

Assessment of Lifestyle Habits and Health-related Behaviors among University Students in Iraq: Evidence from Bilad Al-Rafidain University College



Abdul-Salam Harfash¹ and Hany Akeel Al-hussaniy^{2,3,*} 

¹College of Pharmacy, Bilad Alrafidain University College, Diyala, Iraq

²Department of Pharmacy, Al-Nisour University College, Baghdad, Iraq

³Dr. Hany Akeel Institute, Iraqi Medical Research Center, Baghdad, Iraq

Abstract:

Introduction: University students experience various lifestyle factors that influence their behavioral, physical, and psychological well-being. Understanding lifestyle patterns among students is essential for designing effective programs to promote health in our country, Iraq. Limited data exist regarding lifestyle behaviors among students in pharmacy and related health sciences.

Objectives: This study examined lifestyle habits and health-related behaviors among students at an Iraqi university and identified associations among physical activity, smoking, stress, dietary habits, and body weight status.

Methods: This cross-sectional descriptive analytical study was conducted. A sample of 250 students was randomly selected from the study population during the academic year 2022–2023.

Results: The research showed that participants who performed physical activity constituted a higher percentage than those who did not (38.4%). The majority of them walked daily for 1–2 hours (31.2%) as their main means of transportation, while the highest percentage preferred to meet their needs by car (59.6%). Those who slept less than 6 hours a day constituted the majority (30.4%) of this group. Nonsmokers constituted 80.4% of the participants. Among smokers, most used electronic cigarettes (38.8%). Students suffering from stress constituted 80.4%, with studying being the main source of stress (41.2%). Smoking was significantly associated with stress in this age group ($\chi^2 = 3.98$, $p = 0.046$). Students who were committed to measuring their weight represented 68%, those who regularly ate meals represented 42%, those who consumed fast food represented 58.8%, and 64% were committed to drinking water daily. A strong association was found between fast food consumption and non-ideal body weight ($\chi^2 = 13.09$, $p\text{-value} = 0.0003$), indicating that students with non-ideal body weight were more likely to consume fast food.

Discussion: The article shows that many students do not engage in sufficient physical activity and that sleep problems are common among them. A large number of students sleep fewer than six hours a night, underscoring the need for universities in Iraq to adopt programs that encourage physical activity, promote health and nutrition, and support stress management.

Conclusion: The study reveals several noteworthy findings regarding physical activity, transportation preferences, sleep patterns, smoking habits, stress levels, body weight awareness, and nutritional habits among students.

Keywords: Lifestyle, Physical activity, Stress, Fast food, University student, Health behavior.

© 2026 The Author(s). Published by Bentham Open.

This is an open access article distributed under the terms of the Creative Commons Attribution 4.0 International Public License (CC-BY 4.0), a copy of which is available at: <https://creativecommons.org/licenses/by/4.0/legalcode>. This license permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

*Address correspondence to this author at the Department of Pharmacy, Al-Nisour University College, Baghdad, Iraq and Dr. Hany Akeel Institute, Iraqi Medical Research Center, Baghdad, Iraq; E-mail: Hany_akeel2000@yahoo.com

Cite as: Harfash A-S, Al-hussaniy H. Assessment of Lifestyle Habits and Health-related Behaviors among University Students in Iraq: Evidence from Bilad Al-Rafidain University College. Open Public Health J, 2026; 19: e18749445443407. <http://dx.doi.org/10.2174/0118749445443407260505043902>



Received: August 31, 2025
Revised: January 15, 2026
Accepted: January 29, 2026
Published: August 18, 2026



Send Orders for Reprints to
reprints@benthamscience.net

1. INTRODUCTION

The lifestyle patterns of students from pharmacy and other allied health professions were examined to provide a realistic basis for the establishment of educational policies. Rapid changes in the educational landscape, social demands, political instability, and war in Iraq have created a new generation of students with coping patterns that may differ from those of previous generations. A better understanding of lifestyle patterns is vital for designing wellness programs for the academic community [1].

