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The impact of medical knowledge on modifying the Lifestyle among medical students of King Abdulaziz University clinical years

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ABSTRACT

Background and aim of the work: It has been understood that students at medical schools are more mindful of the value of living a healthy lifestyle than others. So, the current study aims to investigate the medical Knowledge of a healthy lifestyle among the clinical years' students and the impact of modifying the Lifestyle. *Methods:* This cross-sectional study was conducted to assess the Knowledge and attitudes of a sample of the medical students at King Abdulaziz University, Faculty of Medicine, Saudi Arabia, regarding the impact of medical Knowledge on modifying their Lifestyle. It included 330 medical students between the ages of 19-24 years from preclinical years and Clinical years' students in the faculty of medicine. A self-reported questionnaire was employed to evaluate the impact of medical Knowledge on modifying their Lifestyle. *Results:* In total, 336 medical students participated in our study (48.5% males and 51.5% females). The smoking rate among the preclinical students (28.3%) was higher than the clinical students (13.9%). Smoking was also prevalent in both genders. Consumption of energy drinks was more common among preclinical students ($P<0.05$). No difference was detected between preclinical and clinical year's students or between male and female students. *Conclusion:* Our results revealed that clinical years' students are more kept in a healthy lifestyle than preclinical years' students. These conclusions are supported by the prominent findings of the lower incidence rates of smoking, and energy drink consumption, besides the better sleeping quality in clinical students.

Keywords: Healthy Lifestyle, Clinical students, Preclinical students, Lifestyle modifications, Medical student

1. INTRODUCTION

It is well known that the activities and behaviors that participate in the population's daily lives impact their health. This understanding has made a

"healthy lifestyle" the primary focus for disease prevention and health promotion treatments. In terms of health, a lifestyle is a combination of behaviors and conditions that include body size, body shape, nutritional behaviors, exercise practice, and legal and illegal medications (Korp, 2010). Many researchers studied the impact of lifestyle modifications in health together with diseases. Most of the data had been collected and analyzed in studies. It showed a strong relationship between lifestyle modifications and chronic diseases such as cancer, heart disease, stroke, and diabetes (Loef & Walach, 2012; Fortin et al., 2014). It has been assumed that students at medical colleges are more aware of the importance of living a healthy lifestyle than others. However, this proposition does not necessarily imply that they follow healthy habits and diets. It is reported that medical school students might have an unhealthy diet and participate in less physical activity due to increased stress and a lack of time, affecting their healthy lives (Sakamaki et al., 2005; Brehm et al., 2016; Parveen et al., 2021; Arafa et al., 2022).

Kanikowska et al., (2017) reported that most medical students had not adopted a healthy lifestyle in their study at Poznan University of Medical Sciences in Poland. These findings revealed a gap between students' awareness of a healthy lifestyle and how they put it into practice daily (Kanikowska et al., 2017). Another study was conducted at the University of Dammam -Saudi Arabia reported that medical students rely on unhealthy lifestyles and foods in unexpected results (Majeed, 2015).

In Saudi Arabia (SA), few studies are directed to investigate the impact of medical knowledge on modifying Lifestyle among the clinical years' students, which further affects their health state. So, the current study aims to investigate the medical knowledge towards a healthy lifestyle among the clinical years' students and the impact of modifying the Lifestyle.

2. METHODOLOGY

Study design

This cross-sectional study was conducted to assess the knowledge and attitudes of a sample of the medical students in King Abdulaziz University (KAU), Faculty of Medicine, Saudi Arabia, regarding the impact of medical knowledge on modifying their Lifestyle. The study was carried out in 2021-2022 G (September/ 2021 – June/ 2022). The study protocol was approved by the King Abdul-Aziz University's Ethics Committee (NCBE Registration No: HA-02-J-008; approval Reference No 128-22).

Population

The sample size was calculated based on the total number of faculty of Medicine-King Abdulaziz University students that involve 2300 students. Non-medical students were excluded from the study. The sample size was estimated (95% confidence level and 5% margin of error). It includes 330 students, using Survey monkey sample size calculator.

