Physical activity, sleep duration, and perceived stress among undergraduate medical students attending a tertiary hospital of Gandaki Province, Nepal

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ABSTRACT

Introduction: Physical activity and sleep duration play crucial roles in influencing the perceived stress levels among medical students. The study aimed to assess if sleep duration and physical activity influenced the level of perceived stress among undergraduate medical students in a tertiary hospital of Gandaki Province, Nepal. **Methods:** A cross-sectional research design was employed among 240 undergraduate medical students of Gandaki Medical College Teaching Hospital & Research Center from November to December 2023. A self-administered questionnaire was used to collect the information. Sleep duration, level of physical activity, and perceived stress were measured through the use of validated scales: the Pittsburgh Sleep Quality Index for sleep duration, the International Physical Activity Questionnaire (IPAQ) for physical activity levels, and the Perceived Stress Scale for stress. Descriptive statistics, bivariate and multivariate logistic regression analysis were used. **Results:** The study revealed that 79.2% of undergraduate medical students experienced stress. Those reporting insufficient sleep duration had 3.49 times higher odds of perceived stress (95% CI: 1.72-7.06) as compared to their respective reference groups, with statistical significance ($p<0.05$). Regarding the combined effect, respondents with insufficient sleep and not having vigorous physical activity had 3.58 times higher odds of perceived stress (95% CI: 1.75-7.34) than those who reported sufficient sleep hours and vigorous physical activity. **Conclusions:** The study revealed a substantial influence of lifestyle variables on the prevalence of perceived stress among undergraduate medical students. These findings emphasize the importance of physical activity, and sleep duration in designing targeted interventions aimed at enhancing the mental well-being among medical students.

Keywords: Perceived stress, physical activity, sleep duration, undergraduate medical students.

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INTRODUCTION

Medical students' well-being is a concern due to the demands of their studies, which can affect their health. The relationship between physical activity (PA), sleep, and stress is important for their holistic health.[1]

Medical students often face high stress levels, negatively impacting their well-being and performance.[2] Increased PA is linked to lower stress, which reduces symptoms of anxiety and depression. More weekly PA has been shown to reduce stress among medical students, improving mood and coping abilities.[3-5] Quality sleep is crucial for managing stress, and insufficient sleep increases susceptibility to stress.[6,7]

Studies show that inadequate sleep contributes to burnout in healthcare professionals, with less than seven hours of sleep leading to a higher risk of burnout.[8] PA also improves sleep quality, further

reducing stress.[8,9] The reciprocal relationship between stress and sleep shows that poor sleep worsens stress and vice versa.[10,11] This study examined the combined effects of physical activity and sleep duration on perceived stress levels among undergraduate medical students of a tertiary hospital at Gandaki Province, Nepal.

METHODS

This study employed an institution-based, cross-sectional design and was conducted among undergraduate medical students at Gandaki Medical College Teaching Hospital & Research Center, Pokhara from November to December 2023. Ethical approval was obtained from Institutional Review Committee of Gandaki Medical College (Ref. No. 07/080/081-F). This research is part of a broader study titled "Lifestyle-Related Behaviour and Stress among Undergraduate Students of Medical College in Pokhara". The selected students were briefed about the survey and informed consent both verbal and written was received from all the participants.

The sample size calculation was performed using the finite population correction formula, using the prevalence of perceived stress among medical students (p) to be 0.50 (50%) and the level of significance (α) set at 5%, with an absolute allowable error of 5%. Based on seat allocation of the Medical Education Commission for Gandaki Medical College College Teaching Hospital & Research Center, a total of 500 undergraduate medical students were considered. The initial sample size was calculated as 217 and adjusted to accommodate a non-response rate of 10%, resulting in a final sample size of 240. Forty-eight students were selected from each of the five batches of 100 students using the lottery method.

The data collection involved the distribution of structured questionnaires to assess variables related to physical activity, sleep duration, and perceived stress levels. Standardized instruments were utilized in the study which included the International Physical Activity Questionnaire (IPAQ), the Pittsburgh Sleep quality Index (PSQI), and the Perceived Stress Scale (PSS) to comprehensively evaluate and analyse the physical activity levels, sleep duration, and perceived stress levels of medical students. Information on socio-demographic factors, such as the age of the respondents, gender, religion, caste and ethnicity, family type, and year of study classification was collected.

