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Original Research Article

Comparative analysis of stress levels and quality of life among medical students in Southern Asia and South Caucasus

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ABSTRACT

Background: Medicine is a challenging study and is known for its demanding nature. This also results in increased stress levels among students. Understanding factors that influence stress and quality of life from medical students in different regions is important for the development of effective interventions and support systems.
Methods: A meticulous quantitative method approach has been utilized. This research is done via data fetched through a questionnaire. Statistical analyses are comprised of t-tests and correlation tests to employ a dissection of quantitative data while the data is subjected to analysis to uncover the underlying patterns and nuances. These results showcase crucial disparities in the stress levels between medical students in Southern Asia and the South Caucasus while imparting light on factors impacting the quality of life experienced by students in both regions.
Results: The implications of this study hold primary significance for sharing information with targeted interventions with an aim at bolstering the mental health and academic performance of medical students in both the areas of Southern Asia and the South Caucasus.
Conclusions: The major objective of this study is to hold comparisons of stress levels and quality aspects of life in Southern Asia and South Caucasus, with the identification of the multifaceted factors that contribute to the stress levels among students in both regions, understanding the various challenges and sharing a glimpse of actionable implications for interventions which are aimed at bolstering students' well-being.

Keywords: Stress levels, Quality of life, Medical students, Southern Asia, South Caucasus, Comparative analysis, Wellness programs, Recreational activities

INTRODUCTION

Medical education plays a critical role in shaping future healthcare professionals, demanding in-depth study, clinical responsibilities, and the pursuit of excellence. This journey often presents challenges beyond academics, impacting medical students' well-being and quality of life.[1] Understanding these stressors is crucial for creating a supportive learning environment that fosters holistic development.

There has been growing interest in exploring stress and well-being among medical students due to their impact on academic performance, personal well-being, and professional fulfillment. Research worldwide, from the United States to Europe to Asia, highlights the high prevalence of stress, burnout, and mental health issues among medical students.[2,3]

Comparative analyses of stress levels among medical students across different regions are limited. Southern Asia and the South Caucasus offer diverse, unique socio-cultural and educational landscapes. Medical students face challenges shaped by cultural norms, societal expectations, and institutional frameworks, but comprehensive research on these experiences remains scarce.[4]

This study aims to address this gap through a comparative analysis of stress levels and quality of life among medical students in Southern Asia and the South Caucasus. It focuses on Indian medical students representing Southern Asia and Georgian medical students representing the South Caucasus.

Aim

The study aims to compare stress levels and quality of life among medical students in the two regions and identify possible contributing factors.

The research's significance lies in its potential to guide targeted interventions for medical students in Southern Asia and the South Caucasus, promoting resilience, improving well-being, and boosting academic success. This has implications for medical policymakers, institutional leaders, and healthcare professionals by offering insights into the multifaceted nature of stress and well-being within diverse regional contexts.

METHODS

Study type

The methodology comprises the details of the research design, methods of data collection, sampling techniques, analysis approaches, and ethical considerations which have been employed in the study.

Study place and period

The study was conducted at multiple medical institutions in Southern Asia and the South Caucasus over a period of four weeks from March to April 2024.

Participants selection criteria

Our study sample comprised of 101 healthcare students from two groups: one from the South Caucasus (specifically Georgia) and the other from southern Asia (specifically Indian medical students) from semester 1 to 12th.

Inclusion criteria

The inclusion criteria included students from semesters 1st to 12th who consented to participate in this study.

Research design

This study is based on quantitative methods and research design incorporating quantitative approaches that provide a comprehensive analysis of the stress levels and quality of life among medical students in Southern Asia specifically Indian medical students and South Caucasus specifically Georgian medical students.

Data collection methods

Study design

This study employed a cross-sectional comparative design to assess stress levels and quality of life among medical students in Southern Asia and the South Caucasus.

Study setting and period

Data collection occurred between March 2024 and April 2024 at medical institutions in Southern Asia (specifically India) and the South Caucasus (specifically Georgia).