Questionnaire

The study used an electronic questionnaire comprising 22 questions. The questionnaire was written in English language and reviewed by an expert. The objectives of our research were clarified in a statement at the beginning of the questionnaire, including a sentence that indicates a participation agreement (item number 1). The questionnaire's validation was initially carried out by a precursory pilot testing (15 male and 15female students) and subsequent revising of the questionnaire. The results were reviewed by double-blind revision by two senior experts from the medical education department to evaluate the reliability. The link to the questionnaire was accessible for all medical students.

The survey components were divided into three divisions. Each comprises of closed-ended questions.The first section included the personal data (2-5). The second section had queries about Lifestyle for the Preclinical year’s students (6-13). The third section evaluated Lifestyle for the Clinical year’s students (14-22). A 5-point Likert scale was used, with 1 being the lowest scale and 5 being the highest (1 =strongly disagree, 2 = disagree, 3 = neutrals, 4 = agree, 5 = strongly agree). All data were provided anonymously. Only completed questionnaires were included inthe study.

Statistical analysis

Statistical data analysis was performed using Statistical Package for the Social Sciences (IBM© SPSS© Statistics version 21 (IBM© Corp., Armonk, NY, USA). Microsoft Excel 2016 was used for data entry. Data were presented asfrequencies and percentages for each answer.

3. RESULTS

In total, 336 medical students participated in our study, including 48.5 % males and 51.5 % females. Clinical year students are of higher percentage (70%) than preclinical years (29.5%). The distribution of the students between the academic levels is also presented in Figure (1).

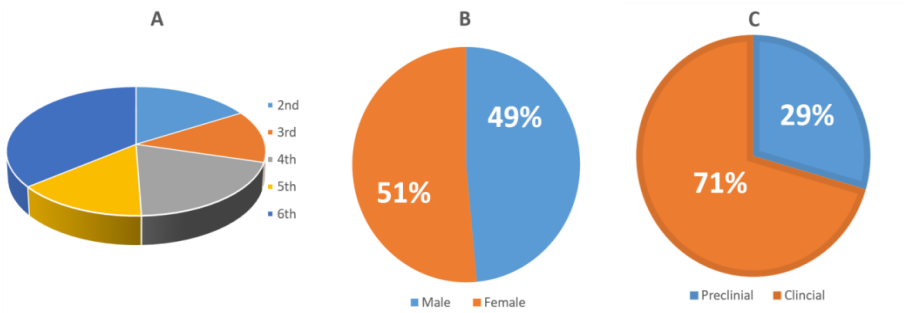

Figure 1 Demographic data of the studied group. A represents the academic level (2 to 6) of medical students, B represents the gender distribution of all participants, and C represents the distribution of the participants between the preclinical and the clinical years. All data are presented as percentages (%).

All the participants are recruited from King Abdulaziz University. No significant difference in the gender distribution between the preclinical and clinical years (p=0.09). At the same time, the number of students is much higher in the clinical years than in the preclinical years (p<0.0001) (Table 1).

Table 1 Comparison of the demographic data between preclinical and post-clinical levels of medical students.

		Pre-clinical (n=99)	Clinical (n=237)	test	*P* value
Age(years)		20.43± 1.08	22.94± 1.48	t= 15.25	<0.001***
Gender Male		41(41.4%)	122(51.5%)	X2=2.8	0.09
Female		58(58.6%)	115(48.5%)		
level	2nd	55(55.6%)	0		
	3rd	44(44.4%)	0		
	4th	0	67(28.3%)	X2=336	<0.0001***
	5th	0	50(21.1%)		
	6th	0	120(50.6%)		

Data are presented as number and percentage N (%) and mean±SD [parametric data]. p< 0.05 is significant

Regarding the consumption of a Healthy diet per week, there was no statistically significant difference between the preclinical and clinical year's students in all investigated parameters except the consumption of fruits and energy drinks. Both are statistically higher in the clinical years compared to the preclinical years (p=0.045, and 0.03, respectively) (Table 2).