Perceived stress is assessed using PSS questionnaire designed to measure respondents' self-reported stress levels. The PSS-10 is a 10-item scale that measures self-reported stress levels by assessing feelings and thoughts over the past month. It includes six positive items and four negative ones, each rated on a 5-point Likert scale from Never (0) to Very often (4). The total score ranges from 0 to 40, with higher scores indicating higher perceived stress. Scores are categorized as: 0 to 13 Mild stress, 14 to 26 Moderate stress, and 27 to 40 High stress.[12] For analysis, stress levels was simplified into a dichotomous variable: moderate to high stress coded as 1, and no stress as 0.[13-15] The long form of the IPAQ (LF-IPAQ) was used to assess physical activity where respondents reported their frequency and duration of moderate and vigorous activities over the past week. Physical activity was classified as high (1500 MET minutes/week with vigorous activity on three days or a combination) or moderate (30 minutes of vigorous or walking on three days, or moderate activity on five days, totalling 600 MET minutes/week). Those not meeting these criteria were classified as low physical activity.[16] The PSQI is a 10-item questionnaire that measures sleep quality over the past month. It assesses sleep duration, with insufficient sleep defined as less than six hours per night.[17,18] Sufficient sleep is expected to mediate the relationship between physical activity and perceived stress, as better sleep can reduce stress levels.

Data entry and all statistical analyses were performed using Statistical Package for the Social Sciences (SPSS) version 26.0. Frequency tabulation was used to describe the characteristics of the study population. The proportion of perceived stress was evaluated for all study variables, accompanied by a 95% Confidence Interval (CI). Bivariate analysis was done to assess the association between each explanatory variable and perceived stress among undergraduate medical students. Multivariate logistic regression analysis was conducted to assess the effects of physical activity and sleep duration on perceived stress levels adjusting with all confounding variables. Hosmer and Lemeshow test was done to see the model fitness and the model was fit with all variables enter in the model. Multicollinearity among the predictor variables was assessed using the Variance Inflation Factor (VIF), with a cut-off point of VIF <10.[19] Statistical significance was determined at a p-value of <0.05, along with 95% confidence intervals (CIs).

RESULTS

Sociodemographic characterstics of respondents

Table 1 summarizes the sociodemographic characteristics of the 240 study participants, representing 99.97% response rate. The majority of students were between 21 and 24 years old (52.91%), with a slightly higher proportion

identifying as male (57.91%). A large segment of the respondents reported being Hindu (84.16%), belonging to upper-caste families (67.50%), and coming from nuclear families (67.50%). Most of the respondents were in their clinical years (60%). Furthermore, a considerable number of students did not meet the recommended amount of physical activity (81.66%) or achieve sufficient sleep duration (64.16%). Interestingly, a near equal distribution was observed for the variable "Recommended amount of PA with sufficient sleep hours," with 51.25% meeting the criteria and 48.75% not meeting it.

Table 1: Distribution of respondents based on demographic characteristics (N=240)

Sociodemographic characterstics	Number (n)	Percentage (%)
Age of the student (years)		
18-20	91	37.91%
21-24	127	52.91%
25-30	22	9.18%
Sex		
Male	139	57.91%
Female	101	42.08%
Religion		
Hindu	202	84.16%
Other than Hindu	38	15.83%
Caste and Ethnicity		
Upper Caste	162	67.50%
Other than Upper Caste	78	32.50%
Family type		
Nuclear	162	67.50%
Joint/Extended	78	32.50%
Student's year		
Preclinical	96	40%
Clinical	144	60%
Recommended amount of PA as per standard		
No	196	81.66%
Yes	44	18.33%
Sleep duration(in hours)		
No	154	64.16%
Yes	86	35.83%
Recommended amount of PA with sufficient sleep hours		
No	123	51.25%
Yes	117	48.75%

Perceived Stress

The majority of students in the sample (n=240) reported moderate to high stress (79.20%; 95% CI: 73.99 to 84.34), with only 20.80% experiencing mild stress. (Figure 1)

