

LIFESTYLE BEHAVIOUR AND HEALTH PROMOTING FACTORS AMONG  
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**ABSTRACT****Introduction:** University students are particularly vulnerable to adopting unhealthy lifestyle behaviors because of academic pressures, changing social environments, and increased independence. These behaviors may adversely affect both physical and psychological well-being and contribute to future non-communicable diseases.**Objectives:** To assess lifestyle behaviors, health-promoting factors, awareness regarding lifestyle-related diseases, and anxiety levels among university students. **Methods:** A cross-sectional study was conducted among 78 university students. Participants were selected using a convenience sampling technique. Data were collected using a structured self-administered questionnaire comprising socio-demographic characteristics, lifestyle-related factors, awareness regarding lifestyle-related diseases, and the Depression Anxiety Stress Scale-21 (DASS-21). Data were analyzed using descriptive and inferential statistics. Associations between categorical variables were assessed using the Chi-square test, and a p-value of <0.05 was considered statistically significant. **Results:** The majority of participants reported engaging in regular physical activity (67.9%). Most students slept for 5–8 hours daily, although more than half reported sleeping after midnight. Alcohol consumption and smoking were reported by 46.2% and 12.2% of participants, respectively, while only 20.5% practiced meditation. Awareness regarding lifestyle-related diseases was moderate, with diabetes and hypertension being the most commonly recognized conditions. Anxiety assessment revealed that 62.8% of participants experienced varying levels of anxiety, with moderate anxiety being the most common category. Physically active students demonstrated lower proportions of extremely severe anxiety compared with inactive students; however, the association was not statistically significant. **Conclusion:** Conclusion: Although many students reported engaging in positive health behaviors such as regular physical activity, concerns related to sleep timing, alcohol consumption, low meditation practices, and anxiety were evident. University-based interventions focusing on mental health, healthy lifestyle promotion, and disease awareness may help improve student well-being.**KEYWORDS:** Lifestyle behaviors, university students, physical activity, anxiety, health promotion, DASS-21.**INTRODUCTION**

Health-promoting lifestyle behaviors are recognized as important determinants of physical, mental, and social well-being. The adoption of healthy behaviors during young adulthood plays a crucial role in preventing non-communicable diseases (NCDs) and improving quality of life. University students represent a unique population undergoing significant transitions in their academic,

social, and personal lives. During this period, students often experience increased independence, academic pressure, altered sleep schedules, and lifestyle changes that may influence their health-related behaviors.<sup>[1]</sup>

Lifestyle encompasses a range of behaviors including physical activity, nutrition, sleep patterns, stress management, interpersonal relationships, health

responsibility, and avoidance of harmful practices such as smoking and excessive alcohol consumption. These factors collectively influence an individual's health status and psychological well-being. According to the World Health Organization (WHO), unhealthy lifestyle behaviors contribute substantially to the global burden of NCDs, including cardiovascular diseases, diabetes mellitus, obesity, hypertension, and certain cancers.<sup>[2]</sup>

Physical inactivity remains one of the leading modifiable risk factors for mortality worldwide. Regular physical activity has been associated with improved cardiovascular health, reduced risk of obesity and diabetes, enhanced mental health, and better academic performance among university students.<sup>[2,3]</sup> However, recent evidence suggests that a considerable proportion of college students fail to achieve recommended levels of physical activity and often adopt sedentary lifestyles.<sup>τ</sup>

Adequate sleep is another essential component of a healthy lifestyle. Sleep plays a vital role in memory consolidation, cognitive functioning, emotional regulation, and overall well-being. University students frequently experience irregular sleep schedules due to academic commitments, social engagements, and increased screen time, leading to sleep deprivation and poor sleep quality. Such disturbances have been associated with increased levels of stress, anxiety, depression, and poor academic outcomes.<sup>υ</sup>

Substance use, including alcohol consumption and tobacco smoking, is common among young adults and poses significant health risks. These behaviors are often influenced by peer pressure, social norms, and stress-related coping mechanisms. Persistent alcohol and tobacco use during early adulthood may predispose individuals to chronic diseases and psychological disorders later in life.<sup>ω</sup>