Table 2 Assessment of the consumption of a Healthy diet per week among medical students and Comparison between preclinical and post-clinical levels medical students

	Pre-clinical (n=99)	Clinical (n=237)	Chi-Square test X2	*P* value
Vegetables				
0:1	33(33.3%)	70(29.5%)		
2:3	36(36.4%)	99(41.8%)	0.96	0.81
4:7	25(25.3%)	58(24.5%)		
≥8	5(5.1%)	10(4.2%)		

Fruits				
0:1	44(44.4%)	102(43%)		
2:3	29(29.3%)	97(40.9%)	7.62	0.045
4:7	20(20.2%)	33(13.9%)		
≥8	6(6.1%)	5(2.1%)		
Adequate water				
0:1	27(27.3%)	50(21.1%)		
2:3	24(24.2%)	76(32.1%)	3.79	0.28
4:7	32(32.3%)	64(27%)		
≥8	16(16.2%)	47(19.8%)		
Fast food				
0:1	19(19.2%)	44(18.6%)		
2:3	32(32.3%)	88(37.1%)	4.1	0.25
4:7	40(40.4%)	73(30.8%)		
≥8	8(8.1%)	32(13.5%)		
Energy drinks				
0:1	56(56.6%)	171(72.2%)		
2:3	19(19.2%)	29(12.2%)	8.7	0.03*
4:7	12(12.1%)	23(9.7%)		
≥8	12(12.1%)	14(5.9%)		
High sugar food				
0:1	18(18.2%)	48(20.3%)		
2:3	35(35.4%)	73(30.8%)	0.68	0.87
4:7	34(34.4%)	85(35.9%)		
≥8	12(12.1%)	31(13.1%)		

The rate of consumption is presented by times /week. Data are presented as number of the participants and percentage N (%). $p< 0.05$ is significant.

The assessment of weekly physical activity practice among medical students is presented in Table 3 and revealed no statistically significant difference between the preclinical and clinical levels of medical students. Moreover, there is no statistically significant difference between preclinical and clinical levels of medical students of the daily sleep pattern parameters except for the Feeling sleepy most of the day parameter (p=0.031)as the clinical years students are significantly higher than those of the preclinical years (Table 4).

Table 3 Assessment of weekly physical activity practice among medical students and Comparison between the preclinical and clinical levels of medical students

	Pre-clinical (n=99)	Clinical (n=237)	Chi-Square test X2	*P* value
Vigorous exercise/w				
0:1 Hours	19(19.2%)	40(16.9%)		
2:3 Hours	12(12.1%)	28(11.8%)	4.18	0.24
>3 Hours	4(4%)	26(11%)		
Never	64(64.6%)	143(60.3%)		
Moderate				
0:1 Hours	31(31.3%)	77(35.5%)		
2:3 Hours	20(20.2%)	53(22.4%)	0.48	0.92
>3 Hours	13(13.1%)	32(13.5%)		
Never	35(35.4%)	75(31.6%)		

The physical activity practice is presented by the number of hours per week. Data are presented as number of participants and percentage N (%). $p< 0.05$ is significant.

Table 4 Assessment of the daily sleep pattern parameters among medical students and Comparison of the sleep pattern parameters per day between preclinical and clinical levels medical students

	Pre-clinical (n=99)	Clinical (n=237)	Chi-Square test X2	*P* value
Adequate sleep duration				
1	14(14.1%)	25(10.6%)		
2	30(30.3%)	56(23.6%)		
3	20(20.2%)	71(30%)	4.46	0.34
4	25(25.3%)	60(25.3%)		
5	10(10.1%)	25(10.5%)		
Adequate quality				
1	12(12.1%)	38(16%)		
2	35(35.4%)	64(27%)		
3	30(30.3%)	57(24.1%)	7.14	0.12
4	14(14.1%)	59(24.9%)		
5	8(8.1%)	19(8%)		
Feeling energetic most of the day				
1	21(21.1%)	40(16.9%)		
2	35(35.4%)	88(37.1%)		
3	28(28.3%)	72(30.4%)	0.89	0.92
4	11(11.1%)	27(11.4%)		
5	4(4%)	10(4.2%)		
Feeling sleepy most of the day				
1	15(15.2%)	31(13.1%)		
2	20(20.2%)	55(23.2%)	10.6	
3	18(18.2%)	72(30.4%)		0.031
4	32(32.3%)	65(27.4%)		
5	14(14.1%)	14(5.9%)		
Regular visit to GP				
1	52(52.5%)	129(54.4%)		
2	20(20.2%)	56(23.6%)		
3	19(19.2%)	34(14.3%)		
4	3(3%)	11(4.6%)	2.7	0.6
5	5(5.1%)	7(3%)		

Data are presented as number and percentage N (%). The level of agreement was described using a 5-point Likert scale (5 always & 1 Never). $p< 0.05$ is significant.

