



University of Baghdad Al-Kindy
College of Medicine Scientific
Research



**Physical activity and its barriers among medical
schools in Baghdad**

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

{ يَرْفَعُ اللَّهُ الَّذِينَ آمَنُوا مِنْكُمْ وَالَّذِينَ أُوتُوا الْعِلْمَ دَرَجَاتٍ }

صَدَقَ اللَّهُ الْعَظِيمُ

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ABSTRACT

Background:

Adequate physical activity is essential for good health (a healthy mind in a healthy body), and physical inactivity is an important risk factor for many chronic diseases including coronary artery disease, high blood pressure, diabetes, cancer, obesity and osteoporosis. In medical students the academic requirements of medical college and shortage of time make the medical students less physically active, especially medical students who face many obstacles that may prevent them from exercising adequately due to academic pressure and lack of time to exercise or the reason may be the wrong organization of time.

Aim of the study:

- 1-To assess the perceptions, the patterns and knowledge regarding physical activities among medical students.
- 2- Understand the barriers and motivating factors for physical activity among medical students.

Subjects and Methods:

The study was a cross-sectional study among male and female students at medical colleges in Baghdad, during the period from December 2022 to May 2023. The stratified sample aged between 18-24 years, with total number of 150 students. The data was collected through google form questionnaire and we asked about the time spent in Physical Activity, barriers for not exercise, place and type of physical activity and what is the effects of physical activity on the academic performance among medical students in Baghdad.

Results

Number of the participants were 150, the age of the participants was between (18-24) years, female (58%), male (42%). 18.7% of the participants were in second stage, 53.3% third stage, 21.3% fourth stage, 4.7% fifth stage, 2% sixth stage. Thirteen participants (8.7%) were Underweight, one hundred and three (68.7%) were Normal weight, twenty-eight (18.7%) were Overweight and six participants (4%) were Obese. Twenty-five (16.6%) of the participants were not physically active, Fifty-two (34%) spent 10-30 min in Physical Activity, Forty-one (27.7%) spent 30-60 min while Thirty-two (21.7%) spent more than one hour.

Conclusion:

- The present study showed a significant relation was found between PA habits and academic performance.
- This study shows the majority of medical students were physically active, the females were more physically active than the males.
- The major reasons behind physical activity among medical students were to be fit and healthy, and the second reason is to relieve stress, another reason was to reduce weight.
- The main barrier that prevented the students from doing physical activity was lack of time, the second most was the academic pressure and lastly (sleeping, not being interested and finding exercise boring).
- The study showed no relation between BMI and PA.

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List of abbreviation

ACSM	the American College of Sports Medicine
BMI	Body Mass Index
CDC	Centers for Disease Control and prevention
PA	Physical Activity
WHO	World Health Organization

Chapter one:

Introduction

Introduction

1.1 Physical activity:

World Health Organization defines Physical Activity as any bodily movement produced by skeletal muscles that requires energy expenditure. PA refers to all movement including during leisure time, for transport to get to and from places, or as part of a person's work. Both moderate and vigorous intensity PA improve health. Popular ways to be active include walking, cycling, wheeling, sports and active recreation and play, and can be done at any level of skill and for enjoyment by everybody ⁽¹⁾.

1.2 Prevalence of Physical Inactivity:

Physical inactivity is one of the global health problems, which increases the overall mortality and morbidity. Worldwide, in 2010, the WHO reported 23% of adults aged 18 years old and above and 81% of adolescents aged 11–17 years were insufficiently physically active ⁽²⁾ and scientific evidence supports that PA can reduce mortality ⁽³⁾.