Beyond physical health behaviors, mental well-being has become an increasingly important concern among university students. The transition to university life is often accompanied by academic responsibilities, social adjustments, and future career concerns, all of which may contribute to psychological distress. Evidence suggests that healthy lifestyle practices, including regular physical activity, adequate sleep, stress-management techniques, and participation in recreational activities, can positively influence mental health and overall quality of life.<sup>ω</sup>

Awareness of lifestyle-related diseases also plays an important role in shaping health behaviors. Individuals who possess adequate knowledge regarding disease risk factors and preventive measures are more likely to adopt healthier lifestyle choices. Furthermore, exposure to chronic illnesses within the family may influence an individual's perception of personal health risks and encourage preventive practices.<sup>ξ</sup>

Despite growing recognition of the relationship between lifestyle behaviors and health outcomes, information regarding lifestyle practices, disease awareness, and psychological well-being among university students remains limited in many settings. Understanding these factors is important for identifying areas that require intervention and for developing targeted health-promotion strategies. Therefore, the present study was conducted to assess lifestyle behaviors, health-promoting factors, awareness regarding lifestyle-related diseases, and anxiety levels among university students.

## METHODOLOGY

A cross-sectional study was conducted among university students to assess lifestyle behaviors, health-promoting factors, and psychological well-being. The study was carried out in the university campus during the study period after obtaining the necessary administrative permission and ethical clearance from the Institutional Ethics Committee.

The study population comprised undergraduate and postgraduate students aged 18 years and above who were enrolled in various academic programmes of the university. Students who were willing to participate and provided written informed consent were included in the study. Students who were absent during data collection, unwilling to participate, or submitted incomplete questionnaires were excluded from the study.

The sample size was calculated using the formula for estimation of a single population proportion:

$$n = Z^2 pq / d^2$$

where  $n$  represents the required sample size,  $Z$  is the standard normal deviate corresponding to a 95% confidence level (1.96),  $p$  is the anticipated prevalence,  $q = 1 - p$ , and  $d$  is the absolute precision. Considering an anticipated prevalence of 28.1%, a confidence level of 95%, and an absolute precision of 10%, the minimum sample size was calculated to be 78 participants. A convenience sampling technique was employed, and eligible students were recruited until the desired sample size was achieved.

Data were collected using a structured, self-administered questionnaire developed after an extensive review of the available literature. The questionnaire consisted of socio-demographic characteristics including age, gender, and body mass index; lifestyle-related variables such as physical activity, sleep duration, sleep quality, alcohol consumption, smoking habits, meditation practices, and hobbies; awareness regarding lifestyle-related diseases; and family history of chronic diseases. Anthropometric measurements were obtained and body mass index (BMI) was calculated using the standard formula of weight in kilograms divided by height in meters squared ( $\text{kg}/\text{m}^2$ ). Participants were subsequently classified as underweight, normal weight, overweight, or obese.

according to the World Health Organization classification criteria.<sup>[9]</sup>

Psychological well-being was assessed using the Depression Anxiety Stress Scale-21 (DASS-21), a validated self-report instrument consisting of 21 items distributed equally across three domains: depression, anxiety, and stress. Participants were asked to indicate the extent to which each statement applied to them during the preceding week. Scores for each domain were summed and categorized according to the recommended DASS-21 severity classification guidelines.<sup>[10]</sup>

Prior to data collection, the objectives and purpose of the study were explained to all participants. Written informed consent was obtained from each participant before administration of the questionnaire. Confidentiality and anonymity of the respondents were maintained throughout the study, and the collected information was used solely for research purposes.

Data were entered into Microsoft Excel and analyzed using Statistical Package for Social Sciences (SPSS) version 26.0. Descriptive statistics including frequencies, percentages, means, and standard deviations were used to summarize the study findings. Associations between categorical variables were assessed using the Chi-square test. One-way Analysis of Variance (ANOVA) was applied to compare mean depression, anxiety, and stress scores across different groups. A p-value of less than 0.05 was considered statistically significant.

