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Physical activities, sedentary behavior, sleep quality, and quality of life among female medical versus nonmedical college students

A cross-sectional study

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Abstract

Despite the numerous health benefits of physical activity (PA), sedentary behavior (SB) and physical inactivity remain major public health concerns. A lack of PA increases the chance of developing some noncommunicable diseases that are on the rise worldwide. Therefore, this study aimed to evaluate the level of PA, SB, sleep quality (SQ), and quality of life (QOL) among Saudi female college students. A cross-sectional study was carried out among female students enrolled in various colleges, both medical and nonmedical, at King Saud University in Riyadh during the academic year 2018 to 2019. Participation posters were sent to colleges' departments, and survey links were shared through university social media channels. The study utilized the International Physical Activity Questionnaire and the Pittsburgh Sleep Quality Index to evaluate PA and SQ and the World Health Organization Quality of Life Assessment Instrument to evaluate QOL. In order to conduct statistical analyses, frequency counts, means, and standard deviations were calculated for PA, SQ, and QOL scores. In this study, 131 Saudi female college students were conveniently recruited from 223 who met the inclusion criteria, with a mean age of 20.4 ± 1.4. Most participants were from medical colleges (n = 86, 6, 5.6%) and the minority were nonmedical (n = 45, 34.4%). We have found that International Physical Activity Questionnaire indicated that most students had low PA (52% of the participants), about 35% had a moderate PA, and only 17% had high PA. SB was present among 22.9% of participants. Nearly 68.7% of the students scored poorly on the Pittsburgh Sleep Quality Index for SQ. The students had high QOL, with a mean WHOQOL-BREF total score of 90.76 ± 12.77. Medical and nonmedical students showed no significant differences in PA, SB, or QOL. No apparent relationship was found between PA and SQ or QOL. This study shows that a significant proportion of female college students maintain an unfavorable lifestyle characterized by insufficient PA and subpar SQ. Implementing programs that encourage students to be more physically active, reduce sedentary time, and integrate sleep education programs to improve their sleep habits are necessary.

Abbreviations: BMI = body mass index, IPAQ = International Physical Activity Questionnaire, MET = metabolic equivalent of task, NCDs = noncommunicable diseases, PA = physical activity, PSQI = Pittsburgh Sleep Quality Index, QOL = quality of life, RR = relative risk, SB = sedentary behavior, SQ = sleep quality, WHO = World Health Organization.

Keywords: activity level, lifestyle, public health, well-being

1. Introduction

Physical activity (PA) is defined as any body movement produced by skeletal muscle contractions, which increases energy expenditure above resting metabolism.[1] Physical inactivity refers to the nonachievement of PA guidelines. Physical inactivity can raise the chance of developing cardiovascular diseases (adjusted relative risk (RR) of 1.16 < 1.04–1.30>), diabetes (adjusted RR of 1.20 < 1.10–1.33>), colon and breast cancer (adjusted RR 1.38 < 1.31–1.45 > and 1.34 < 1.25–1.43>, respectively), which are all noncommunicable diseases (NCDs) that are on the rise globally.[2,3] It has been found that PA levels are associated with a decreased risk of incident depression (adjusted RR = 0.83, 95% CI: 0.76–0.90).[4]

Physical inactivity is the 4th leading cause of global mortality, responsible for around 3.2 million deaths and 32.1 million disability-adjusted life years each year.[5] According to reports, the estimated RRs linked to physical inactivity were 14.1% for type 2 diabetes, 19.9% for breast cancer, 20.4% for colon cancer, and 18.4% for all-cause mortality in Saudi Arabia.[2]

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The datasets generated during and/or analyzed during the current study are not publicly available, but are available from the corresponding author on reasonable request.

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According to systematic analysis, the prevalence of physical inactivity ranged from 26% to 85% among Saudi men and 43% to 91% among Saudi women in the general population.[6] Saudi women were disproportionately less active than males, starting from the beginning of school.[6] Saudi citizens' lifestyle changes could contribute to increased physical inactivity. These changes include mechanization, increased computer and telecommunication technology use, and extensive urbanization in the country.