A total of 101 medical students were recruited based on eligibility criteria: enrollment in an accredited medical program, being 18 years or older, and providing informed consent. Students completed a questionnaire which included the PSS scale and WHOQOL-BREF, to assess stress levels and quality of life.

Analysis approaches

The study implements a quantitative-method approach and yields a comprehensive understanding of the stress levels and details on the quality of life among medical students in Southern Asia and the South Caucasus. Quantitative data analysis encapsulating statistical methods like descriptive statistics, correlation tests, and t-tests have been implemented that help us gain insights through comparative analysis of stress levels between the two regions while assessing the impact of various factors.

Ethical considerations

The study adjures to the ethical guidelines by ensuring the anonymity and confidentiality of the participants involved.

To ensure validity and reliability, steps are taken to minimize bias and error in data collection, analysis, and interpretation.

Questionnaire design and adoption

An online structured questionnaire, titled 'comparative study on stress and quality of life amongst medical students: Southern Asia versus South Caucasus,' was developed based on an extensive review of existing WHOQOL-BREF and PSS questionnaires after an extensive literature review.

Items included in the questionnaire covered all aspects of stress being measured and were linked to this study's objectives.[4]

RESULTS

The results of the study have been presented below and help in gaining insights into the stress levels and quality of life among the medical students of Southern Asia

(especially Indian medical students) and South Caucasus (especially Georgian medical students).

Descriptive statistics, graphical representations, and results fetched from statistical analyses comprising correlation tests and t-tests have been included to elaborate the key findings. Major trends or differences that were observed between the two study groups have also been discussed.

Table 1: Descriptive demographic details of study participants.

Variables	Frequency	Percent
Age (in years)		
18-20	13	13
21-23	52	51
24-26	31	31
27-29	4	4
30-32	1	1
Semester		
1-2nd	8	8
3-4th	1	1
5-6th	7	7
7-8th	36	35
9-10th	19	19
11-12th	30	30
Study location		
South Asia	55	55
South Caucasus	46	46
Medical condition		
No	85	84
Yes	16	16
Residency		
Day scholar	67	66
Hostel	34	34

*n=101

Descriptive statistics

This section presents the descriptive statistics of stress factors and quality of life among the study participants, as measured by the perceived stress scale (PSS) and the World Health Organization quality of life brief (WHOQOL-BREF) questionnaires, respectively.

Stress levels (perceived stress scale - PSS)

The mean and standard deviation of stress levels, as assessed by the PSS, were calculated for medical students in Southern Asia and South Caucasus. Additionally, the distribution of stress levels across different categories (low, moderate, high) was examined to provide insights into the prevalence and severity of stress among the study population.

Quality of life (WHOQOL-BREF)

Similarly, descriptive statistics were computed for each domain of quality of life measured by the WHOQOL-BREF questionnaire, including physical health, psychological health, social relationships, and environmental factors. Mean scores and standard deviations were calculated to assess the overall quality of life and its dimensions among medical students in both regions.

The perceived stress level was significantly greater in South Asian medical students as compared to the group of South Caucasus students (Table 2).

Table 2: Descriptive statistics of the stress factor and quality of life of the study participants.

Parameters	Mean	Median	Std. deviation	Range
Perceived stress scale	21.39	21	6.63	37
Overall quality of life	6.48	7	1.8	8

Stress levels were measured using the PSS with scores ranging from 0 to 40

Table 3: Comparison of stress levels between South Caucasus and Southern Asia.

Stress level (PSS scale)	South Caucasus (%)	Southern Asia (%)
Highly stressed	13	30.9*
Moderately stressed	71.7	60

*Significantly higher percentage of highly stressed individuals compared to South Caucasus (based on the information presented)

Table 4: Descriptive statistics table.

Variables	Frequency	Mean	Median	Std. deviation	Min	Max	Mean±std. deviation
Physical health							
Southern Asia	55	57.78	54	15.14	25	93	57.78±15.14
South Caucasus	46	59.28	61	18.7	0	93	59.28±18.70
Psychological health							
Southern Asia	55	52.98	50	18.09	13	88	52.98±18.09
South Caucasus	46	57.87	60.5	21.02	0	100	57.87±21.02
Social relationships							
Southern Asia	55	60.4	63	24.15	0	100	60.40±24.15

Continued.