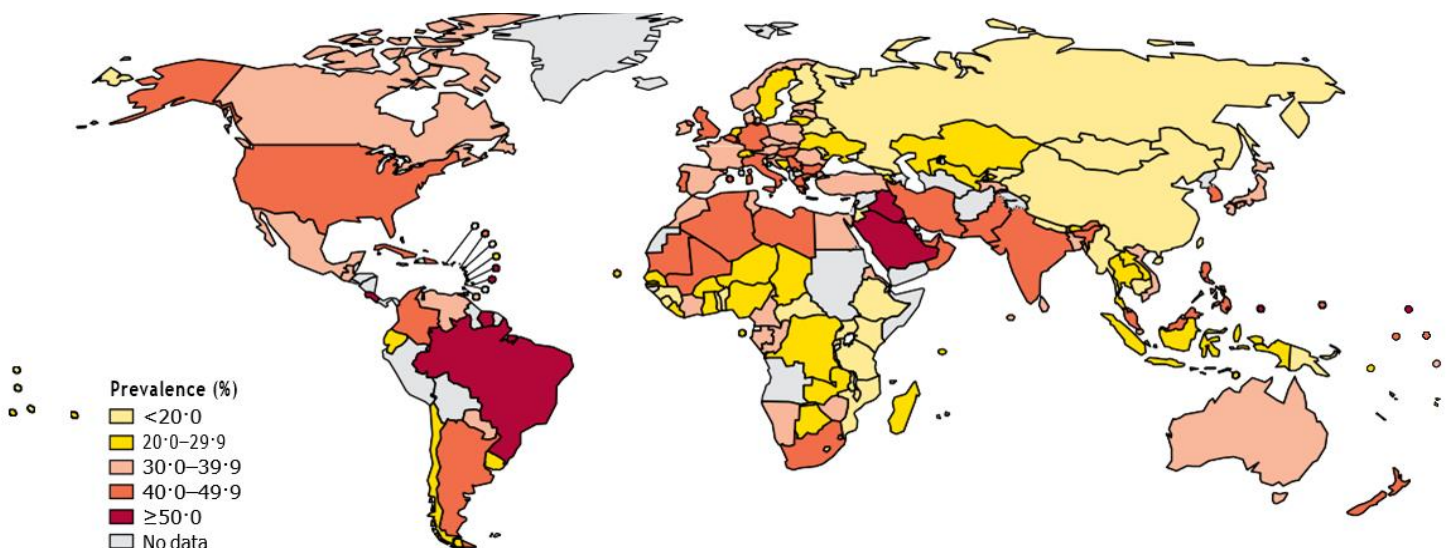


Figure 1: Show the country prevalence of insufficient PA in men ⁽⁴⁾

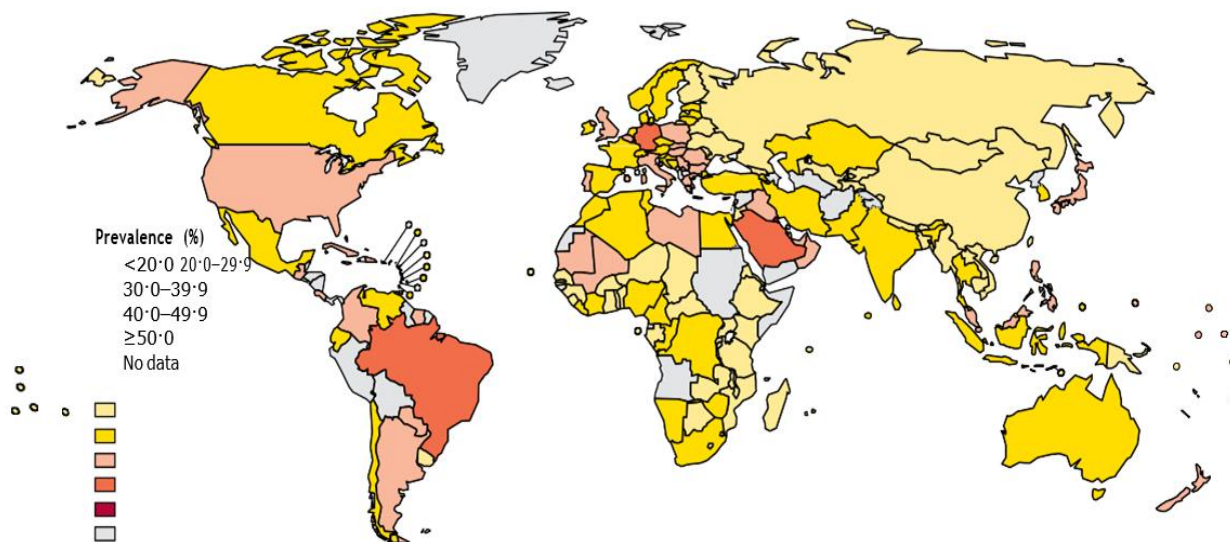


Figure 2: Show the prevalence of insufficient PA in women respectively in 2016⁽⁴⁾

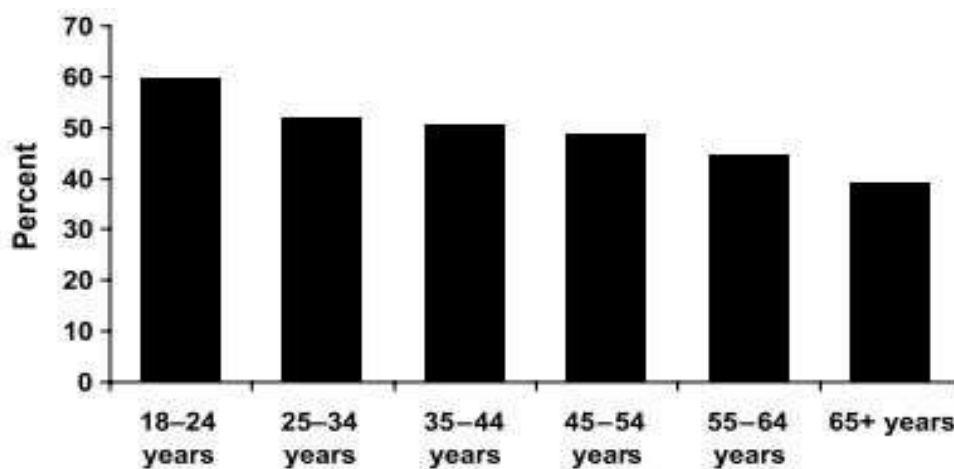


Figure 3: Show the prevalence of U.S. men and women meeting the CDC/ACSM physical activity recommendations by age ⁽⁵⁾.

1.3 The health benefits of physical activity:

The health benefits of PA for adults are becoming evident. These benefits include preventing or delaying morbidity and mortality from premature cardiovascular disease, preventing obesity and enhancing physical fitness. Obese individuals are at a substantial risk for metabolic syndrome, and thereby, at a high risk of atherosclerotic, cardiovascular disease and type 2 diabetes, and their complications⁽⁶⁾.

The potential for early prevention and intervention of coronary heart disease and other preventable chronic diseases involves education and behavioral modification to adopt health-enhancing lifestyles and behavior. These healthy lifestyles include eating a prudent diet, participating in regular PA or aerobic exercise and maintaining a regular schedule for screening and detecting early signs of obesity, hypertension, diabetes, and hyperlipidemia. Among these healthy lifestyles, Physical activity, such as walking, running, and strength training, should be done on a regular basis for optimal health⁽⁷⁾.

Recent investigations have revealed even greater reductions in the risk of death from any cause and from cardiovascular disease. For instance, being fit or active was associated with a greater than 50% reduction in risk⁽⁸⁾. An increase in physical fitness will reduce the risk of premature death and a decrease in physical fitness will increase the risk⁽⁹⁾.