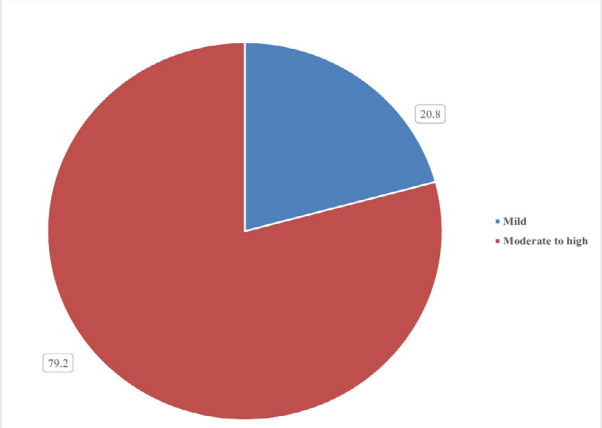

Figure 1: Distribution of perceived stress among undergraduate medical students in Gandaki Province, Nepal

Physical activity, and sleep duration in relation to perceived stress

The highest proportion of perceived stress was observed among the age group of 18 to 20 years at 92.30% (95% CI: 86.73-97.89), among females at 82.20% (95% CI: 74.59-89.75), those following religions other than Hinduism at 81.60% (95% CI: 68.67-94.49), belonging to upper caste at 82.10% (95% CI: 76.13-88.07), respondents from nuclear families (84.0%, 95% CI:78.24-89.66) and students in preclinical group at 89.60 % (95% CI: 83.36-95.81).The study also found higher perceived stress levels among respondents not engaging in physical activity, with a prevalence of 79.61% (95% CI: 73.90-85.28), and among respondents not getting sufficient sleep at 86.00% (95% CI: 80.88-91.40). Respondents not getting sufficient sleep and not engaging in vigorous physical activity had higher prevalence of perceived stress at 87.80% (95% CI: 81.94-93.67). (Table 2)

Table 2: Physical activity, and sleep duration in relation to perceived stress (with 95% CI among medical students in Gandaki Province (N=240)

Explanatory Variables		Respondents	Perceived Stress	95% CI
		Number	n(%)	
Age (years)	18-20	91	84(92.3%)	86.73-97.89
	21-24	127	94(74.0%)	66.28-81.75
	25-30	22	12(54.5%)	31.95-77.14
Sex	Male	139	107(77.0%)	69.89-84.06
	Female	101	83(82.2%)	74.59-89.75
Religion	Hindu	202	159(78.7%)	73.02-84.41

	Other than Hindu	38	31(81.6%)	68.67-94.49
Caste and Ethnicity	Upper Caste	162	133(82.1%)	78.24-89.66
	Other than Upper Caste	78	57(69.2%)	58.76-79.70
Family Type	Nuclear	162	133(82.1%)	76.13-88.07
	Joint/Extended	78	57(73.1%)	63.01-83.14
Student Year	Preclinical	96	86(89.6%)	83.36-95.81
	Clinical	144	104(72.2%)	64.82-79.63
Recommended amount of Physical Activity as per standard				
	No	196	156(79.6%)	73.90-85.28
	Yes	44	34(77.3%)	64.38-90.16
Sufficient Sleep duration				
	No	154	133(86.4%)	80.88-91.40
	Yes	86	57(66.3%)	56.08-76.47
Recommended amount of PA with sufficient sleep hours				
	No	123	108(87.8%)	81.94-93.67
	Yes	117	82(70.1%)	61.67-78.51

Regression analysis of sleep duration and physical activity on perceived stress

Respondents aged 18 to 20 years had a significantly higher likelihood of experiencing perceived stress (UOR=10.00, 95% CI: 3.19-31.25) with statistical significance (p=0.01). Female respondents were found to have 1.37 times higher odds of perceived stress (UOR=1.37, 95% CI: 0.72-2.62). Similarly, following religion other than Hindu was associated with 1.19 times higher odds of perceived stress (UOR=1.19, 95% CI: 0.49-2.90), belonging to an upper caste was associated with 1.69 times higher odds of perceived stress (UOR=1.69, 95% CI: 0.89-3.21). The relationship was however not statistically significant (p>0.05). Respondents from nuclear families were found to have 2.32 times higher odds of perceived stress (UOR=2.32, 95% CI: 1.22-4.40), with a statistically significant association (p=0.01). Students in the preclinical year had 2.32 times higher odds of perceived stress (UOR=3.30, 95% CI: 1.56-6.69) with a statistically significant association (p=0.01).Likewise, individuals not engaging in vigorous physical activity as per the standards had 1.14 times higher odds of perceived stress (UOR=1.14, 95% CI: 0.52-2.51) (p=0.72) and individuals reporting insufficient sleep duration were found to have 3.22 times higher odds of perceived stress (UOR=3.22, 95% CI: 1.69-6.12) with a statistically significant association (p<0.001). (Table 2, Unadjusted Model I)