Core variables are identified along with hypothesized relationships among domains and subgroups. Accumulating evidence suggests that student lifestyles-health-related practices, social and extracurricular activities, and coping mechanisms-are associated with stress, well-being, and academic performance. Essential components of the framework include a demographic profile; exploration of academic life and study habits; investigation of social practices and extracurricular involvement; assessment of health behaviors and well-being; analysis of family background and financial context; examination of perceived stress and coping strategies; review of technology use; and consideration of cultural influences. Triangulation highlights similarities and differences between pharmacy students and peers enrolled in medical, dental, nursing, and allied health programs [2].

Useful and harmful habits help shape the personalities of young adults. Harmful habits include poor nutritional patterns, low physical activity, smoking, alcohol consumption, and drug abuse; all of these may lead to socially unacceptable behaviors [3]. A healthy life is closely related to stress and the complexities of modern life, which can be exacerbated by occupational, environmental, and event-related factors, all of which contribute to negative health status. A healthy lifestyle is the main way to improve public health. A healthy lifestyle among students is important for the physical and mental development of the younger generation. The formation of a healthy lifestyle should be a priority of every country's policy [4].

The culture of students' lifestyles should be strengthened and promoted as part of the educational system [5]. Programs and courses, in addition to formal education, should promote healthy student lifestyles. College students are prone to unhealthy lifestyles, which are reflected in their health through conditions such as obesity, diabetes, and ischemic heart disease [6-8]. Students are a major segment of all communities; therefore, an unhealthy lifestyle will affect the health of this population, as well as adults and older adults [9].

The university stage is a critical period that leads to the formation of a set of new behavioral patterns governing students across different aspects of life. A college student's lifestyle is very different from that of other groups in society. Various uses of time, interests, and forms of entertainment distinguish students from others and create a distinct way of life for them.

Despite the importance of lifestyle among students, they often do not pay sufficient attention to it or raise their awareness and knowledge of its consequences. They may engage in harmful behaviors that negatively affect their physical, mental, and academic well-being. As a result, they may not be able to perform effectively or achieve their academic goals.

An inadequate level of knowledge about the importance of lifestyle may lead to adverse lifestyle factors that can reduce students' health status and academic performance. Consequently, it is essential to assess and determine lifestyle patterns among students so that suitable educational programs can be developed to improve their lifestyle.

Students' lifestyle includes a system of patterned behaviors shaped by how they spend their time and money while caring for their health, bodies, and appearance. Moreover, it is associated with the development of student attitudes and the enhancement of intellectual performance. Lifestyle has a significant effect on students' happiness and satisfaction, as it influences their relationships, concerns, and emotional and mental well-being.

Today, students are considered the future leaders of society who will handle tasks and make decisions at managerial and community levels, thereby shaping society's destiny. Therefore, they need to be prepared not only intellectually but also physically.

This study aimed to identify lifestyle patterns among students at Bilad Al-Rafidain University College. It also aimed to achieve several sub-objectives, including measuring the percentages of positive responses that the students, as a sample, have toward lifestyle dimensions and aspects. In addition, the study measured the percentages of positive responses according to students' gender and academic level, as well as the interaction between gender and academic level regarding perspectives on lifestyle.

2. METHOD

2.1. Study Design and Setting

This descriptive study was conducted at Bilad Al-Rafidain University College in Baqubah, Diyala province, to identify the lifestyle patterns among students. This study aimed to assess the lifestyle patterns and health-related issues among undergraduate students enrolled in pharmacy, nursing, and related allied sciences.

2.2. Data Collection Tools

2.2.1. Study Population and Sample Size

The study population included all students registered at the university during the academic year 2022-2023, totaling about 661 students; however, complete information was obtained from 250 participants. A questionnaire was designed to achieve the study objectives, and it consisted of two parts.

2.2.2. Sociodemographic Characteristics

Included items on age, gender, academic specialization, academic stage, and other personal variables.

2.3. Lifestyle Dimensions

Comprised 60 items distributed across nine lifestyle domains, covering:

- Physical activity
- Nutritional habits
- Weight control behaviors
- Smoking habits
- Sleep patterns
- Stress and coping mechanisms
- Water intake
- Daily routine and transportation
- Personal health practices

Items were rated using multiple-choice and frequency-based response formats to capture variability in behaviors.