1.4 The mental benefits of physical activity:

The benefits of PA on mental health have been well documented. For instance, there is a large body of literature demonstrating that PA effectively reduces depression and anxiety ⁽¹⁰⁾, improving mental agility, Sleep quality, Self-esteem and self-perceptions. The ability of physical activity to “energize” and produce more positive mood is reported widely ⁽¹¹⁾. However, previous studies have predominantly focused on the effects of PA on the negative aspects of mental health and concerned the use of PA as a preventive or curative approach for mental disorders. The investigation of the relationship between PA and mental disorders is of importance because mental disorders are linked to increased morbidity, premature mortality and greater medical cost. In contrast, the relationship between PA and positive mental constructs has remained largely unexplored. The WHO has stressed the positive dimension of mental health and defines that

“Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” ⁽¹⁰⁾.

Physical activity can be viewed from four different perspectives regarding its direct contribution to solving mental health problems: -

- Treatment of mental illness and disorders
- Prevention of mental illness and disorders
- Improvement of mental and physical well-being of those with mental illness.
- Improvement of mental well-being of the general population ⁽¹¹⁾.

Endorphins are endogenous opioid polypeptide compounds produced by the pituitary gland and the hypothalamus in vertebrates during strenuous exercise, excitement, pain and they resemble the opiates in their abilities to produce

analgesia and a sense of well-being. The opioid system plays a key role in mediating analgesia and social attachment and may also affect depression given the link between β -endorphins and depression symptoms. According to the ‘endorphins hypothesis’, exercise augments the secretion of endogenous opioid peptides in the brain reducing pain and causing general euphoria. In turn, the latter reduces anxiety and depression levels ⁽¹²⁾.

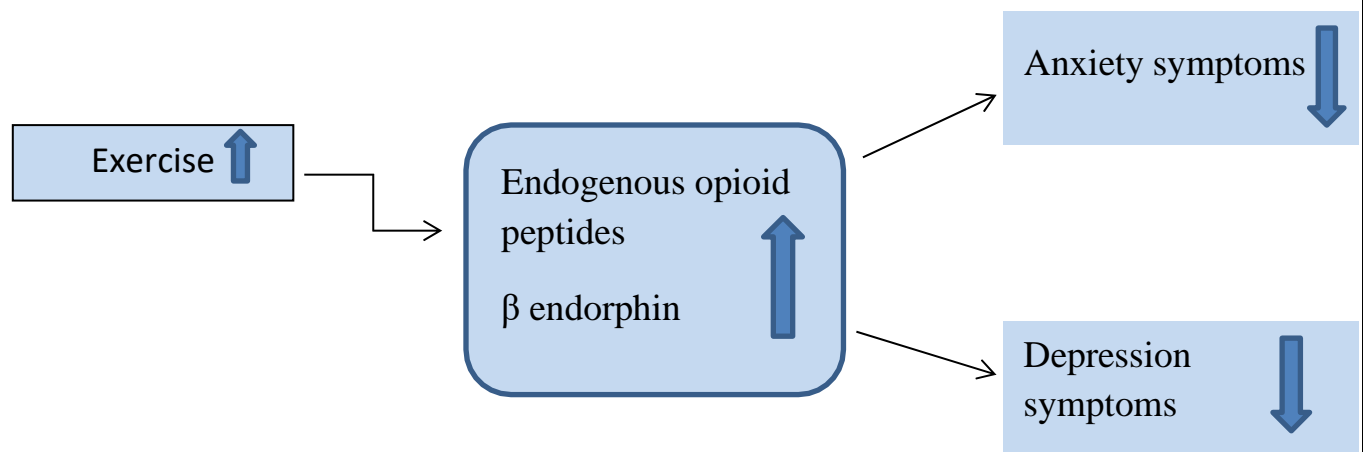


Figure 4: The endorphins hypothesis mechanism ⁽¹²⁾.

1.5 Minimal physical activity requirements:

It is apparent that PA is essential in the prevention of chronic disease and premature death. However, doubt remains over the optimal “volume” (frequency, duration and intensity of exercise) and the minimum volume for health benefits, in particular the effects of intensity (e.g., moderate v. vigorous) on health status. There is evidence that intensity of PA is inversely and linearly associated with mortality. Early work by Paffenbarger and associates ⁽¹³⁾ revealed that regular PA (expending > 2000 kcal [8400 kJ] per week) was associated with an average increase in life expectancy of 1 to 2 years by the age of 80 and that the benefits were linear even at lower levels of energy expenditure.