The adjusted model showed that, respondents aged 18 to 20 years had 8.83 times higher odds of perceived stress (95% CI: 2.01-38.76), respondents from nuclear families had 2.16 times higher odds of perceived stress (95% CI: 1.08-4.31) and respondents reporting insufficient sleep duration had 3.49 times higher odds of perceived stress (95% CI: 1.72-7.06). All the association was statistically significant with a p-value of <0.05. (Table 3, Adjusted Model II)

Table 3: Logistic regression analysis of perceived stress with background characteristics, recommended amount of physical activity and sleep duration among undergraduate medical students

Explanatory Variable		Unadjusted Model I			Adjusted Model II		
		UOR	95 %CI	p-value	AOR	95 %CI	p-value
Age (years)	18-20	10.00	3.19-31.25	0.01**	8.83	2.01-38.76	0.01**
	21-24	2.37	0.93-6.00	0.06	1.95	0.71-5.35	0.19
	25-30	1*			1*		
Sex	Male	1*					
	Female	1.37	0.72-2.62	0.32			
Religion	Hindu	1*					
	Other than Hindu	1.19	0.49-2.90	0.69			
Caste and Ethnicity	Upper Caste	1.69	0.89-3.21	0.10			
	Other than Upper Caste	1*					
Family Type	Nuclear	2.32	1.22-4.40	0.01**	2.16	1.08-4.31	0.02**
	Joint/Extended	1*			1*		
Student's Year	Preclinical	3.30	1.56-6.69	0.01**	1.03	0.36-2.96	0.94
	Clinical	1*			1*		
Recommended amount of Physical Activity as per standard							
	No	1.14	0.52-2.51	0.72	1.57	0.65-3.78	0.31
	Yes	1*			1*		
Sufficient Sleep duration							
	No	3.22	1.69-6.12	0.01**	3.49	1.72-7.06	0.01**
	Yes	1*			1*		

Model adjusted for age, family type, student year, recommended amount of physical activity as per standard, sufficient sleep duration
*Reference Group, Hosmer and Lemeshow test value 0.057, Nagelkerke R-square value 0.232
**denotes statistical significance (p<0.05)

Combined effect of recommended amount of physical activity and sleep duration on perceived stress among medical students

Respondents who reported not having sufficient sleep along with not having vigorous physical activity had 3.58 times higher odds of perceived stress (95% CI: 1.75-7.34) as compared to those who reported having sufficient sleep

and vigorous physical activity. (Adjusted Model IV, Table 4).

Table 4: Combined effect of recommended amount of physical activity and sleep duration on perceived stress among medical students

Correlates	Unadjusted Model III			Adjusted Model IV		
Recommended amount of PA with sufficient sleep hours	UOR	95% CI	p-value	AOR	95% CI	p-value
No	3.07	1.57-6.00		3.58	1.75-7.34	
Yes	1*			1*		

Model adjusted for age, family type, student year, recommended amount of PA with sufficient sleep hours

*Reference Group Hosmer and Lemeshow test value 0.059, Nagelkerke R square value 0.231

**denotes statistical significance (p<0.05)

DISCUSSION

The findings of the study is consistent with previous studies conducted in Germany and Egypt[12,20] which indicates a prevalent issue that could have significant implications for student well-being and academic performance. Notably, the observation that younger students aged 18 to 20 years exhibit the highest proportion of perceived stress aligns with previous research,[21] underscoring the vulnerability of this age group to stressors related to academic pressure. Furthermore, the higher prevalence of perceived stress among female students aligns with existing literature,[20-22] which often reports gender differences in stress experiences. These differences may be influenced by societal expectations,[21] biological factors, or coping mechanisms. The disparities in stress levels between preclinical and clinical students reflect the varying academic demands and experiences across different stages of medical education, which is supported by previous research done in Nepal,[15] which highlights the unique stressors faced by students in different phases of their academic journey.