Ethical approval for the study was obtained from the Institutional Ethics Committee before commencement of the study. Participation was entirely voluntary, and respondents were assured that refusal to participate would not affect them in any manner. Confidentiality, privacy, and anonymity were maintained throughout the study.

## RESULTS

A total of 78 university students participated in the study. The majority of participants belonged to the age group of 21–24 years (42.3%), followed by 18–21 years (41.0%) and 25–30 years (16.7%). Female students constituted 70.5% of the study population, while males accounted

for 29.5%. Most participants (61.5%) had a normal body mass index, whereas 14.1%, 16.7%, and 7.7% were underweight, overweight, and obese, respectively (Table 1).

Lifestyle-related characteristics of the participants are presented in Table 2. Regular physical exercise was reported by 67.9% of students, while 32.1% did not engage in any form of physical activity. The majority of students reported sleeping for 5–8 hours daily. However, more than half of the participants reported sleeping after midnight. Alcohol consumption was reported by 46.2% of students, whereas cigarette smoking was reported by 12.2%. Meditation was practiced by only 20.5% of participants, indicating relatively low adoption of stress-management practices.

Regarding awareness of lifestyle-related diseases, diabetes (39.7%) and hypertension (35.9%) were the most commonly recognized conditions, whereas awareness of PCOD and cancer was comparatively lower. More than half of the respondents reported a family history of at least one lifestyle-related disease.

The prevalence of anxiety among participants is presented in Table 4. Only 37.2% of students had normal anxiety scores, whereas 62.8% exhibited varying degrees of anxiety. Moderate anxiety was the most common category (28.2%), followed by extremely severe anxiety (17.9%), mild anxiety (9.0%), and severe anxiety (7.7%).

The association between physical exercise and anxiety is shown in Table 5. Students who did not engage in regular physical exercise demonstrated a higher proportion of extremely severe anxiety (28.0%) compared with those who exercised regularly (13.2%). However, the association was not statistically significant ( $\chi^2 = 5.165$ ,  $p = 0.271$ ).

Similarly, alcohol consumers demonstrated higher proportions of moderate and severe anxiety compared with non-consumers; however, the association was not statistically significant ( $p = 0.108$ ) (Table 6). Smoking status was also not significantly associated with anxiety levels among study participants ( $p = 0.463$ ).

**Table 1: Socio-demographic characteristics of study participants (n=78).**

Variable	Frequency	Percentage
Age (years)		
18–21	32	41.0
21–24	33	42.3
25–30	13	16.7
Gender		
Male	23	29.5
Female	55	70.5
BMI Category		
Underweight	11	14.1
Normal	48	61.5
Overweight	13	16.7

Obese	6	7.7
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**Table 2: Lifestyle characteristics of participants (n=78).**

Variable	Frequency	Percentage
Physical Exercise		
Yes	53	67.9
No	25	32.1
Alcohol Consumption		
Yes	36	46.2
No	42	53.8
Smoking		
Yes	9	12.2
No	69	87.8
Meditation Practice		
Yes	16	20.5
No	62	79.5

**Table 3: Awareness regarding lifestyle-related diseases among participants (n=78).**

Disease	Frequency	Percentage
Diabetes	31	39.7
Hypertension	28	35.9
Obesity	25	32.1
PCOD	15	19.2
Cancer	6	7.7

**Table 4: Distribution of participants according to anxiety level (n=78).**

Anxiety Level	Frequency	Percentage
Normal	29	37.2
Mild	7	9.0
Moderate	22	28.2
Severe	6	7.7
Extremely Severe	14	17.9
Total	78	100

**Table 5: Association between physical exercise and anxiety.**

Anxiety Level	No Exercise n (%)	Exercise n (%)
Normal	11 (44.0)	18 (34.0)
Mild	2 (8.0)	5 (9.4)
Moderate	4 (16.0)	18 (34.0)
Severe	1 (4.0)	5 (9.4)
Extremely Severe	7 (28.0)	7 (13.2)