2.4. Inclusion and Exclusion Criteria

Undergraduate students of Bilad Al-Rafidain University College in Baqbah, Diyala Province, studying in the Colleges of Pharmacy, Nursing, and related health sciences were eligible to participate during one of the four phases of the operational period. Participants voluntarily signed the informed consent form and completed the full questionnaire to be included in the study sample.

Both male and female students at all academic levels were included in the study, provided they returned complete responses to the study instrument. The exclusion criteria included students who refused to participate, submitted incomplete questionnaires, were absent during the data collection period, were postgraduate students, or were not officially enrolled in the study year.

Additionally, questionnaires with a significant amount of missing data or inappropriate answers were excluded from the final statistical analysis to ensure the accuracy and reliability of the data.

2.5. Participants Consent

All participants included in the study were informed and provided written informed consent before participating. The study was completely voluntary, and participants were informed of the purpose of the study, the privacy of their responses, the anonymity of data collection, and their right to withdraw from the study at any time without academic or personal consequences.

Because the research was conducted with adult undergraduate students and no minors or vulnerable populations were involved, guardian consent was not required.

2.6. Validity and Reliability

The reliability coefficient (Cronbach's alpha) of the questionnaire as a whole was 0.89, indicating a high degree of internal consistency.

2.7. Statistical Analysis

Data were coded and analyzed using Microsoft Excel and statistical software. Descriptive statistics were used to summarize categorical variables as frequencies and percentages. Inferential analysis was conducted using the chi-square (χ^2) test to assess associations between categorical variables, including smoking status and stress, physical activity and participation status, and fast-food consumption and body weight status.

The chi-square test was selected because the study variables were categorical in nature and the study objective focused on identifying associations rather than causal relationships. No multivariable regression analysis was performed due to the descriptive scope of the study and the absence of predefined exposure-outcome modeling.

A p -value < 0.05 was considered statistically significant.

3. RESULTS

The total number of students included in this study was 250; their lifestyles and behaviors varied across domains, including physical activity, transportation use, sleep patterns, smoking habits, stress levels, body weight awareness, and nutritional habits.

3.1. Physical Activity and Transportations

Regarding physical activity, the majority of students (38.4%) do not practice physical activity or exercise, followed by 36.4% of students who practice physical activity once weekly, as shown in Table 1. A chi-square analysis revealed a statistically significant difference between students who engaged in physical activity and those who did not.

Table 1. Distribution of students according to physical activity.

Physical Activity	Number	%
Once weekly	91	36.4
3-4 times a week	42	16.8
Almost every day	21	8.4
Never	96	38.4
Total	250	100
Chi-square (χ^2)	13.456	-
p-value	0.00025*	Significant
Walking	Number	%
1-2 hours	78	31.2
3-4 hours	70	28
≥ 5 hours	65	26
Very low	37	17.8
Total	250	100

Most students (31.2%) reported walking for 1-2 hours daily, and 59.6% preferred to meet their needs by car, as shown in Table 2.

Table 2. Distribution of students according to daily needs and performance preference.

Preferred Mean	No.	%
By car	149	59.6
Walking	82	32.8
Others (motorcycle or bicycle)	19	7.6
Total	250	100

3.2. Sleep Patterns

According to sleep patterns, it was shown that most of the students (48%) sleep 6- 8 hours daily, and about (30%) sleep less than 6 hours daily, as shown in Table 3.

Table 3. Distribution of students according to sleep pattern.

Sleep Pattern	No.	%
< 6 hours	76	30.4
6-8 hours	120	48
> 8 hours	54	21.6
Total	250	100

3.3. Smoking Habit and Stress

Among the students, the majority (80.4%) were non-smokers. Among smokers, electronic cigarette use (38.8%) was more common than cigarette smoking (32.7%), as shown in Tables 4 and 5. The majority of students (80.4%) experienced stress, and most attributed it to studying (41.2%), as shown in Table 5.

Table 4. Distribution of students according to smoking habit.

Smoking Habit	No.	%
Yes	49	19.6
No	201	80.4
Total	250	100
Type of smoking habit	Number	%
Cigarette	16	32.7
Electronic cigarette	19	38.8
Water pipe smoking	14	28.5
Total	49	100

Table 5. Relationship between smoking status and stress among students.