The correlation between inadequate sleep duration and stress has been presented in studies done in Germany and Saudi Arabia.[1,23] Engaging in regular physical exercise and improving sleep duration are crucial approaches for alleviating stress.[24] The findings of the study are consistent with the study conducted among university students in Mexico, which showed that perceived stress was negatively correlated with sleep duration.[7] Another study in Korea showed that women were more stressed than men and compared to older people, younger people felt more stressed. Furthermore, the study showed that inadequate sleep increased stress.[24] A study in China also showed that no or low intensity of physical activity was associated with the risk of higher perceived stress,[25] which is similar to our findings that individuals who did not engage in vigorous physical activity as per the standards had higher odds of perceived stress compared to those who engaged in such activities.

The study focuses on students at a single institution, which may limit the generalizability of the findings to broader populations of students or other settings. Due to the cross-sectional nature of the study, biological plausibility from this study cannot be ensured.

CONCLUSIONS

Overall, this study demonstrates a high prevalence of perceived stress among undergraduate medical students in Gandaki Medical College Teaching Hospital & Research Center. Insufficient sleep duration was significantly associated with increased odds of perceived stress, and this effect was exacerbated by a lack of vigorous physical activity. These findings highlight the importance of promoting healthy sleep habits and encouraging physical activity to mitigate stress among undergraduate medical students.

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AUTHORS' CONTRIBUTIONS

SH, BS, and SB conceived the study. SH performed the data analysis and interpreted the findings. SH prepared the first draft of the manuscript. BS and SB reviewed the draft report and provided feedback for preparing the manuscript. All authors agreed to and approved the final version of the manuscript.

REFERENCES

1. Bergmann C, Muth T, Loerbroks A. Medical students' perceptions of stress due to academic studies and its interrelationships with other domains of life: a qualitative study. Medical education online. 2019;24(1):1603526. DOI: 10.1080/10872981.2019.1603526

2. Saeed AA, Bahnassy AA, Al-Hamdan NA, Almudhaibery FS, Alyahya AZ. Perceived stress and associated factors among medical students. Journal of Family and Community Medicine. 2016;23(3):166-71. DOI: 10.4103/2230-8229.189132

3. Wright LJ, Veldhuijzen van Zanten JJ, Williams SE. Examining the associations between physical activity, self-esteem, perceived stress, and internalizing symptoms among older adolescents. Journal of adolescence. 2023;95(6):1274-87. DOI: 10.1002/jad.12201

4. Malik IS, Saleem S. The effect of physical activity on stress levels of medical students: A cross-sectional analysis. Editorial Board. 2020:100. DOI: 10.1016/j.explore.2015.02.003

5. Mahindru A, Patil P, Agrawal V. Role of physical activity on mental health and well-being: A review. Cureus. 2023;15(1). DOI: 10.7759/cureus.33475

6. Alotaibi AD, Alosaimi FM, Alajlan AA, Abdulrahman KA. The relationship between sleep duration, stress, and academic performance among medical students. Journal of Family and Community Medicine. 2020;27(1):23-8. DOI: 10.4103/jfcm.JFCM_132_19

7. Tafoya SA, Aldrete-Cortez V, Tafoya-Ramos F, Fouilloux-Morales C, Díaz-Olavarrieta C. Sleep and perceived stress: an exploratory mediation analysis of the role of self-control and resilience among university students. International Journal of Environmental Research and Public Health. 2023;20(16):6560. DOI: 10.3390/ijerph20166560

8. Saintila J, Soriano-Moreno AN, Ramos-Vera C, Oblitas-Guerrero SM, Calizaya-Milla YE. Association between sleep duration and burnout in healthcare professionals: a cross-sectional survey. Frontiers in Public Health. 2024;11:1268164.9. DOI: 10.3389/fpubh.2023.1268164

9. Li Y, Guo K. Research on the relationship between physical activity, sleep duration, psychological resilience, and social adaptation among Chinese college students: A cross-sectional study. Frontiers in Psychology. 2023;14:1104897. DOI: 10.3389/fpsyg.2023.1104897 PMID: 36844303.