A study has found that Saudi women who work in office-based jobs are at high risk of being overweight, obese, and physically inactive.[7] Factors like extreme weather, cultural obstacles, traffic congestion, and time pressure make PA challenging.[6] The percentage of Saudi women aged above 15 years old with hypertension was 21.8%, while the percentage of those with diabetes ranged from 9.6% to 27.6%.[8] Overweight and obese women represented 27% and 40.23%, respectively, and the proportion of inactive women ranged from 53.2% to 98.1%.[8] It is important to understand that physical inactivity and sedentary behavior (SB) pose serious public health risks for young adults, especially college students who must balance academic, work, and personal commitments. SB refers to activities with minimal energy expenditure, such as sitting or reclining during waking hours.[9] It is increasingly recognized as a public health concern due to its association with negative health outcomes.[10,11] Among Saudi female adolescents, more than 85% spend over 3 hours per day in sedentary activities.[12] This highlights the need to explore SB further in this population, as it may significantly impact their long-term health and quality of life (QOL).

Few studies in Saudi Arabia evaluated sleep quality (SQ) among college students, and they have evaluated the association between sleep disorders and mental health issues, such as stress and sedative drug use.[13,14] These studies' results indicate a statistically significant association between stress and poor SQ. In addition, poor SQ and symptoms of sleeping disorders are associated with the use of sedative drugs. A study conducted among female adolescents between 18 and 24 years old found that the PA group had significantly better subjective SQ after 12 weeks of moderate-intensity physical activities than the control group ($t = -3.4$, $P = .005$; $d = 1.79$).[15] The Saudi Vision Plan 2030 emphasizes social responsibility[16,17]; therefore, promoting community participation in sports is an essential goal of the program, emphasizing the importance of participating in PA for maintaining good health. This endeavor demonstrates the Vision Program's Quality of Life Program in Saudi Arabia.

Studies conducted among medical students in Saudi Arabia stated that the high academic demands placed on female medical students may lead to lower PA levels and SQ. This study aims to address a knowledge gap by exploring whether the demanding academic load on female medical students results in reduced PA and SQ despite their awareness of associated health risks. Conversely, it examines whether nonmedical students, with potentially more free time but less health knowledge, show different patterns in PA and sleep, which has not been studied in Saudi female university students. This comparison could provide insights for targeted health interventions. This study aims to explore potential differences between female medical and nonmedical students in 3 key areas: (1) PA levels, (2) SQ, and (3) overall QOL. By investigating these factors, we seek to provide preliminary insights into whether academic disciplines may be associated with variations in health-related behaviors and well-being in this population.

2. Methods

2.1. Study design

A cross-sectional study was employed to assess the level of PA, SB, SQ, and QOL among Saudi female college students aged 18 to 25 years in Riyadh and to investigate the relationship between PA, SQ, and QOL among the students.

2.2. Settings and study participants

The study was conducted across various colleges at King Saud University in Riyadh. Data collection was carried out during the academic period from 2018 to 2019. Ethical approval for the study was granted by the ethics committee of the College of Applied Medical Sciences at King Saud University in Riyadh under the ethics reference number CAMS143-3839. Convenience sampling, rather than a random method, was employed to recruit participants, and the sample size was comparable to that reported in previously published research.[18,19]

2.3. Inclusion and exclusion criteria

Inclusion criteria encompassed healthy Saudi female university students aged 18 to 25 years. Conversely, exclusion criteria comprised students who had previously experienced fractures or undergone surgeries related to the back, pelvis, lower limbs, as well as those with a history of cardiovascular or respiratory ailments, pregnancy, or any cognitive or communication impairments.