Variable	Stress (%)	No Stress (%)	Total	Test	p-value
Smokers (n = 49)	44 (89.8%)	5 (10.2%)	49	-	-
Non-smokers (n = 201)	157 (78.1%)	44 (21.9%)	201	Chi-square = 3.98	0.046*
Total (n = 250)	201 (80.4%)	49 (19.6%)	250	-	-

Note: p-values less than 0.05 are statistically significant.

A significant association was found between smoking status and stress levels ($\chi^2 = 3.98$, $p = 0.046$). As shown in Table 6, 89.8% of smokers reported stress compared to 78.1% of nonsmokers, suggesting that smokers were more likely to experience stress.

Table 6. Distribution of students according to source of stress.

Source of Stress	No.	%
Study	103	41.2
Work	21	4.8
Environment	53	21.2
others	24	9.6
Total	250	100

3.4. Body Weight Awareness

Regarding body weight awareness, the majority of students (68%) have regular checking of their body weight, and (70%) of them have an ideal body weight, as shown in Table 7.

Table 7. Distribution of students according to body weight awareness.

Measurement of Body Weight	Number	%
Yes	170	68
No	80	32
Total	250	100
Do you have the ideal body weight?	Number	%
Yes	175	70
No	75	30
Total	250	100

According to nutritional habits, it was shown that eating habits were fruits and vegetables (84.4%), meat (55.2%), sweets and sugar (54%), (58.8%) of students prefer fast food, and most of the students (58%) have irregular meals, as shown in Tables 8 and 9. Students with ideal body weight showed different patterns of fast food consumption compared to those without ideal body weight.

Chi-square=13.09, $p=0.0003$

Table 8. Distribution of students according to eating habits.

-	Yes	%	No	%
Fruits & vegetables	211	84.4	39	15.6
Meat	138	55.2	112	44.8
Sweets & sugar	135	54	115	46
Cold beverage	64	25.6	186	74.4
Fast food	147	58.8	103	41.2
Drinking water	160	64	90	36
Regularity of meals	105	42	145	58

Table 9. The correlation between fast food and ideal body weight.

Ideal Body Weight	Fast Food Yes	Fast Food No	Total	p-values
Yes (n = 175)	90	85	175	-
No (n = 75)	57	18	75	-
Total (n = 250)	147	103	250	0.0003

Note: There is a highly significant association between ideal body weight and fast food consumption ($p = 0.0003$).

This indicates a highly significant association between fast food consumption and ideal body weight ($p = 0.0003$). Students without an ideal body weight were more likely to consume fast food than students who reported having an ideal body weight (Table 9).

The p -value indicates a statistically significant difference when comparing students who engage in physical activity with those who do not. There was a statistically significant difference between students who performed physical activity and those who did not ($\chi^2 = 13.456$, $p = 0.00025$). A significantly higher proportion of students reported engaging in some level of physical activity.

4. DISCUSSION

Physical activity and exercise are important for a healthy lifestyle among students. This study shows that 38.4% of students do not practice physical activity or exercise, and only 36.4% practice physical activity once weekly. This finding is similar to studies conducted in Saudi Arabia [10], Egypt [11], Kuwait [12], Oman [13], and Spain [14]. The main cause of this lack of physical activity is time constraints; other studies also identify time as the main barrier to physical activity and exercise. A statistically significant difference was found between physically active and non-active students ($\chi^2 = 12.456$, $p = 0.0025$). This underscores the importance of this issue and the need for specialized wellness programs at the university level in Iraq, as well as increased sports activities.

The majority of students walk 1-2 hours daily, which is consistent with studies in Iran and the United States [15, 16]. About 67% of students prefer to meet their daily needs by using a car or other means of transportation, which is also consistent with several studies reporting a significant decline in physical activity, especially in exercise behavior [17, 18].

Regarding sleep patterns, several studies support our findings [19, 20]. They reported an average of 7 hours of sleep during weekdays and 6 hours during working days. In our study, 30.4% of students slept less than 6 hours per day, which is similar to other studies [21]. The average recommended sleep duration is 8 hours per night [22]; therefore, sufficient daily sleep is necessary due to its direct effect on students' physical and mental well-being.