10. Wunsch K, Kasten N, Fuchs R. The effect of physical activity on sleep quality, well-being, and affect in academic stress periods. Nature and Science of Sleep. 2017;9:117-26. DOI: 10.2147/NSS.S132078 PMID: 28490911.

11. .VanKim NA, Nelson TF. Vigorous Physical Activity, Mental Health, Perceived Stress, and Socializing among College Students. American Journal of Health Promotion.2013;28(1):7-15. DOI: 10.4278/ajhp.111101-QUAN-395 PMID: 23470187.

12. Heinen I, Bullinger M, Kocalevent RD. Perceived stress in first year medical students-associations with personal resources and emotional distress. BMC medicaleducation.2017;17:1-4. DOI: 10.1186/s12909-016-0841-8 PMID: 28056972.

13. Cohen S, Kamarck T, Mermelstein R. Perceived stress scale. Measuring stress: A guide for health and social scientists. 1994;10(2):1-2.

14. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. Journal of health and social behavior. 1983:385-396. DOI: 10.2307/2136404 PMID: 6668417.

15. Rijal D, Paudel K, Adhikari TB, Bhurtyal A. Stress and coping strategies among higher secondary and undergraduate students during COVID-19 pandemic in Nepal. PLOS Global Public Health. 2023;3(2). DOI: 10.1371/journal.pgph.0001533 PMID: 36963014.

16. Forde C. Scoring the international physical activity questionnaire (IPAQ). University of Dublin. 2018;3.

17. Buysse DJ, Reynolds III CF, Monk TH, Berman SR, Kupfer DJ. The Pittsburgh Sleep duration Index: a new instrument for psychiatric practice and research. Psychiatry Research. 1989;28(2):193-213. DOI: 10.1016/0165-1781(89)90047-4 PMID: 2748771.

18. Jean-Louis G, Turner AD, Seixas A, Jin P, Rosenthal DM, Liu M, et al. Epidemiologic methods to estimate insufficient sleep in the US population. International Journal of environmental research and public health. 2020;17(24):9337. DOI: 10.3390/ijerph17249337 PMID: 33327388.

19. Singh DR, Sunuwar DR, Dahal B, Sah RK. The association of sleep problem, dietary habits and physical activity with weight status of adolescents in Nepal. BMC Public Health. 2021;21:1-7. PMID: 34001092.

20. Wahed WY, Hassan SK. Prevalence and associated factors of stress, anxiety and depression among medical Fayoum University students. Alexandria Journal of Medicine. 2017;53(1):77-84. DOI: 10.1016/j.ajme.2016.01.005

21. Ebrahim OS, Sayed HA, Rabei S, Hegazy N. Perceived stress and anxiety among medical students at Helwan University: A cross-sectional study. Journal of Public

Health Research. 2024;13(1):22799036241227891. DOI: 10.1177/22799036241227891 PMID: 38313630.

22. Fawzy M, Hamed SA. Prevalence of psychological stress, depression and anxiety among medical students in Egypt. Psychiatry Research. 2017;255:186-94. DOI: 10.1016/j.psychres.2017.05.027 PMID: 28575777.

23. Safhi MA, Alafif RA, Alamoudi NM, Alamoudi MM, Alghamdi WA, Albishri SF, et al. The association of stress with sleep duration among medical students at King Abdulaziz University. Journal of Family Medicine and Primary Care. 2020;9(3):1662-1667. DOI: 10.4103/jfmpc.jfmpc_745_19 PMID: 32509668.

24. Chiang SL, Tzeng WC, Chiang LC, Lee MS, Lin CH, Lin CH. Physical activity patterns, sleep duration, and stress levels among rotating-shift nurses during the COVID-19 pandemic. International Nursing Review. 2024. DOI: 10.1111/inr.12997 PMID: 38847349.

25. Cao B, Zhao Y, Ren Z, McIntyre RS, Teopiz KM, Gao X, et al. Are physical activities associated with perceived stress? the evidence from the China Health and Nutrition Survey. Frontiers in Public Health. 2021;9. DOI: 10.3389/fpubh.2021.697484 PMID: 34414158.