Variables	Frequency	Mean	Median	Std. deviation	Min	Max	Mean±std. deviation
South Caucasus	46	59.96	50	25.56	0	100	59.96±25.56
Environment							
Southern Asia	55	57.16	56	15.85	16	100	57.16±15.85
South Caucasus	46	60.89	57.5	19.8	0	100	60.89±19.80
Perceived stress scale score							
Southern Asia	55	21.96	21	6.96	3	36	21.96±6.96
South Caucasus	46	20.7	21.5		3	34	20.70± ??

Table 5: Correlation table.

Variable	Perceived stress score	Physical health	Psychological health	Social relationships	Environment
Perceived stress score	1	-0.239	-0.021	-0.065	-0.163
Physical health	-0.239	1	0.352	0.134	0.081
Psychological health	-0.021	0.352	1	0.572	0.412
Social relationships	-0.065	0.134	0.572	1	0.426
Environment	-0.163	0.081	0.412	0.426	1

The study found a weak negative correlation between physical health and perceived stress scores (r=-0.239), suggesting that higher physical health scores are associated with lower perceived stress. A weak positive correlation was observed between psychological health and perceived stress scores (r=0.021), but this correlation is likely not significant.

The weak negative correlation between environment and perceived stress scores (r=-0.163) indicates that individuals who perceive their environment more positively report lower stress scores. Social relationships showed a weak negative correlation with perceived stress scores (-0.065), suggesting a slight decrease in social relationships as stress increases.

Additionally, a moderate positive correlation (0.352) between physical health and psychological health implies that individuals with good physical health also report good psychological health.

Table 6: Independent samples t-tests results table (for Southern Asia).

Demographic group	t-value	P value
For South Asia		
Wellness program attendance	-1.694	0.100
Accommodation status (hostel)	-0.747	0.463
Gym participation	3.088	0.004*
For South Caucasus		
Wellness program attendance	-0.186	0.854
Accommodation status (hostel)	0.162	0.875
Gym participation	0.261	0.797

*Statistically significant, p value is <0.05 [p value <0.05 – 95% confidence interval

Wellness program attendance

There is no statistically significant difference in wellness program attendance between Southern Asia and South Caucasus.

Accommodation status (hostel)

There is no statistically significant difference in hostel accommodation between Southern Asia and South Caucasus.

Gym participation

There is a statistically significant difference in gym participation between Southern Asia (t-value=3.088, p value=0.004*) and South Caucasus.

People in Southern Asia are more likely to participate in gym activities than people in the South Caucasus.

Comparative analysis

There is a stark difference in stress levels among the medical students of Southern Asia and South Caucasus.

Divergent stress profiles

In Southern Asia, high-stress levels are strikingly prominent. A majority, around 60.0% of respondents, reflect higher levels of stress. This finding reflects the immense pressure and challenges faced by the medical students in this region.

On the contrary, the stress profile among medical students in the South Caucasus reflects a notably lower percentage

of students, just around 30.9% of respondents, have reported experiencing higher levels of stress.

Disparities in low-stress levels

Additionally, the analysis expresses notable differences in the low stress levels between the two regions. In the Southern Caucasus specifically in Georgia, a larger proportion of students hold 15.2% of respondents who experience lower levels of stress. In Georgia, there were only 15.2% of respondents experienced lower stress levels while in Southern Asia, only 9.1% of respondents reflected low stress levels.

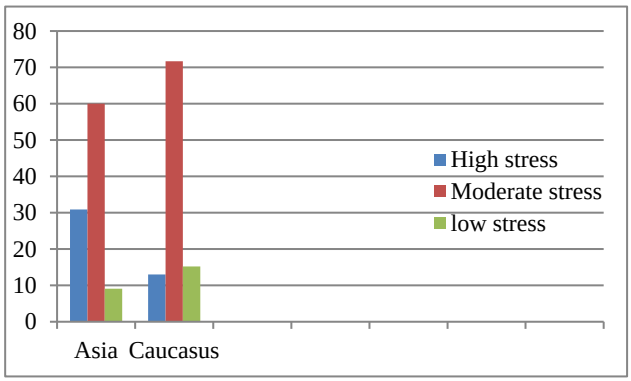

Figure 1: Stress levels perceived based on location.