Nonsmokers constituted about 80.4% of the sample; these results are consistent with previous studies in Saudi Arabia and New Zealand [23-25]. Most smokers preferred

electronic cigarettes (38.8%), and this finding differs from studies conducted in Saudi Arabia [26, 27]. The majority of students (80.4%) reported experiencing stress, mainly due to studying, and this finding is similar to studies conducted in Singapore, the United States, and Australia. This may be explained by the fact that environmental and other demands contribute to stress and sleep disturbances [28-31].

The significant association between smoking and stress ($\chi^2 = 3.98$, $p = 0.046$) mirrors studies from Singapore, the United States, and Australia, where stressed students were more likely to engage in smoking as a coping mechanism. The majority of students (68%) regularly measure their body weight, and 70% have an ideal body weight, indicating awareness among students regarding body weight as an important factor for current and future health. This finding is not consistent with the study by Racette SB, but it is consistent with studies conducted in Iran and the USA [33-35].

Regarding nutritional habits, this study revealed that most students (58.8%) prefer fast food and have irregular meals. This finding is consistent with several related studies but is not in line with the Lithuanian study [36-38]. Regarding fruit and vegetable consumption, the majority of students (84.4%) prefer fruits and vegetables, which is similar to studies by Al-Qahtani and colleagues and other Saudi studies [39, 40]. These results emphasize the importance of implementing university-based health education programs to promote physical activity, balanced nutrition, and stress management among students [41-44].

Table 9 also examines the correlation between fast food consumption and body weight status, showing a highly significant association ($p = 0.0003$), indicating that students with non-ideal body weight were considerably more likely to consume fast food. In Iraq, most universities have a variety of restaurants, most of which serve fast food.

CONCLUSION

The lifestyle patterns of students in pharmacy and related disciplines in Iraq were examined through a combination of primary and secondary data. Patterns of daily living, well-being, and support were explored both for the overall student cohort and by specialty. Overall, the findings show a mix of healthy and unhealthy behaviors. A high proportion of students reported inadequate physical activity ($p = 0.0025$). This highlights the importance of this issue and increases the need for specialized wellness programs at the university level in Iraq, as well as greater promotion of sports and physical activities.

Stress levels were remarkably high, with academic workload identified as the primary source of stress. There was also a significant association between smoking and stress. This underscores the need for structured psychological support and stress-reduction programs within university settings. Although many students regularly monitored their body weight and reported having an ideal body weight, unhealthy dietary habits were common. More

than half of the participants frequently consumed fast food and had irregular meal patterns. Importantly, a highly significant association was identified between fast food consumption and non-ideal body weight ($p = 0.0003$), emphasizing the need for nutritional awareness and improved access to healthier food options on campus.

The findings indicate that academic demands shape time use, sleep, nutrition, and extracurricular activities, while family circumstances and coping strategies add further pressures, including effects on health-related behaviors. Both risk and protective factors emerge, reflecting the complex interplay of study habits, social life, and health-related conduct. These insights support the development of lifestyle-oriented initiatives for students. Future research directions include examining the role of gender and profiling students in other disciplines.

AUTHORS' CONTRIBUTIONS

The authors confirm contribution to the paper as follows: A.H.: Study concept and design, acquisition of data, and drafting of the manuscript were performed; H.A.A.: Proofreading, supervision, review, and correction were carried out.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study was approved by the ethical committee of the College of Pharmacy, Bilad Alrafidain University, 2020, Iraq, under registration number 329.

HUMAN AND ANIMAL RIGHTS

All human research procedures followed were in accordance with the ethical standards of the committee responsible for human experimentation (institutional and national), and with the Helsinki Declaration of 1975, as revised in 2013.

CONSENT FOR PUBLICATION

All participants included in the study have been informed and provided written informed consent before participating.

STANDARDS OF REPORTING

STROBE guidelines were followed.

AVAILABILITY OF DATA AND MATERIALS

The data supporting the findings of the article will be available from the corresponding author [A.Al-H] upon reasonable request.

FUNDING

None.

CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

ACKNOWLEDGEMENTS

We thank our university participants and colleges that enrolled or helped us in conducting this research.