**Table 6: Association between alcohol consumption and anxiety.**

Anxiety Level	Non-consumers (%)	Consumers (%)
Normal	47.6	25.0
Mild	9.5	8.3
Moderate	21.4	36.1
Severe	2.4	13.9
Extremely Severe	19.0	16.7

**DISCUSSION**

The study examined lifestyle behaviors and health-promoting factors among university students, focusing on physical activity, sleep habits, substance use, disease awareness, and anxiety levels. The findings reveal that while many students adopted positive health behaviors such as regular physical exercise, several risk factors

including delayed sleep patterns, alcohol consumption, limited meditation practices, and a high prevalence of anxiety were also observed. These results highlight the complex interplay between lifestyle choices and psychological well-being among young adults.

Regular physical activity was reported by 67.9% of participants, indicating a relatively encouraging level of engagement in exercise. Similar observations have been reported in previous studies, which demonstrated that physically active students tend to have better physical health, improved academic performance, and lower levels of psychological distress. However, nearly one-third of participants did not engage in regular exercise. This finding warrants attention because sedentary behaviors established during university years may continue into adulthood and contribute to obesity, cardiovascular diseases, diabetes, and other non-communicable diseases.<sup>[11,12]</sup>

Sleep behavior emerged as an important lifestyle component among the study participants. Although most students reported sleeping between 5 and 8 hours per day, more than half indicated that they routinely went to bed after midnight. Similar sleep patterns have been documented among university students in different settings, where academic demands, excessive screen exposure, and social activities often contribute to delayed sleep schedules.<sup>[2]</sup> Previous research has demonstrated that poor sleep quality and irregular sleep timing can adversely affect cognitive performance, concentration, emotional regulation, and overall mental health.<sup>[12]</sup> Therefore, the delayed sleep habits observed in the present study may have implications for both academic functioning and psychological well-being. Promoting healthy sleep practices within university settings could help students maintain better physical and mental health outcomes.

Alcohol consumption was reported by nearly half of the participants, while cigarette smoking was reported by a smaller proportion. These findings suggest that substance-use behaviors continue to be present among university students despite increasing awareness regarding their adverse health effects. Similar trends have been observed in studies conducted among young adults, where alcohol use is often associated with social interactions, peer influence, and coping with academic or personal stress. Persistent alcohol consumption and tobacco use during early adulthood may increase the risk of long-term physical and mental health problems.<sup>[13]</sup> Although smoking prevalence was relatively low in the present study, continued efforts to discourage substance use and promote healthy coping strategies remain important. University-based health education and counseling programmes may play a valuable role in reducing these risk behaviors among students.

Only one-fifth of the participants reported practicing meditation, indicating limited adoption of mindfulness-based approaches for stress management. In recent years, meditation and mindfulness interventions have gained considerable attention because of their positive effects on mental health. Evidence from systematic reviews and meta-analyses has shown that such interventions can effectively reduce symptoms of anxiety, depression, and

stress while improving emotional well-being and resilience among university students.<sup>[13-16]</sup> Given the substantial proportion of students experiencing anxiety in the present study, the low prevalence of meditation practices represents a missed opportunity for promoting psychological well-being. Universities may benefit from integrating yoga, meditation, and mindfulness-based activities into student wellness programmes to encourage healthier coping mechanisms and improve mental health outcomes.

Awareness regarding lifestyle-related diseases among the participants was moderate, with diabetes and hypertension being the most frequently recognized conditions. This finding is encouraging given the increasing burden of non-communicable diseases globally; however, awareness of other conditions such as obesity, polycystic ovarian disease, and cancer was comparatively lower. Similar observations have been reported among young adults, suggesting that knowledge regarding lifestyle-related health risks remains incomplete despite widespread access to health information. Improved health literacy is essential because awareness of disease risk factors and preventive measures can influence health-related decision-making and encourage the adoption of healthier lifestyles.<sup>[11,12]</sup> Educational initiatives and regular health awareness programmes within universities may therefore contribute to better preventive health practices among students.

