural adaptation, language barriers, homesickness, and financial constraints. Despite a growing international medical student population in Kyrgyzstan, scientific evidence on the relationship between academic workload, lifestyle behaviours, and health outcomes in this population remains limited.

Aim: To identify the influence of academic workload on lifestyle behaviours and general health status of international medical students studying at Osh State University, Kyrgyzstan.

Methods: A cross-sectional quantitative study was conducted involving 250 international MBBS students at Osh State University. Data were collected using a structured self-administered questionnaire covering sociodemographic factors, academic workload, lifestyle behaviours (sleep, diet, physical activity, screen use, recreation, socialisation), and health status (stress, anxiety, burnout, fatigue, physical health). Descriptive statistics and chi-square tests were performed using SPSS version 26. Statistical significance was set at $p < 0.05$.

Results: Over half of participants (52%) reported a high academic workload; 36% reported moderate and 12% low workload. Sleep disturbances were prevalent: 44% slept 5–6 hours per night, and 16% slept fewer than 5 hours. Irregular meal patterns and frequent fast food consumption were common. Only 10% exercised five or more times per week, while 22% reported no regular physical activity. Mental health indicators were alarmingly high: fatigue (80%), stress (72%), anxiety (65.2%), and burnout (58%). Students with high academic

workloads demonstrated significantly worse sleep quality, greater physical inactivity, poorer dietary habits, and higher psychological distress compared to those with lower workloads.

Conclusion: Heavy academic workload exerts significant negative effects on the lifestyle and health of international medical students. Universities should implement multi-pronged wellness strategies including psychological support services, stress management programmes, academic schedule optimisation, and structured health promotion initiatives.

Keywords: *Academic workload; international medical students; lifestyle behaviours; sleep quality; stress; anxiety; burnout; health status; Kyrgyzstan*

I. INTRODUCTION

Medicine is universally regarded as one of the most intellectually demanding and time-intensive programmes of study. Medical students are required to assimilate substantial bodies of theoretical knowledge, develop clinical and practical skills, attend diverse academic settings, and regularly sit for high-stakes examinations — collectively generating an academic load that may substantially impair physical health, mental well-being, and daily lifestyle behaviours. While a moderate level of academic pressure may serve a motivational function and stimulate performance, excessive academic load is associated with stress, fatigue, insomnia, unhealthy lifestyle choices, and ultimately diminished academic outcomes.

International medical students represent a particularly vulnerable subgroup within the medical student population. Beyond the intrinsic demands of medical education, these individuals must simultaneously navigate unfamiliar cultural environments, adapt to new educational systems, overcome language barriers, manage separation from family networks, and contend with financial pressures — all of which amplify the baseline academic burden. Countries such as Kyrgyzstan have emerged as significant destinations for international medical education, attracting students from South Asia, the Middle East, Africa, and beyond, drawn by accessible tuition, internationally recognised degrees, and diverse learning environments.

Academic load encompasses the totality of educational activities required of students within a defined period: attendance at lectures, laboratory and practical sessions, clinical placements, completion of assignments, independent study, examination preparation, and research activities. In medical programmes, this load is characteristically high, given both the volume and complexity of the curriculum. The consequences of sustained excessive academic load extend across physical, psychological, and cognitive domains, producing well-documented patterns of sleep disruption, nutritional deterioration, physical inactivity, stress, anxiety, depression, and burnout.

Despite an expanding body of global literature on academic load and medical student health, research specifically addressing international medical students in Kyrgyzstan and the Central Asian region remains sparse. This gap is of institutional and policy relevance given the substantial and growing number of international MBBS students enrolled at Kyrgyz medical universities. The present study was therefore designed to systematically characterise the impact of academic workload on lifestyle behaviours and health outcomes in this population, and to generate evidence to support the development of targeted institutional wellness interventions.

II. MATERIALS AND METHODS

2.1 Study Design and Setting

This was a cross-sectional quantitative study conducted at the International Medical Faculty of Osh State University, Kyrgyzstan — a university that enrols students from a wide range of countries, making it an appropriate and representative setting for studying international medical student populations. The study duration was three months (September 2026 to November 2026).

2.2 Study Population, Inclusion and Exclusion Criteria

The study population comprised international MBBS students enrolled from Years 1 through 5 at Osh State University. Inclusion criteria were: international student status, enrolment in the MBBS programme, willingness to participate, and provision of informed consent. Exclusion criteria included absence during data collection, refusal to participate, submission of incomplete questionnaires, and local student status. A total of 250

participants were recruited using convenience sampling.

2.3 Data Collection Instrument

Data were collected using a structured self-administered questionnaire developed through systematic review of the published literature. The instrument comprised four parts. Part A (sociodemographic characteristics) captured age, gender, nationality, year of study, and living status. Part B (academic load assessment) evaluated daily study hours, number of examinations, assignment load, clinical workload, and subjective academic stress. Part C (lifestyle assessment) assessed sleep patterns, dietary habits, physical activity frequency, screen time, recreational activities, and socialisation. Part D (health assessment) examined stress, anxiety symptoms, burnout indicators, fatigue, headache, sleep problems, and overall health status perception.