REFERENCES

- [1] Ribakova LA, Biktairova GF. Peculiarities of demonstrative behavior manifestations of teenagers brought up in orphanages. *Rev Eur Stud* 2015; 7(4): 140-8. <http://dx.doi.org/10.5539/res.v7n4p148>
- [2] Abdullah A, Haron N, Mohamed E, Yusof MIM, Shahril MR. Metabolites alterations associated with obesity: A scoping review. *Med J Malaysia* 2024; 79: 158-67. PMID: 38555901
- [3] Oguz A, Ataseven N. The relationship between metacognitive skills and the motivation of university students. *Edu Process Int J* 2016; 5(1): 54-64. <http://dx.doi.org/10.12973/edupij.2016.51.4>
- [4] Ilbay AB, Akin A. The impact of solution-focused brief group psychological counseling on university students' burnout levels. *ÜNİVERSİTEPARK Bülten* 2019; 3(1): 28. <http://dx.doi.org/10.12973/unibulletin.312.3>
- [5] Ahmed MS, Reyadh AR, Shareef BQ, Ali AR, Hany AH, Meena AN. Increasing prevalence of congenital hypothyroidism in children with Down Syndrome who have a family history of Thyroid disease. *Res J Pharm Technol* 2023; 16(3): 1327-32.
- [6] Al-hussaniy HA, Alburghaif AH, alkhafaje Z, *et al.* Chemotherapy-induced cardiotoxicity: A new perspective on the role of Digoxin, ATG7 activators, Resveratrol, and herbal drugs. *J Med Life* 2023; 16(4): 491-500. <http://dx.doi.org/10.25122/jml-2022-0322> PMID: 37305823
- [7] Al-hussaniy HA, Al-Shammari AH, Naji Sameer H, Oraibi AI. The relationship between statin therapy and adipocytokine/inflammatory mediators in dyslipidemic nondiabetic patients: A comparative study. *Pharmacia* 2023; 70(3): 581-5. <http://dx.doi.org/10.3897/pharmacia.70.e109800>
- [8] Bharti JL, Wankhade A, Morey P, Ruikar P. The role of obesity in cancer incidence, treatment, and outcomes. *Med Pharm J* 2023; 2(3): 181-92. <http://dx.doi.org/10.55940/medphar202340>
- [9] Smeda H, Almakrabi N, Hassan R, Algoool S. Evaluation of knowledge, attitude and practice of self-medication among pharmacy university students: A cross-sectional study in Zawia, Libya. *Med Pharm J* 2023; 2(4): 193-205. <http://dx.doi.org/10.55940/medphar202361>
- [10] Alkhateeb SA, Alkhameesi NF, Lamfon GN, *et al.* Pattern of physical exercise practice among university students in the Kingdom of Saudi Arabia (before beginning and during college): A cross-sectional study. *BMC Public Health* 2019 Dec 21; 19(1): 1716. <http://dx.doi.org/10.1186/s12889-019-8093-2> PMID: 31864325
- [11] Badawik Y. physical activity profile of students in Mansoura university. *Egypt East Mediter Health J* 2011; 17(8): 694-702. <http://dx.doi.org/10.26719/2011.17.8.694>
- [12] Musaiger AO, Al-kandari FI. Perceived barriers to weight maintenance among university students in Kuwait: The role of gender and obesity. *Environ Health Prev Med* 2014; 19(3): 207-14. <http://dx.doi.org/10.1007/s12199-013-0377-z> PMID: 24402439
- [13] Al-hussaniy HA, AL-Biati HA. AL-Biati HA. The role of leptin hormone, neuropeptide Y, ghrelin and leptin/ghrelin ratio in Obesogenesis. *Medical and Pharmaceutical Journal* 2022; 1(2): 12-23. <http://dx.doi.org/10.55940/medphar20227>
- [14] Sánchez-Miguel PA, Leo FM, Amado D, Pulido JJ, Sánchez-Oliva D. Relationships between physical activity levels, self-identity, body dissatisfaction and motivation among spanish high school students. *J Hum Kinet* 2017; 59(1): 29-38. <http://dx.doi.org/10.1515/hukin-2017-0145> PMID: 29134046
- [15] Khodanazari H, Choupani AA, Aghayan I. The contribution of walking to school in students' physical activity and its effect on being overweight. *BioMed Res Int* 2022; 2022(1): 2633109. <http://dx.doi.org/10.1155/2022/2633109> PMID: 35707388
- [16] Zhou H, Yang J, Hsu P, Chen S. Factors affecting students'