Factors leading to higher stress levels in Asia

Asian countries follow specific cultural and environmental norms that lead to higher stress levels among students compared to Georgia. In these societies, significant emphasis is placed on academic achievement, community, and family expectations, creating additional stress for students.

Educational systems in Asia differ from those in Georgia, with intense competition for university entrance exams adding pressure. In India, large class sizes and high student-to-teacher ratios may hinder personalized support, increasing stress levels.

In contrast, Georgia's smaller class sizes promote a supportive learning environment, reducing stress from academic challenges.

Socioeconomic factors, including the cost of education and disparities, also contribute significantly to students' stress levels.

Insights from Georgia

Those who engaged in recreational activities had notably lower perceived stress levels compared to non-participants. Gym workouts, in particular, were associated with even lower stress levels, suggesting exercise as a promising stress reduction strategy. Interestingly, individuals not partaking in any listed activities showed the highest prevalence of low stress.

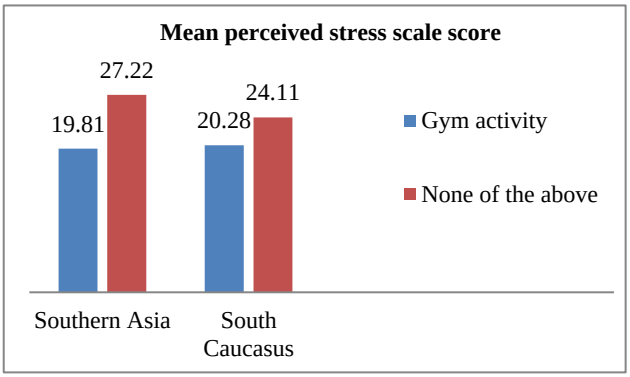

Figure 2: Impact of recreational activities on stress levels in India and South Caucasus.

Insights from India

The graph demonstrates the relationship between recreational activities and stress levels. Individuals who engaged in gym workouts or other recreational activities were more likely to report low stress levels compared to those who did not engage in such activities.

Reasons for low stress in recreational activity participants

Recreational activities offer a constructive outlet for stress, enabling individuals to channel energy into physical exertion or leisure pursuits.

Exercise, such as gym workouts, releases endorphins and neurotransmitters, improving mood and alleviating stress.

Those engaged in recreational activities may adopt healthier lifestyles, impacting stress levels positively.

Overall analysis

Both India and Georgia show a consistent link between gym workouts and lower stress levels. Participants who engaged in gym workouts reported less high stress.

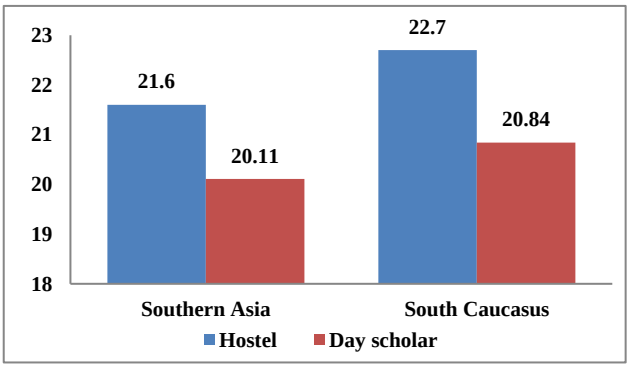

Figure 3: Stress levels by accommodation status.

Georgia

In Georgia, students residing in hostels reported higher percentages of high stress and moderate stress around 34.8% compared to day scholars. Only 23.1% of students reported low-stress levels among hostel residents.

India

Like Georgia, students residing in hostels reported 50.9% high stress and 34.1% moderate stress as compared to day scholars. 15.01% of students reported low stress which was significantly lower among hostel residents.

Possible reasons for higher stress in hostels

Shared living spaces in hostels restrict opportunities for privacy, essential for relaxation and focused studying, particularly for medical students facing academic pressures.