Subsequent studies have shown that an average energy expenditure of about 1000 kcal (4200 kJ) per week is associated with a 20%–30% reduction in all-cause mortality.

Currently, most health and fitness organizations and professionals advocate a minimum volume of exercise that expends 1000 kcal (4200 kJ) per week and acknowledge the added benefits of higher energy expenditures. Recently, investigators have postulated that even lower levels of weekly energy expenditure may be associated with health benefits. A volume of exercise that is about half of what is currently recommended may be sufficient, particularly for people who are extremely deconditioned or are frail and elderly. ⁽¹³⁾

Policies to increase PA aim to ensure that: ⁽¹⁾

- walking, cycling and other forms of active non-motorized forms of transport are accessible and safe for all;
- schools and higher education institutions provide supportive and safe spaces and facilities for all students to spend their free time actively;
- Sports and recreation facilities provide opportunities for everyone to access and participate in a variety of different sports, dance, exercise and active recreation.

1.6 physical activity effects among medical students:

Medical school faculty members should set a good example by practicing a healthy lifestyle and health professionals should exercise, not only to benefit their own health but also to make their endorsement of an active lifestyle more credible. Also, medical students have certain privileges and responsibilities different from those of other students: they must be aware that they are often acting in the position of a qualified doctor and that their fitness will affect patients. They must be aware that their behavior outside the clinical environment, including their PA, may have an impact on their fitness to practice medicine⁽¹⁴⁾.

Several authors have observed a positive relationship between physical fitness and student's academic results. It is presumed that medical students have substantial knowledge about PA and its benefits, and as health care professionals they will have an influence on their patient's attitude toward PA and an ethical obligation to prescribe suitable exercises. Numerous studies on PA level have produced different results, often presenting a sharp contrast between medical student's knowledge about the benefits of regular PA and its application in everyday life. Medical students had low PA levels as a result of high workload and less free time⁽¹⁵⁾. It is Important to know PA behaviors of medical students because it is assumed that medical students are aware of the importance of healthy lifestyles. Nonetheless, knowledge is only a part of expressing behaviors and providing health promotion⁽¹⁶⁾. Moreover, the evidence in medical students suggests that there is a strong association between personal PA behaviors and PA counseling attitudes and practices^{(17) (18)}. Some previous studies show medical students have more participation in PA than general populations⁽¹⁹⁾. In Thailand, a study shows that physical factors (sex and body weight) and environmental factors (society and culture) are the associated factors of PA behaviors⁽¹⁹⁾.

1.7 Barriers to Physical Activity:

Several barriers to PA among medical students were demonstrated, one of these studies mentioned that inconvenience, worries, and competing academic and social demands were the major barriers associated with PA among college students, another study stated that curricula in the college had possibly impacted the behaviors and attitudes of students as physical education college reported significantly higher exercise rates than did health college, while Reed and Phillip⁽¹⁴⁾ reported that some perceived barriers are of personal nature as depression or fatigue, others are situational as workload, or physical factors as lack of facilities. Moreover, Daskapan⁽¹⁴⁾ reported that external barriers were more important than internal barriers. Lack of time due to busy lesson schedule, parents give academic success priority over exercise and lack of time due to responsibilities related to the family and social environment were most cited items for PA barriers. ⁽¹⁴⁾

Generally, the barriers can be summarized into:

- insufficient time to exercise.
- inconvenience of exercise.
- lack of self-motivation.
- non-enjoyment of exercise.
- boredom with exercise ⁽²⁰⁾.

AIM OF THE STUDY:

- 1-To assess the perceptions, the patterns and knowledge regarding physical activities among medical students.
- 2- Understand the barriers and motivating factors for physical activity among medical students.