Besides, no difference in the habit of consuming drugs, supplements and substances without a prescription among medical students between the clinical and preclinical year's students but surprisingly, the preclinical year's students showed a higher rate of smoking than those in the clinical years (28.3%) in preclinical years compared to clinical years (13.9%) (p=0.002) (Table 5). Lastly, the impact of clinical years' knowledge on the Lifestyle among medical students is presented in Figure (2).

Table 5 Assessment of consuming drugs, supplements and substances without a prescription among medical students and Comparison between preclinical and post-clinical medical students

	Pre-clinical (n=99)	Clinical (n=237)	Chi-Square test X2	P
Multivitamins				
NO	58(58.6%)	145(61.2%)	0.19	0.65
YES	41(41.4%)	92(38.8%)		
Herbals				
NO	76(76.8%)	198(83.5%)	2.13	0.14
YES	23(23.2%)	39(16.5%)		
Pain Killers				
NO	35(35.4%)	103(43.5%)	1.8	0.16
YES	64(64.6%)	134(56.5%)		
Antibiotics				
NO	94(94.9%)	227(95.8%)	0.11	0.73
YES	5(5.1%)	10(4.2%)		
Smoking				
NO	71(71.7%)	204(86.1%)	9.6	0.002
YES	28(28.3%)	33(13.9%)		

Data are presented as number and percentage N (%). $p < 0.05$ is significant.

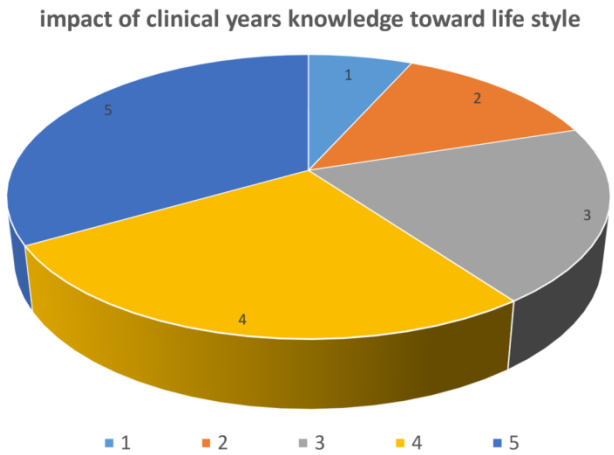

Figure 2 The impact of clinical year's knowledge on the lifestyle among medical students. All data are presented as a percentage (%) as one indicates weak and 5 indicates strong impact.

4. DISCUSSION

Inappropriate lifestyles and behaviors could play a crucial role in developing many psychological and educational problems among university students, especially those in the medical field. University students are the future decision-making stakeholders for organizations, communities, and countries (Al-Momani, 2021). Being concerned about the value of health, supporting health-promoting behaviors among Saudi Arabian students should be a primary concern for health care professionals by providing community-based services aimed at helping these students develops a healthy lifestyle. So, the current research paper targeted to study the impact of the medical Knowledge about the healthy lifestyle among the clinical years' students on modifying the Lifestyle. To our Knowledge, it is the first report to discuss the effects of a healthy lifestyle in the oldest university in the western area of Saudi Arabia (King Abdulaziz University).

When we conducted our study, we assumed clinical students would be much more engaged in a healthy lifestyle than preclinical students. This concept is consistent with our results on smoking. Our data showed that smoking rates are less prevalent

in clinical years' students than in preclinical years' students. This finding could be explained by the acquired Knowledge and higher awareness levels in clinical years. The highest percentage of smoking habit (26.4%) was observed in male students. This could be explained by different personality traits, stress, and cultural ideologies. Other studies discovered that medical students smoked at an alarmingly high rate (Sajwani et al., 2009).