2.4. Recruitment

The participants were recruited in different ways:

- A participation poster link (https://s.surveyplanet.com/3F-pvY0pU4) was publicly shared on social media channels such as Twitter, official What's App groups for colleges and students, and the university club's Snapchat account.
- Participation posters were distributed to different colleges, including the College of Applied Medical Sciences and its vice-dean, as well as other departments within the College of Applied Medical Sciences, the College of Education, the College of Arts, and the College of Language and Translation, via email.
- Participation posters were distributed through emails invited to the Medical College students by the Medical Student Council at King Saud University.
- Students from different colleges were invited to participate in the study following a full explanation of the study's aim.

2.5. Demographic data and personal information

A self-administered questionnaire was used to collect demographic information. Demographic variables of interest included student's email to contact and communicate with them more accessible; other information contained the college, the major, the year of study, and the social status.

2.6. Anthropometric measurements

Anthropometric variables: body weight and height were measured in the morning using calibrated scales (Table 1). Measurements were conducted with minimal clothing and without shoes. Body mass index (BMI) was calculated by this equation: BMI = weight/height $(m)^2$. To identify the weight status of overweight and obese students between 18 and 25 years old, we followed the World Health Organization (WHO) adult cutoff points of 25 to 29.9 kg/m^2 to define overweight and 30 kg/m^2 and higher for obesity.[20]

2.7. Outcome measures

2.7.1. The Arabic short version of the International Physical Activity Questionnaire. PA was assessed using the Arabic short

Table 1

Participants' anthropometric characteristics.

Variables	Min	Max	Medical Mean ± SD	Nonmedical Mean ± SD	Mean ± SD Total
Age	18	25	20.16 ± 1.23	20.91 ± 1.59	20.42 ± 1.40
Bodyweight	34.10	116.50	61.10 ± 13.30	60.90 ± 17.62	61.03 ± 14.85
Height	128.80	169.00	157.31 ± 5.5	154.75 ± 6.85	156.43 ± 6.14
BMI	16.15	44.26	24.71 ± 5.46	25.36 ± 6.86	24.94 ± 5.96

Note: Values are reported as mean ± SD.

BMI = body mass index, Max = maximum, Min = minimum, SD = standard deviation.

version of the International Physical Activity Questionnaire (IPAQ). The IPAQ, short form, is an instrument designed for adults (age range 15–69 years) for cross-national PA and inactivity monitoring. Between 1997 and 1998, an International Consensus Group developed long and short forms of the IPAQ instruments (administered by telephone interview or self-administration) with 2 alternate reference periods, either the "last 7 days" or a "usual week" of recalled PA. It is reliable, valid, and acceptable for use in many settings and languages and is suitable for national population-based prevalence studies of participation in PA.[14] The Arabic version has been validated and used in Saudi Arabia.[21,22] A study reported a high correlation between answers of the French-IPAQ and those of the Arabic-IPAQ, with Spearman correlation coefficients ranging from 0.91 to 1.00 ($P < .05$).[22]

The short form IPAQ has 7 items providing information on walking time, vigorous- and moderate-intensity PA, and passive activity during the previous 7 days. The students reported the frequency (days per week), duration (hours) of walking, and moderate and vigorous PA they engaged in during the previous week to the survey. The IPAQ defines moderate physical activities as those that produce an average increase in respiration rate, heart rate, and sweating for at least 10 minutes. Moderate physical activities are equivalent to 3 to 6 metabolic equivalents (MET) based on the compendium of PA.[16] Vigorous PA is defined as producing substantial increases in respiration rate, heart rate, and sweating for at least 10 minutes duration. The metabolic equivalent value is above 6 MET.[23] The interpretation of the scoring was according to the guidelines from the IPAQ website (www.ipaq.ki.se) that were performed by using an automatic electronic Excel report where the IPAQ, short form can be expressed into 2 formats: continuous score defined by Metabolic Equivalent of Task (MET) minutes/week where the light-intensity PA (<600 MET minutes/week), moderate-intensity PA (≥600 to < 3000 MET minutes/week), and vigorous PA (≥3000 MET minutes/week), and as a definite score classified the PA level to 3-level: low, moderate, and high.