Chapter Two:

Subjects

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Methods

2.1 Type of the study and Study population:

The study was a cross-sectional study among male and female students at medical colleges in Baghdad, during the period from December 2022 to May 2023 participant aged between 18-24 years.

2.2 Sample size:

stratified sampling method was used and all the medical student in Baghdad was invited to participate to a questionnaire that was designed for the study, 150 responses were received.

Inclusion criteria: All medical students in Baghdad aged 18 and above.

Exclusion criteria: Students who do not consent for the study.

2.3 Data collection:

The data was collected online by a google form questionnaire.

In this study we ask about the time spent in physical activity, barriers for not exercise, place and type of physical activity and what is the effects of physical activity on the academic performance among medical students in Baghdad. The google form include a question about the BMI and was defined according to the following equation ⁽²¹⁾ :

$$\text{BMI} = \text{weight (kg)} / \text{height(m}^2\text{)}$$

And BMI was categories into the following ⁽²¹⁾:

BMI	Weight status
Below 18.5	Under weight
18.5-24.9	Healthy
25.0-29.9	Overweight
30.0 and over	Obese

2.4 Data analysis:

The Data was analyzed by using SPSS software version 23.0, then it was presented in form of tables of numbers with percentages. Chi -square test used for testing the association between variables under study. Statistical significance was considered whenever the P-value was equal or less than 0.05.

Chapter Three: Results

Results:

Number of the participants were 150, the age of the participants was between (18-24) years median age (21) years, Eighty-seven were female (58%), Sixty-three were male (42%)

18.7% of the participants were in second stage, 53.3% third stage, 21.3% in fourth stage, 4.7% in fifth stage, 2% in sixth stage, as shown in table 1.

3.1 Assessment of Body Mass Index level among the students:

Thirteen participants (8.7%) were Underweight, one hundred and three (68.7%) were Normal weight, twenty-eight (18.7%) were Overweight and six participants (4%) were Obese, as shown in table 1.

3.2 Assessment of time (days\hours\minutes) spent for physical activity:

Twenty-five participants (16.6%) reported that they have no physical activity along the week, sixty-one (41.4%) reported they spent 1-2 days per week for physical activity, thirty-seven (24.6%) spent 3-4 days, twenty-two (14.7%) spent 5-7 days and five participants (3.3%) spent 7 days.

Among those who had physical activity Fifty- two (34.6%) spent 10-30 min during exercise, Forty-one (27.6%) spent 30-60 min and thirty-two (21.7%) spent more than one hour during exercise, as shown in table 1.

Table 1: General Characteristics of the studied participants

Variables		n	%
Gender	Female	87	58%
	Male	63	42%
	Total	150	100%
Stage	Stage II	28	18.7%
	Stage III	80	53.3%
	Stage IV	32	21.3%
	Stage V	7	4.7%
	Stage VI	3	2%
	Total	150	100%
BMI	Underweight	13	8.7%
	Normal weight	103	68.7%
	Overweight	28	18.7%
	Obese	6	4%
	Total	150	100%
Number of days spent in PA per week	No PA	25	16.6%
	1-2 day	61	41.4%
	3-4 days	37	24.6%
	5-6 days	22	14.7%
	7 days	5	3.3%
	Total	150	100%
Time spent in PA	No PA	25	16.6%
	10-30 min	52	34.6%
	30-60 min	41	27.7%
	More than 1 hr	32	21.7%
	Total	150	100%

3.3 Assessment for The place of Physical activity and its types:

Thirty-four (27.2%) reveal that they exercise at gym while there were ninety-one (72.8%) participants exercise at Home.

Seventy-seven (33%) informed that they do Walking\Running, twenty-eight (12%) Do Aerobic exercise, thirty-eight (16.5%) do Muscle building, twenty-four (10.5%) Playing football, fifteen (6.5%) Riding bicycle and fifty (21.5%) answered by Non-specific activity, as shown in table 2.