The presence of noise in shared living environments can disrupt sleep patterns and concentration.

Students transitioning to hostel life, especially those away from their homes may encounter challenges in adjusting to a new environment.

The proximity and shared living arrangements in hostels increase the likelihood of interpersonal conflicts, adding stress for medical students already grappling with academic pressures.

The relationship between participation in wellness programs and PSS among medical students

Students who attended wellness programs, whether regularly or occasionally, reported lower stress levels than those who did not attend. In both Georgia and India, program participants had lower percentages of high stress (Georgia: 27.3% versus 42.3%; India: 22.7% versus 41.8%) and higher percentages of low stress (Georgia: 60.9% versus 40.9%; India: 39.1% versus 12.7%) compared to non-participants.

Participants in wellness programs also showed higher mean scores in all quality-of-life domains compared to non-participants.

Possible reasons for higher WHO quality of life scores

Wellness programs may provide students with stress management skills. These programs promote healthy habits such as exercise, nutrition, and sleep hygiene, directly enhancing physical health and indirectly benefiting psychological health, social connections, and students' overall perception of their environment. The programs also foster opportunities for students to connect with peers and build social support networks, positively impacting mental and emotional well-being and potentially leading to higher scores in social relationships and environment domains. Furthermore, wellness programs may help students develop self-awareness, allowing them to identify and address challenges that negatively impact their well-being.