Sedentary behavior was measured as part of the short version IPAQ based on the IPAQ setting question, but it was not included in any derived PA summary score section. Participants were asked about the total hours per day that they spent sitting or lying down, including in university class, in the house, and traveling by car, excluding time spent sleeping on a typical day. The total daily sitting time represented overall sedentary behavior. The students were then categorized into sedentary and non-sedentary: sedentary students for those who had 8 hours and more of sitting time per day, non-sedentary for those who had <8 hours of sitting time per day according to previous studies which reported that a total sitting time of more than 8 hours a day is associated with all-cause mortality.[24]

2.9. Arabic version of the Pittsburgh Sleep Quality Index

The Pittsburgh Sleep Quality Index (PSQI) is a self-rated questionnaire that assesses sleep quality and disturbances over a 1-month period. Nineteen individual items generate 7 "component" scores: subjective SQ, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction. The sum of scores for these 7 components gives 1 global score. The PSQI scores range from 0 to 21. Higher scores indicate worse SQ. Participants with a global score of ≥ 5 will be classified as poor sleepers. Those with a score of < 5 will be classified as good sleepers. The clinical characteristics of the PSQI provide its utility in clinical practice and research.[25] The PSQI showed strong reliability and validity and moderate structural validity in various samples, suggesting the tool fulfills its utility.[26] Psychometric estimates showed that the PSQI is reliable and valid for measuring sleep disturbances among the Arabic clinical population.[26] They are validated among young collegiate adults[27] and used by 2 studies that assessed SQ among Saudi college students.[13,28] The PSQI is tested in a sample of 35 healthy Arabic bilinguals.[29] The internal consistency reliability for the Global PSQI demonstrates borderline acceptability (Cronbach alpha = .65). The reliability is further supported by moderate to high correlations between 5 PSQI components and the global PSQI score ($r = .53$ to.82, $P < .01$).[29] Convergent validity is supported by the global PSQI correlating strongly with the Insomnia Severity Index ($r = .76$) and moderately with the related construct of the Medical Outcome Study Short Form-36 vitality subscale ($r = -.33$).[29]

2.10. The World Health Organization Quality of Life Assessment Instrument

The WHOQOL-BRIEF is a self-administered generic questionnaire with 26 items. It is a short version of the WHOQOL-100 scale.[22] The response ranges from 1 to 5. Assessments were made over the preceding 2 weeks. It consists of domains and facets. The WHOQOL-BRIEF is a 26-item questionnaire developed from the original 100-item questionnaire, the WHOQOL-100. The WHOQOL-BRIEF questionnaire contains 2 items on overall QOL and general health and 24 articles on different aspects of QOL divided into 4 domains: physical health with 7 items, psychological health with 6 items, social relationships with 3 items, and environmental with 8 items; physical health (energy and fatigue, pain and discomfort, sleep and rest), psychological health (bodily image and appearance, negative feelings, positive feelings, self-esteem, thinking, learning, memory and concentration), social relationships (personal relationships, social support, and sexual activity) and environment (e.g., financial resources, freedom, physical safety and security, health and social care). Each item of the WHO QOL-BRIEF is scored from 1 to 5 on a response scale. The scores were then transformed linearly to a 0 to 100 scale. Higher scores indicated a better QOL. The Arabic translation of the WHOQOL-BRIEF had high reliability and validity; it represented the same constructs across cultures. It is composed of all parts that picture the main issues of the subjective QOL construct in medicine (HRQOL) and emotional well-being.[30] The intra-class correlation for the test–retest statistic and the internal consistency values for the full questionnaire and the domains had a Cronbach alpha ≥ 0.7.[30]

2.11. Data collection procedure

After obtaining ethical approval on the study protocol, all subjects signed informed consent forms before participating. Participants' data were collected via a questionnaire to provide demographic variables of interest, including age, college, major, and year of study. Self-reported questionnaires: IPAQ, PSQI, and the WHOQOL-BRIEF were completed by all participants. An electronic scale measures height and weight, and the BMI is calculated. The students then were stratified into medical college students and nonmedical college students.