- walking/biking rates: initial findings from a safe route to school survey in Florida. *J Transp Saf Secur* 2010; 2(1): 14-27.
<http://dx.doi.org/10.1080/19439960903564819>
- [17] Bray SR, Born HA. Transition to university and vigorous physical activity: implications for health and psychological well-being. *J Am Coll Health* 2004; 52(4): 181-8.
<http://dx.doi.org/10.3200/JACH.52.4.181-188> PMID: 15018429
- [18] Pinto BM, Marcus BH. AStages of change to understand the physical activity of college students. *J Am Cole Healing* 1995; 44(1): 27-31.
<http://dx.doi.org/10.1080/07448481.1995.9937506>
- [19] Gaultney JF. Prevalence of sleep disorders in college students: Impact on academic performance. *J Am Coll Health* 2010; 59(2): 91-7.
<http://dx.doi.org/10.1080/07448481.2010.483708>
- [20] Carney CE, Edinger JD, Meyer B. Daily activities and sleep quality in college students. *Chronobiol Int* 2006; 23(3): 623-37.
<http://dx.doi.org/10.1080/07420520600650695>
- [21] Al-Hussaniy HA, Al-Samydai A, Hajleh MN, Mayyas A, Oraibi AI. Selection and Progress of drugs for treating Dementia. *Research J Pharm Techno* 2024; 17(4): 1674-8.
<http://dx.doi.org/10.52711/0974-360X.2024.00265>
- [22] Wolfson AR, Carskadon MA. Understanding adolescent's sleep patterns and school performance: A critical appraisal. *Sleep Med Rev* 2003; 7(6): 491-506.
[http://dx.doi.org/10.1016/S1087-0792\(03\)90003-7](http://dx.doi.org/10.1016/S1087-0792(03)90003-7) PMID: 15018092
- [23] Bin Abdulrahman KA, Alghamdi HA, Alfaleh RS, *et al.* Smoking habits among college students at a public university in Riyadh, Saudi Arabia. *Int J Environ Res Public Health* 2022; 19(18): 11557.
<http://dx.doi.org/10.3390/ijerph191811557>
- [24] Al Mohamed HI, Amin TT. Pattern and prevalence of smoking among students at King Faisal University, Al Hassa, Saudi Arabia. *East Mediterr Health J* 2010; 16(1): 56-64.
<http://dx.doi.org/10.26719/2010.16.1.56> PMID: 20214159
- [25] Wamamilli B, Wallace-Bell M, Richardson A, Grace RC, Coope P. Cigarette smoking among university students aged 18-24 years in New Zealand: Results of the first (baseline) of two national surveys. *BMJ Open* 2019; 9(12): e032590.
<http://dx.doi.org/10.1136/bmjopen-2019-032590>
- [26] Qanash S, Alemam S, Mahdi E, Softah J, Touman A, Alsulami A. Electronic cigarette among health science students in Saudi Arabia. *Ann Thorac Med* 2019; 14(1): 56-62.
http://dx.doi.org/10.4103/atm.ATM_76_18 PMID: 30745936
- [27] Alshanberi AM, Baljoon T, Bokhari A, *et al.* The prevalence of E-cigarette uses among medical students at Umm Al-Qura University; a cross-sectional study 2020. *J Fam Med Prim Care* 2021; 10(9): 3429-35.
http://dx.doi.org/10.4103/jfmpc.jfmpc_1496_20
- [28] Chan GC, Koh D. Understanding the psychosocial and physical work environment in a Singapore medical school. *Singapore Med J* 2007; 48(2): 166-71.
PMID: 17304399
- [29] Frank E, carrera JS, ElonI, Hertzberg VS. Basic demographic health practices and health status of US medical students. *Am J Prev Med* 2006; 31(6): 499-505.
<http://dx.doi.org/10.1016/j.amepre.2006.08.009> PMID: 17169711
- [30] Al-Hussaniy HA, Al-Zobaidy MJ. Effects of Mdm2 inhibitors on cellular viability of breast cancer cell lines HP100, MCF7. *Bratisl Lek Listy* 2024; 125(10): 627-34.
http://dx.doi.org/10.4149/BLL_2024_97