2.4 Data Collection Procedure and Ethics

Following institutional ethics committee approval, eligible students were approached, informed of the study purpose, and invited to participate voluntarily. Written informed consent was obtained from all participants. Questionnaires were completed anonymously and confidentially. No personal identifying information was collected. Data were reviewed for completeness prior to entry.

2.5 Statistical Analysis

Data were entered in Microsoft Excel and analysed using SPSS version 26. Descriptive statistics — frequencies, percentages, means, and standard deviations — were used to characterise the study population and summarise all variables. Chi-square tests were applied to examine associations between academic workload categories and health and lifestyle outcomes. A two-tailed p-value of < 0.05 was adopted as the threshold for statistical significance.

2.6 Hypotheses

Null Hypothesis (H_0): No significant association exists between academic load, lifestyle behaviours, and health status in international medical students.

Alternative Hypothesis (H_1): A significant association exists between academic load, lifestyle behaviours, and health outcomes; higher academic load is associated with poorer

sleep, unhealthy lifestyle behaviours, greater psychological distress, and worse physical health.

III. RESULTS

3.1 Sociodemographic Characteristics and Academic Workload Classification

A total of 250 international medical students participated. Females constituted the majority (60%, n = 150) and males 40% (n = 100). Participants were equally distributed across all five academic years, with 20% from each year, enabling cross-sectional analysis across the MBBS programme. Regarding academic workload, 52% of participants rated their workload as high, 36% as moderate, and only 12% as low. This distribution confirms that the majority of international medical students at Osh State University experience substantial academic pressure. Table 1 presents the full demographic and workload classification data.

Table 1. Demographic Characteristics and Academic Workload Distribution (N = 250)

Variable	Category	n (%)
Total participants	—	250
Gender	Female	150 (60%)
	Male	100 (40%)
Academic year	Year 1–5	20% per year (equal distribution)
Academic workload	High	130 (52%)
	Moderate	90 (36%)
	Low	30 (12%)

3.2 Sleep, Dietary Habits, and Physical Activity

Sleep disturbances were prevalent across the cohort. The most common sleep duration was 5–6 hours per night (44%), substantially below the recommended 7–9 hours for young adults. Only 32% achieved the recommended 7–8 hours, while 16% reported sleeping fewer than 5 hours — a level associated with severe cognitive and physiological impairment. Irregular meal patterns and frequent fast food consumption were reported by the majority of participants, with lack of time attributed to heavy academic workload as the principal barrier to healthy eating. Physical inactivity was a widespread concern: only 10% of

participants exercised five or more days per week as per WHO recommendations, while 42% exercised only 1–2 times per week and 22% had no regular physical activity whatsoever. Table 2 provides a structured summary of lifestyle behaviour findings.

Table 2. Sleep Duration, Dietary Habits, and Physical Activity Patterns (N = 250)

Lifestyle Domain	Category / Finding	Prevalence (%)
Sleep duration per night	< 5 hours	16%
	5–6 hours (most common)	44%
	7–8 hours (recommended)	32%
	> 8 hours	8%
Dietary behaviour	Irregular meals; frequent fast food	Majority
	Lack of time cited as primary barrier	Most common reason
Physical activity frequency	5 or more days/week (WHO recommended)	10%
	3–4 times/week	26%
	1–2 times/week	42%
	No regular exercise	22%

3.3 Mental Health Indicators

Mental health indicators revealed a high burden of psychological distress across the cohort. Fatigue was the most prevalent indicator, reported by 80% of participants, followed by stress (72%), anxiety (65.2%), and burnout (58%). These rates substantially exceed those reported in general university student populations and are consistent with the established vulnerability of international medical students to psychological distress driven by compounding stressors. The most commonly reported physical health complaints were fatigue, headache, musculoskeletal pain, sleep disturbances, and general tiredness — all symptoms associated with chronic academic stress and sleep deprivation. Table 3 presents the mental health indicator data.

Table 3. Mental Health Indicators and Psychological Well-being (N = 250)

Mental Health Indicator	Prevalence (%)	Clinical Significance
Fatigue	80%	Most prevalent indicator
Stress	72%	High burden
Anxiety	65.2%	Clinically significant
Burnout	58%	Emotional exhaustion syndrome
Physical health complaints	Majority	Fatigue, headache, MSK pain, sleep disturbance

3.4 Relationship Between Academic Load and Health and Lifestyle Outcomes

Chi-square analysis revealed statistically significant associations between high academic workload and multiple adverse health and lifestyle outcomes ($p < 0.05$). Students in the high academic load group demonstrated significantly worse sleep quality, greater dietary irregularity and fast food reliance, lower physical activity, reduced recreational engagement, and higher levels of stress, anxiety, burnout, and fatigue compared to their peers in the moderate and low workload groups. Physical health complaints — particularly fatigue, headaches, and musculoskeletal pain — were also more severe in the high workload group. These findings confirm the alternative hypothesis (H_1) and are summarised in Table 4.