2.12. Statistical analysis

All statistical analyses were performed using The Statistical Package of Social Science (SPSS) version 22. Frequency counts, means, and standard deviations were calculated for the total score of (PA, SQ, and QOL) in each medical and nonmedical college. Significant differences between groups ($P \leq .05$) were assessed using independent samples *t* test or Mann–Whitney *U* tests for the nonparametric data distribution. Categorical variables, such as the levels of PA, SQ, and QOL, were analyzed using Pearson Chi-Square test to assess associations between medical and nonmedical students. Analysis *P*-value of 95% confidence interval and statistical significance set at .05.

3. Results

3.1. Participants' demographic characteristics and personal information

A total of 223 students agreed to participate in this study. The number of excluded students: n = 68 for the following reasons: did not meet the criteria (students with a history of fracture or surgery of the back, pelvis, lower limb, cardiovascular or respiratory diseases, pregnancy, and any cognitive or communication impairment): 15; did not respond to the call: 33; and agreement revocation: 20. Participants included in this study were 131 Saudi female college students aged 18 to 25 years (mean = 20.42 ± 1.40). Most participants were from medical colleges (n = 86, 65.6%), and the minority were nonmedical (n = 45, 34.4%). Approximately 10% of the students were in the first year of studying years, 38.2% in the second year, 25% in the third year, 19.8% in the fourth, 4.9% in the fifth, 8% in the sixth, and 8% in their internship year. Only 2.3% of students were married, and 97.7% were single.

3.2. Level of PA among colleges

To examine the prevalence of students' PA across colleges, the Pearson Chi-Square test was used to test the association between PA and colleges among medical and nonmedical related students. As shown in Table 2, no statistically significant correlation was found between colleges and the distribution of PA (χ^2 (2) = 2.945, $P = .229 > .05$), indicating that medical and nonmedical students had similar PA patterns. College students' weekly MET minutes of PA are shown in Table 2 for comparison.

3.3. International Physical Activity Questionnaire Sedentary Behavior Assessment

We have shown that most students had no SB (77%), while only 22% had SB; the average SB hours was 4 ± 5.22 hours. The non-sedentary participants were 48.1% medical students and 29% nonmedical students, while the sedentary participants were 17.6% medical students and 5.3% nonmedical students.

3.4. Sleep Quality Assessment

PSQI asked students about their usual sleep habits during the past month. Students reported bad subjective SQ (52%), with 41% of their sleep latency being 16 to 30 minutes and 32% of their sleep duration being 6 to 7 hours. A majority of the students in this study have sleep efficiency >85%, 69% have sleep disturbances less than once a week, and 92 have not used sleep medication recently. Approximately 64% of students experience daytime dysfunction less than once a week. Students with a global score of ≥ 5 were classified as poor sleepers; in our study, 90 students (68.7%) were classified as poor sleepers, whereas only 41 students (31.3%) were classified as good sleepers. We have shown that PSQI global score overall students' SQ contrasts were further exemplified between colleges. Nonmedical colleges engaged in significantly more total global scores of PSQI than medical colleges (Table 3). Overall, students' SQ was almost poor, where the mean PSQI global score was 6.82 ± 2.47 (Table 3).

3.5. QOL assessment

The WHOQOL asked students how they felt about their QOL, health, or other areas of their lives. The WHOQOL-BRIEF subscales showed that students' overall QOL perceptions were high ($\bar{x} = 2.54 \pm 0.69$, median = 3), while students' general perceptions of health were moderate ($\bar{x} = 2.08 \pm 0.76$, median = 2). Students' physical, social, and environmental assessments were high since all medians were 3 ($\bar{x} = 2.60 \pm 0.63$ and 2.54 ± 0.64, respectively). However, students' evaluation of their psychological was moderate ($\bar{x} = 2.30 \pm 0.76$, median = 2). Therefore, the students' quality of life (WQOL) assessment was high. Finally, as indicated in Table 4, the difference in QOL between medical and nonmedical students was insignificant ($P > .05$).