The data also demonstrate that preclinical years' students had worse sleep quality, and a high percentage felt sleepy most of the day. This disturbed sleep pattern might be due to the heavy curriculum during preclinical years at King Abdulaziz University, college of medicine. Sleeping difficulties, in general, are common among medical students, and a recent study conducted in Iraq pointed to the same issue (Abdulah & Piro, 2018). Another study from Nepal concluded that "A large proportion of medical students have poor sleep quality, which might damage their academic performance as well as their health in the long run"(Sundas et al., 2020). Another point worth discussing is the significant increase in energy drink consumption among preclinical students. This finding can be attributed to the heavy curriculum during the basic medical science years of medical school. However, more research is needed, and it may pave the way for future studies on energy drink consumption and sleep disorders among preclinical medical students in particular. Furthermore, we believe that medical students are unaware of the contents of energy drinks and the hazards of ingesting large amounts of them, as evidenced by a survey of energy drink consumption among medical students. They stated, "Although medical students consumed energy drinks regularly, their understanding of the substances and the health hazards associated with them was poor" (Hidiroglu et al., 2013).

The consumption of substances without a prescription did not change significantly between preclinical and clinical students, which could be attributable to good governmental legislation prohibiting the use of non-medically prescribed antibiotics and early exposure to the pharmacology model, which provides the students with the importance of substance awareness. When asking students about their healthy eating habits, no significant differences were detected between the students of the preclinical and clinical years, except for fruit consumption, which was higher in preclinical students. This habit can be due to their passion for healthy dietary habits as young students always aspiring to be ideal future physicians. The current study's survey results regarding physical activity during the preclinical and clinical years revealed no significant differences. Overall, healthy physical activities were less than accepted, with 8.9% of preclinical and clinical students practicing vigorous-intensity exercises for more than 3 hours a week compared to 17.4% in the general Saudi population (Alqahtani et al., 2020). However, male students were more engaged in vigorous-intensity activities than female students (P=0.002). This result could be due to the lower accessibility of physical activity-related facilities; another study found the same result for female students (Wattanapisit et al., 2018).

As Bin Abdulrahman et al., (2021) reported female students had relatively fewer outdoor activities than male students. They explained their finding by many factors that could clarify the reason for this difference. These factors include the stable extrinsic environment in Saudi Arabia in terms of political, economic, and religious causes. Islam is the official religion of Saudi Arabia, and the culture and religion impact Saudi medical students. The scope of this study was limited to students at KAU, which may limit the generalizability of our findings. However, we hope our study will serve as a springboard for future research with larger samples to achieve the same objectives. While clinical students have better overall behaviour compared with preclinical students, it does not always mean they practice good behaviors or eat healthy diet meals; there is always space for interpretation. Because only those willing to participate in the study were included, selection bias may be a significant weakness of this study.

Finally, our findings add to the growing body of evidence that raising medical students' awareness and specific Knowledge of healthy lifestyles is critical since they are under enormous physical and mental stress. This chronic stress puts them at a higher risk of chronic illness and consequently forces them to improve their expertise and practical skills for healthier life advice to future physicians. It has been reported that physicians and medical students' physical activity habits significantly impact their counseling practices (Lobelo et al., 2009). So, the present study proposes that medical schools should provide mandatory courses to raise medical students' understanding of healthy lifestyles. Moreover, we recommend that medical students have to participate in chronic disease screening programs and those at risk receive dietary and exercise counselling. Moreover, in collaboration with the community medicine department, the medical education department has to arrange mini-workshops and mini-courses to improve the Knowledge and awareness about healthy lifestyles among medical students.

5. CONCLUSION

Even though medical students are more conscious of the need to lead a healthy lifestyle than the general population, this does not indicate that they practice healthy habits. Overall, our results show clinical students were more engaged in a healthy lifestyle than preclinical students. These conclusions are evidenced by lower smoking rates, energy drink consumption, and better sleeping quality in clinical students.

Ethical approval

The study was approved by the Medical Ethics Committee of the King Abdul-Aziz University (NCBE Registration No: HA-02-J-008; approval Reference No 128-22).

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Author Contributions

Abdualrahman S Aldharrab and Ayman Z Elsamanoudy formulated the idea and designed the study. Abdualrahman S Aldharrab, Abdullah M Nammazi, Muhanad H Saigh, Abdullah M Alqarni, Abdulelah S Alasiri and Fahad S Almalki allowed the research protocols, handled the data and conducted the statistical analysis. Moreover, they share writing the manuscript. Ayman Z Elsamanoudy reviewed and edited the article. All authors approved the final version of the manuscript.

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Conflicts of interest

The authors declare that there are no conflicts of interests.

Data and materials availability

All data associated with this study are present in the paper.

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