- [31] Linberg E, Janson C. Sleep disturbances in a young adult population: Can gender differences be explained by differences in psychological status? *Sleep* 1997; 20(6): 381-7.
<http://dx.doi.org/10.1093/sleep/20.6.381>
- [32] Kemmler W, Van stengel S, Kohl M, Bauer J. Impact of exercise changes on body composition during the college years-a five year randomized controlled study. *BMC Public Health* 2016; 16: 50.
<http://dx.doi.org/10.1186/s12889-016-2692-y> PMID: 26787116
- [33] Racette SB, Deusinger SS, Strube MJ, Highstein GR, Deusinger RH. Weight changes, exercise, and dietary patterns during freshman and sophomore years of college. *J Am Coll Health* 2005; 53(6): 245-51.
<http://dx.doi.org/10.3200/JACH.53.6.245-251> PMID: 15900988
- [34] Hatami M, Taib MNM, Jamaluddin R, *et al.* Dietary factors as the major determinants of overweight and obesity among Iranian adolescents. A cross-sectional study. *Appetite* 2014; 82: 194-201.
<http://dx.doi.org/10.1016/j.appet.2014.07.026> PMID: 25068789
- [35] Lowry R, Galuska D, Fulton J, Wechsler H, Kann L. Weight management goals and practices among U.S. high school students: associations with physical activity, diet, and smoking. *J Adolesc Health* 2002; 31(2): 133-44.
[http://dx.doi.org/10.1016/S1054-139X\(01\)00408-6](http://dx.doi.org/10.1016/S1054-139X(01)00408-6) PMID: 12127383
- [36] Al-Qahtani MH. Dietary habits of Saudi medical students at University of Dammam. *Int J Health Sci (Qassim)* 2016; 10(3): 335-44.
<http://dx.doi.org/10.12816/0048729> PMID: 27610058
- [37] El Ansari W, Stock C, Mikolajczyk RT. Relationships between food consumption and living arrangements among university students in four European countries - A cross-sectional study. *Nutr J* 2012; 11(1): 28.
<http://dx.doi.org/10.1186/1475-2891-11-28> PMID: 22531503
- [38] Abdel-Megeid FY, Abdelkarem HM, El-Fetouh AM. Unhealthy nutritional habits in university students are a risk factor for cardiovascular diseases. *Saudi Med J* 2011; 32(6): 621-7.
PMID: 21666946
- [39] Al-Rethaiaa AS, Fahmy AEA, Al-Shwaiyat NM. Obesity and eating habits among college students in Saudi Arabia: a cross sectional study. *Nutr J* 2010; 9(1): 39.
<http://dx.doi.org/10.1186/1475-2891-9-39> PMID: 20849655
- [40] Škėmienė L, Ustinavičienė R, Piešinė L, Radišauskas R. Peculiarities of medical students' nutrition. *Medicina (Kaunas)* 2006; 45(2): 145-52.
<http://dx.doi.org/10.3390/medicina43020018> PMID: 17329950
- [41] Che Mood A, Justine M, Bukry SA, Mohan V. The association of fatigue severity with pain level, obesity indices and functional performances in women with knee osteoarthritis. *Med J Malaysia* 2024; 79: 1-7.
PMID: 38555878
- [42] Al-Hussaniy HA, Al-Tameemi Z, Al-Zubaidi B, Oraibi AI, Naji FA, Kilani S. Pharmacological properties of Spirulina species: Hepatoprotective, antioxidant and anticancer effects. *Farmacia* 2023; 71(4): 670-8.
<http://dx.doi.org/10.31925/farmacia.2023.4.2>
- [43] AlHussaniy HA. Exploring the Safety and Adverse Effects of Metronidazole. *Iraqi J Pharmacol* 2024; 1(1): 1-12.
<http://dx.doi.org/10.55940/iraqijpharm2024140>
- [44] Herbert C. Enhancing mental health, well-being and active lifestyles of university students by means of physical activity and exercise research programs. *Front Public Health* 2022; 10: 849093.
<http://dx.doi.org/10.3389/fpubh.2022.849093> PMID: 35548074