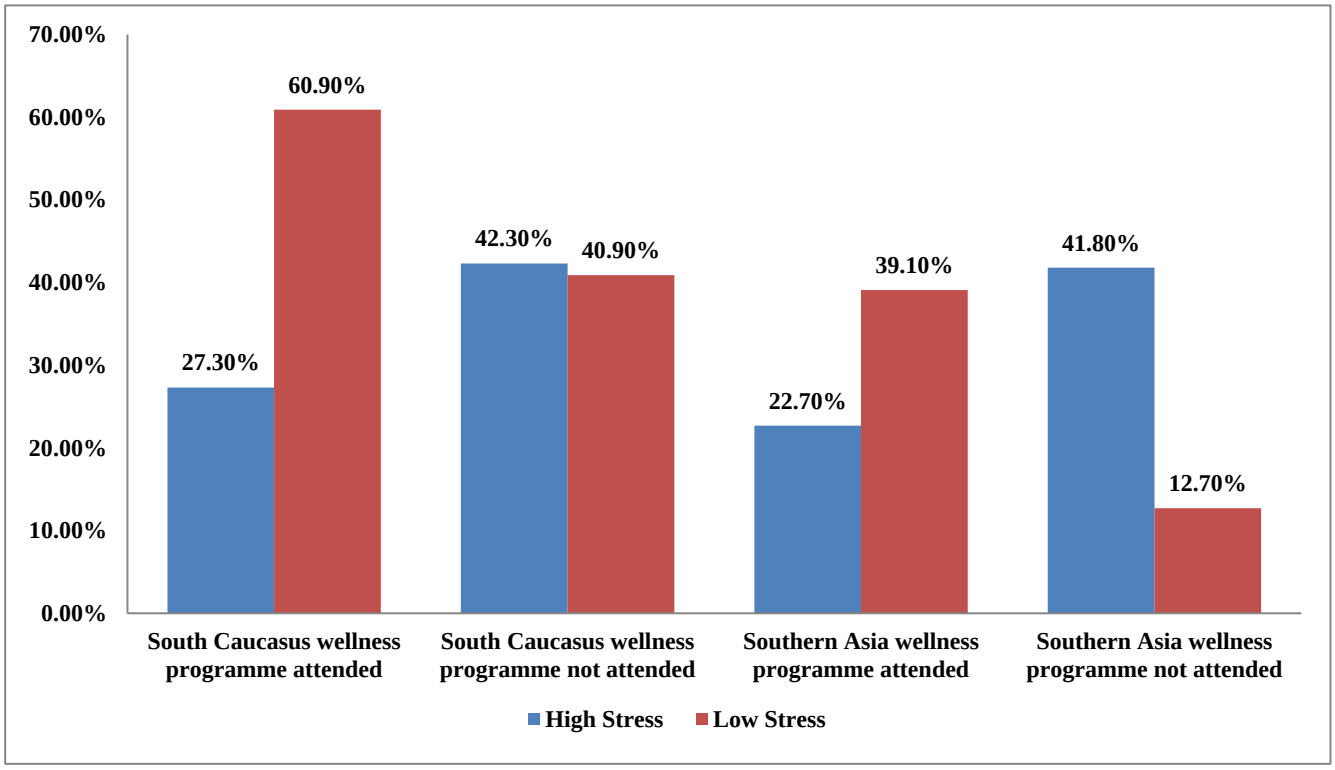

Figure 4: Wellness programs illustrations versus PSS score.

DISCUSSION

Our findings reveal a significant difference in stress levels between the two regions, with Southern Asian students experiencing higher levels of stress than their South Caucasus counterparts. This observation aligns with previous research suggesting regional variations in stress levels among medical students and can be attributed to several factors such as cultural norms, educational systems, and socioeconomic conditions unique to each region.[5]

In Southern Asia, medical students often face high academic pressures and intense competition, which may contribute to elevated stress levels. Additionally, traditional family expectations and cultural emphasis on academic achievement can further intensify stress. Conversely, South Caucasus students may benefit from different educational approaches, such as smaller class sizes and more supportive learning environments, which may contribute to lower stress levels.

Furthermore, our findings indicate that participation in wellness programs correlates with lower stress levels among medical students. This highlights the potential effectiveness of holistic approaches to student well-being, such as providing access to counseling services, relaxation techniques, and recreational activities.[6] Such preventive strategies can help mitigate stress and promote resilience, benefiting students' mental health and academic performance.

Our study also reveals that lifestyle factors, including recreational activities, may play a role in stress management and overall quality of life for medical students.[7] Engaging in physical exercise, meditation, and other activities can foster emotional balance and contribute to better stress management.[7]

By identifying the factors that influence stress levels and quality of life, we can better address the unique stressors faced by students in Southern Asia and the South Caucasus. These insights have implications for medical education policymakers and institutions aiming to improve support systems for students.

Limitations

The cross-sectional design limits our ability to establish causality between variables, and future longitudinal studies could provide a more comprehensive understanding of these dynamics. Reliance on self-reported data may introduce bias, affecting the accuracy of the results. Additionally, the focus exclusively on medical students from Southern Asia and the South Caucasus may restrict the generalizability of findings to other regions. Unmeasured factors such as coping mechanisms and support networks may also influence outcomes. Despite these limitations, the study provides valuable insights and sets the stage for further research exploring the unique challenges faced by medical students in diverse cultural and educational contexts.

CONCLUSION

This research shares valuable insights into the comparative analysis of stress levels and quality of life among medical students across Southern Asia and the South Caucasus. Through these comprehensive analyses considering multiple factors like stress levels, which form major parts like participation in recreational activities, accommodation status, and engagement in wellness programs, etc. this study has shed light on the nuanced differences between the two regions.

The findings also bring to focus the importance of cultural, educational, and environmental factors on the levels and experiences of stress in the lives of medical students in Southern Asia and the South Caucasus. The inverse relationship observed between engagement in wellness programs and perceived stress levels suggests the potential effectiveness of such programs in promoting student well-being and resilience. Therefore, targeted initiatives help us understand how increasing access to wellness resources and promoting proactive stress management strategies are warranted in both regions. Also, the overall study is aimed at developing a deeper understanding of stress among the whole sections of medical students across Southern Asia and the South Caucasus which provides deeper insights for the curation of targeted interventions and support systems.

Recommendations

Analyzing these issues can prioritize student well-being and foster a supportive learning environment. This paves the way for future longitudinal research to track changes in stress levels and understand the long-term impact on students' well-being. Future studies should explore institutional policies, social support networks, and coping strategies that mitigate stress. This research can guide the development of evidence-based interventions and practices that promote the mental health and academic success of medical students across diverse cultural and educational contexts.

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