A notable finding of the present study was the high prevalence of anxiety among university students. Nearly two-thirds of the participants experienced some degree of anxiety, with moderate anxiety being the most common category. This finding highlights the growing mental health challenges faced by young adults during their university years. Similar trends have been reported in recent studies, indicating that anxiety has become a major public health concern among student populations worldwide.<sup>[13,12]</sup> Multiple factors may contribute to heightened anxiety levels, including academic workload, examination pressure, concerns regarding future career opportunities, financial difficulties, and social expectations. The high burden of anxiety observed in the present study emphasizes the need for early identification of psychological distress and the implementation of accessible mental health support services within university settings.

Students who engaged in regular physical activity demonstrated lower proportions of extremely severe anxiety compared with those who did not exercise regularly. Although the association did not reach statistical significance, the observed pattern suggests a potential beneficial relationship between physical activity and mental well-being. Similar findings have been reported in previous studies, where physically active individuals generally exhibited lower levels of anxiety and psychological distress.<sup>[11,12]</sup> The positive influence of exercise on mental health may be attributed

to several physiological and psychological mechanisms, including the release of endorphins, improved self-esteem, better stress regulation, and enhanced social engagement. The absence of statistical significance in the present study may be related to the relatively small sample size; however, the observed trend supports the promotion of regular physical activity as part of a comprehensive approach to student mental health.

Higher levels of anxiety were observed among students who reported alcohol consumption compared with non-consumers, although the association was not statistically significant. This observation is consistent with previous research suggesting a complex relationship between alcohol use and psychological well-being among young adults. While some students may consume alcohol as a means of coping with stress or anxiety, excessive or frequent alcohol use may contribute to worsening mental health outcomes over time.<sup>[13]</sup> The findings of the present study highlight the importance of addressing substance-use behaviors alongside mental health concerns. Integrated health-promotion strategies focusing on stress management, healthy coping mechanisms, and responsible lifestyle choices may help reduce both anxiety and substance-use-related risks among university students.

Overall, the findings demonstrate that university students exhibit a mixture of health-promoting and potentially harmful lifestyle behaviors. While participation in physical activity was encouraging, concerns related to delayed sleep timing, alcohol consumption, limited meditation practices, and a substantial burden of anxiety were evident. These observations emphasize that physical health and psychological well-being are closely interconnected and should be addressed together. Universities represent an important setting for health promotion and can play a key role in fostering healthy behaviors through targeted interventions, awareness campaigns, counseling services, and wellness programmes. Strengthening such initiatives may contribute to improved quality of life, better academic performance, and long-term health outcomes among students.

## CONCLUSION

The findings of this study indicate that university students demonstrate both positive and negative lifestyle behaviors. Although a majority of participants reported regular physical activity and adequate sleep duration, unhealthy sleep timing, alcohol consumption, limited meditation practices, and a high prevalence of anxiety were common. Awareness regarding lifestyle-related diseases was moderate, suggesting scope for improving health literacy among students. The observed trends underscore the need for comprehensive university-based health promotion initiatives that address physical activity, mental health, sleep hygiene, mindfulness practices, and preventive health education. Such

interventions may contribute to healthier lifestyles and improved overall well-being among young adults.

## Strengths and Limitations

The present study provides valuable insights into lifestyle behaviors, awareness regarding lifestyle-related diseases, and anxiety among university students. The use of a structured questionnaire and a validated instrument (DASS-21) strengthened the reliability of the findings. In addition, the study assessed multiple dimensions of student health, including physical activity, sleep habits, substance use, meditation practices, and psychological well-being.

However, certain limitations should be considered while interpreting the findings. The cross-sectional design limits the ability to establish causal relationships between lifestyle factors and anxiety. The study was conducted among a relatively small sample of students from a single university using convenience sampling, which may limit the generalizability of the results. Furthermore, the data were self-reported and may be subject to recall bias or social desirability bias. Future studies involving larger and more diverse populations are recommended to better understand the relationship between lifestyle behaviors and mental health among university students.

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