Table 2

Prevalence of PAs according to IPAQ Level based on students' college type.

IPAQ Weekly PA level * Major Cross tabulation		Major			Chi- squared test	
		Medical N (%)	Nonmedical N (%)	Total N (%)	χ^2	Significance level
IPAQ Level	Low	49 (72.1)	19 (27.9)	68 (100)	2.945	*P* = .229 (NS)
	Moderate	26 (56.5)	20 (43.5)	46 (100)		
	High	11 (64.7)	6 (35.3)	17 (100)		
Total		86 (65.6)	45 (34.4)	131 (100)		

Note: Values are reported as frequencies and percentages analyzed by the Pearson Chi-Square test.

IPAQ = International Physical Activity Questionnaire, N = number, NS = not significant (*P*-value > .05), PA = physical activity.

4. Discussion

Our study results revealed that 52% of students had low PA, 35% had moderate PA, and only 17% had high PA. Furthermore, no significant differences were found between medical and nonmedical students in their PA, SB, and QOL. However, poor SQ was higher among nonmedical students compared to medical students. The PA level was not associated with students' SQ or with their QOL.

According to the current guidelines, adults between 18 and 64 years old should engage in 150 minutes of moderate-intensity aerobic PA a week and 75 minutes of vigorous-intensity aerobic PA a week or some equivalent combination of moderate- and vigorous-intensity exercise.[31] The present study shows that more than half of students engage in low PA (52%), which does not meet the current recommendations for PA (Table 2). Adolescent physical inactivity strongly predicted obesity (OR 3.9, 95% CI: 1.4–10.9).[32] It has been shown that there is a relatively high prevalence of obesity and overweight among university students in The Kingdom of Saudi Arabia compared to previous studies.[33,34] Low PA levels are also directly related to cardiovascular disease, type 2 diabetes, and breast and gynecological cancer incidence and outcomes.[35–38] Identifying the possible reasons behind the low PA pattern found among female students is essential to enhancing overall health and well-being.

The sitting time of the students in this study was 4 hours per day, which is less than the sitting time reported in previous studies.[39,40] Based on the results of the systematic review, many university students engage in more sedentary behavior per day (mean = 9.82 hours per day, 95% CI: 8.63–11.01).[39] The prevalence of students not having SB in our study was 77.1%, and 22.9% reported SB. It has been shown that Saudi young were highly sedentary and physically inactive, and females were significantly more sedentary than males on average (6.6 vs 5.3 hours/week) and much less active (1211.1 vs 3051.4 METs-min/week).[41,42] Regardless of the contrast in the results, preventive interventions are needed to combat SB among university students. Encouraging physical exercise among healthcare students is essential, and decision-makers should develop time-efficient initiatives that do not overwhelm their busy academic schedules. These initiatives include introducing PA breaks during long study sessions, providing on-campus fitness facilities, or organizing group exercise programs that can be scheduled around their academic obligations.

The present study reveals important information about the students' sleeping patterns and problems. Approximately 41.3% of university students suffer from inadequate sleep duration (<7 hours), 32% of them sleep for 6 to 7 hours, and only 26.7% sleep for more than 7 hours. According to the National Sleep Foundation, the recommended sleep duration for young adults for good health is 7 to 9 hours per day, and sleeping for <6 hours or more than 11 hours per day is not recommended.[43] The present study found that most students have poor sleep habits, with nearly 68.7% of the study group having poor SQ. The average PSQI score was 6.82 for all students in our study, indicating poor SQ; however, poor SQ is more prevalent among nonmedical students than medical students (Table 3). In agreement with our findings, a study showed that a significant number of medical students suffer from poor SQ, which may negatively impact their academic performance and health in the long term.[44] Another study also reported a higher incidence of sleep disturbances among medical students in Brazil, with approximately 39.5% reporting their SQ as either very or fairly bad.[45] Despite the differences between medical and nonmedical students, poor SQ is common among university students; therefore, active interventions are necessary to improve the SQ of university students.