Table 4. Relationship Between High Academic Load and Health and Lifestyle Outcomes (N = 250)

Domain	Effect in High Workload Group	Direction
Sleep quality	Significantly worse	Negative
Dietary behaviour	Irregular meals; more fast food	Negative
Physical activity	Lower frequency of exercise	Negative
Recreational activity	Rarely engaged in leisure	Negative
Stress levels	Higher compared to low-load group	Negative
Anxiety	Higher compared to low-load group	Negative
Burnout symptoms	More prevalent	Negative
Fatigue	More severe	Negative
Physical health complaints	More frequent and severe	Negative

IV. DISCUSSION

4.1 Academic Workload and Sleep

The finding that 60% of participants slept fewer than the recommended 7–9 hours per night is consistent with global evidence on sleep deprivation among medical students. Studies in Indian, Chinese, and Saudi Arabian cohorts have similarly documented adverse effects of academic pressure on sleep behaviour, linking sleep insufficiency to impaired memory consolidation, reduced attention and executive function, and diminished academic performance. In the present study, students with high academic loads demonstrated significantly worse sleep quality, confirming the direct dose-response relationship between academic burden and sleep health. The activation of the hypothalamic-pituitary-adrenal (HPA) axis by chronic academic stress — resulting in elevated nocturnal cortisol — is a plausible neurobiological mechanism contributing to sleep onset delay and disrupted sleep architecture in this population.

4.2 Dietary Habits and Physical Activity

Irregular meal patterns, meal skipping, and frequent fast food consumption were reported by the majority of participants, driven by time constraints imposed by heavy academic scheduling. This pattern mirrors findings from studies in European, North American, and Asian university populations and carries significant nutritional and metabolic consequences, including fatigue, impaired immune function, gastrointestinal disturbances, and reduced cognitive performance. Physical inactivity was similarly pervasive: with only 10% of students meeting WHO physical activity guidelines and 22% engaging in no regular exercise, the sample demonstrated a level of sedentary behaviour associated with substantially increased risk of metabolic syndrome, cardiovascular disease, and psychological morbidity. The well-established bidirectional benefits of regular physical exercise — stress reduction, mood enhancement, sleep quality improvement, and cognitive performance gains — render this finding particularly concerning in an already high-stress academic environment.

4.3 Psychological Distress and Burnout

The psychological burden documented in this cohort — with fatigue at 80%, stress at 72%, anxiety at 65.2%, and burnout at 58% — substantially exceeds prevalence rates reported in

general student populations and is consistent with the heightened psychological vulnerability of international medical students documented by Dyrbye et al., Quek et al., and Ibrahim et al. For international students specifically, conventional academic stressors are compounded by acculturation stress, language difficulties, homesickness, financial pressures, and reduced access to the social support networks that serve as psychological buffers in domestic student populations. The strong positive correlation between high academic workload and all four psychological distress indicators — confirmed by chi-square analysis — supports academic overload as a primary modifiable determinant of psychological morbidity in this population, and underscores the urgency of institutional intervention.

4.4 Strengths, Limitations, and Future Directions

Strengths of this study include its specific focus on international medical students — a population frequently subsumed within general medical student research — its integrated examination of academic workload, lifestyle, and health outcomes simultaneously, its inclusion of all five academic years, and its provision of baseline data for this underrepresented context. Limitations include the cross-sectional design (which precludes causal inference), reliance on self-reported data (susceptible to recall and social desirability bias), single-centre recruitment (limiting external generalisability), and potential unmeasured confounders. Future studies should employ longitudinal designs, incorporate objective physiological measurements (actigraphy, cortisol biomarkers, validated clinical scales), and extend sampling across multiple institutions and student nationalities to strengthen the evidence base for interventional policy.

V. CONCLUSION

This cross-sectional study demonstrates that heavy academic workload exerts a broad and significant negative impact on the lifestyle behaviours and health outcomes of international medical students at Osh State University, Kyrgyzstan. The majority of participants reported high academic loads, with demonstrably worse sleep quality, dietary habits, physical activity levels, and psychological well-being in the high-load group. Fatigue, stress, anxiety, and burnout were prevalent across the cohort at rates substantially exceeding those of

general student populations.

International medical students are subject to a unique convergence of academic and acculturation stressors that amplifies the health risks of heavy academic load beyond those faced by domestic medical students. Addressing these risks requires institutional commitment to multi-component student wellness strategies. Evidence-based recommendations include: (1) establishment of dedicated psychological counselling and mental health support centres with staff experienced in the cultural challenges faced by international students; (2) implementation of regular stress management and time management workshops embedded within the academic calendar; (3) promotion of sleep hygiene education, structured exercise opportunities, and nutritious affordable food access within the university environment; (4) review of academic scheduling to distribute workload more evenly and minimise peaks of concurrent examination pressure; and (5) conduct of multi-centre longitudinal studies to evaluate the sustained impact of academic load and the efficacy of institutional wellness interventions. The health of international medical students is inseparable from their academic success and long-term professional competence; its protection warrants the highest institutional priority.

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