The results indicate a potential trend suggesting a difference in the WHOQOL Total Score between the groups, implying that there may be an underlying relationship worth exploring. However, the current evidence does not meet the statistical significance threshold, meaning that we cannot confidently conclude that this difference is not due to chance. Consequently, additional research with a larger sample size, more refined methodologies, or different analytical approaches may be necessary to explore this potential relationship more comprehensively and determine if the observed trend reflects a true effect.

The study has some limitations. First, the research design was cross-sectional, and the self-reported survey may have made our findings less trustworthy. However, because the survey was completely voluntary, 1 can assume that our findings were reliably captured. Second, the cross-sectional nature of this study does not allow for the establishment of causality. Therefore, further studies are needed to investigate

Table 3

The global score of PSQI.

The global score of PSQI college			
Quality of sleep	**Medical**	**Nonmedical**	**Total**
N	86	45	131
Mean (SD)	6.4 ± 2.00	7.6 ± 3.06	6.82 ± 2.47
Mean rank	61.09	75.38	
95% CI for the mean	−2.26 to −0.24		
Mann–Whitney *U*	1513.00		
P-value	.039*		
Mean difference	−1.25		

Note: Values are reported as mean ± SD and analyzed by *t* test.

N = number of participants, PSQI = Pittsburgh Sleep Quality Index, SD = standard deviation.

* Statistically significant ($P \leq .05$).

Table 4

The quality of life among medical and nonmedical students.

			95% Confidence interval mean						
	N	**Mean**	**Upper**	**Lower**	**SD**	**Shapiro–Wilk**	***P*-value of Shapiro–Wilk**	**Minimum**	**Maximum**
WHOQOL total score for medical	86	92.19	94.85	89.52	12.43	0.98	.30	63.00	118.00
WHOQOL total score for nonmedical	45	88.04	91.98	84.11	14.00	0.96	.11	55.00	109.00
WHOQOL total score	131	90.76	92.97	88.56	12.77	0.99	.23	55.00	118.00

Independent samples *t* test			
	Test	**Statistic**	**df**	***P***
WHOQOL total score	Student	1.78	129.00	.08 (NS)

Note: Values are reported as mean ± SD and analyzed by *t* test.

N = number of participants, NS = not statistically significant ($P > .05$), SD = standard deviation.

the reasons behind the concerns raised in this study, like the low PA levels and poor SQ. Finally, because the sampling was limited to 1 university in Riyadh, the study results cannot be extrapolated to college students across the country. Third, Convenience sampling involves selecting participants rather than using a random sampling method. This can introduce bias, as the sample may not be representative of the broader population.

5. Conclusion

This study found that a substantial number of university students exhibit an unhealthy lifestyle characterized by low levels of PA, prolonged sedentary behavior, and subpar SQ. This study showed that no significant differences were identified between medical and nonmedical students in PA, sedentary behavior, or QOL. However, the results suggest a potential trend toward differences in the WHOQOL total score between groups, though this did not reach statistical significance. Additionally, the higher prevalence of poor SQ among nonmedical students indicates a specific area that may warrant targeted health intervention. Universities provide a prime setting for health promotion, especially for female students who represent future leaders. Implementing programs to increase PA, reduce sedentary behavior, and promote sleep education can enhance students' well-being and reduce the risk of noncommunicable diseases. Expanding these initiatives across universities would support improved QOL, aligning with Saudi Arabia's Quality of Life Program 2030 and guiding policymakers in developing targeted health strategies.

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