3.4 Medical Student Barriers for physical Activity:

Seventy-six (44.7%) choose Lack of time as a barrier for physical activity, forty-four (25.8%) Academic Pressure, twenty-seven (15.8%) because of their habits (sleep, playing videogames etc.), sixteen (9.4%) answered they are not interested in physical activity while seven (4.3%) find exercise boring, as shown in table 2.

3.5 Medical Student's Attitude Toward Physical activity:

Hundred-twenty-nine (86%) found exercise during study of medicine appropriate while twenty-one (14%) found exercise inappropriate.

Ninety-eight (65.3%) reported that Physical activity increase their academic performance while fifty-two (34.7%) responded it decrease their academic performance, as shown in table 2.

Table 2: Medical student's attitudes and practice regarding physical activity.

Variables		n	%
Place of exercise	At home	91	72.8%
	At gym	34	27.2%
Types of PA *	Walking/running	77	33%
	Aerobic exercise	28	12%
	Muscle building	38	16.5%
	Playing football	24	10.5%
	Riding bicycle	15	6.5%
	Non-specific	50	21.5%
Barriers of PA *	Lack of time	76	44.7%
	Academic pressure	44	25.8%
	Habits (sleep.....etc)	27	15.8%
	Not interested	16	9.4%
	Find exercise boring	7	4.3%
Effect of PA on academic performance	Increase academic performance	98	65.3%
	Decrease academic performance	52	34.7%
The reasons for exercise	To be fit and healthy	68	45.3%
	To relive stress	53	35.3%
	To reduce weight	29	19.3%
Students' opinion regarding PA during study of medicine	Appropriate	129	86%
	Inappropriate	21	14%

***Some questions have more than one answer so that the total number of answers is more than the total number of participants.**

Table 3: The relation between Time (Days\Hours\Minutes) and Gender

Variables		Gender				P Value
		Male		Female		
		n	%	n	%	
Days Spent in PA	No PA	6	9.5%	19	21.8%	0.261
	1-2 days	25	39.7%	36	41.4%	
	3-4 day	18	28.6%	19	21.8%	
	5-6 days	11	17.5%	11	12.6%	
	7 days	3	4.8%	2	2.3%	
Time Spent in exercise	No PA	7	11.1%	19	21.8%	0.54
	10-30 min	18	28.5%	33	38%	
	30-60 min	19	30.1%	22	25.2%	
	>1 hour	19	30.1%	13	15%	

Table 4: The relation between time spent in PA and it's effect on the academic performance

Variables		Effect on academic Performance				P value
		Positive effect		Negative effect		
		n	%	n	%	0.002
Time Spent in PA	No PA	19	16.4%	7	20.6%	
	10-30 min	47	40.5%	4	11.8%	
	30-60 min	32	27.6%	9	26.5%	
	More than 1hr	18	15.5%	14	41.2%	

Table 5: The relation between BMI and days and time spent on PA

Variables		BMI								P value
		Underweight		Normal weight		Overweight		Obese		
		n	%	n	%	n	%	n	%	
Days spent on PA	1-2 days	7	53.8%	44	42.7%	8	28.5%	2	33.3%	0.695
	3-4 days	3	23%	25	24.2%	8	28.5%	1	16.6%	
	5-6 days	1	7.7%	15	14.5%	6	21.4%	0	0%	
	7 days	0	0%	3	3%	1	3.6%	1	16.6%	
	No PA	2	15.3%	16	15.5%	5	17.8%	2	33.3%	
	Total	13	100%	103	100%	28	100%	6	100%	
Time spent during exercise	10-30 min	5	38.5%	35	34%	8	28.6%	3	50%	0.768
	30-60 min	3	23.1%	31	30%	6	21.4%	1	16.7%	
	>1 hour	3	23.1%	20	19.5%	9	23.1%	0	0%	
	No PA	2	15.4%	17	16.5%	5	17.9%	2	33.3%	
	Total	13	100%	103	100%	28	100%	6	100%	

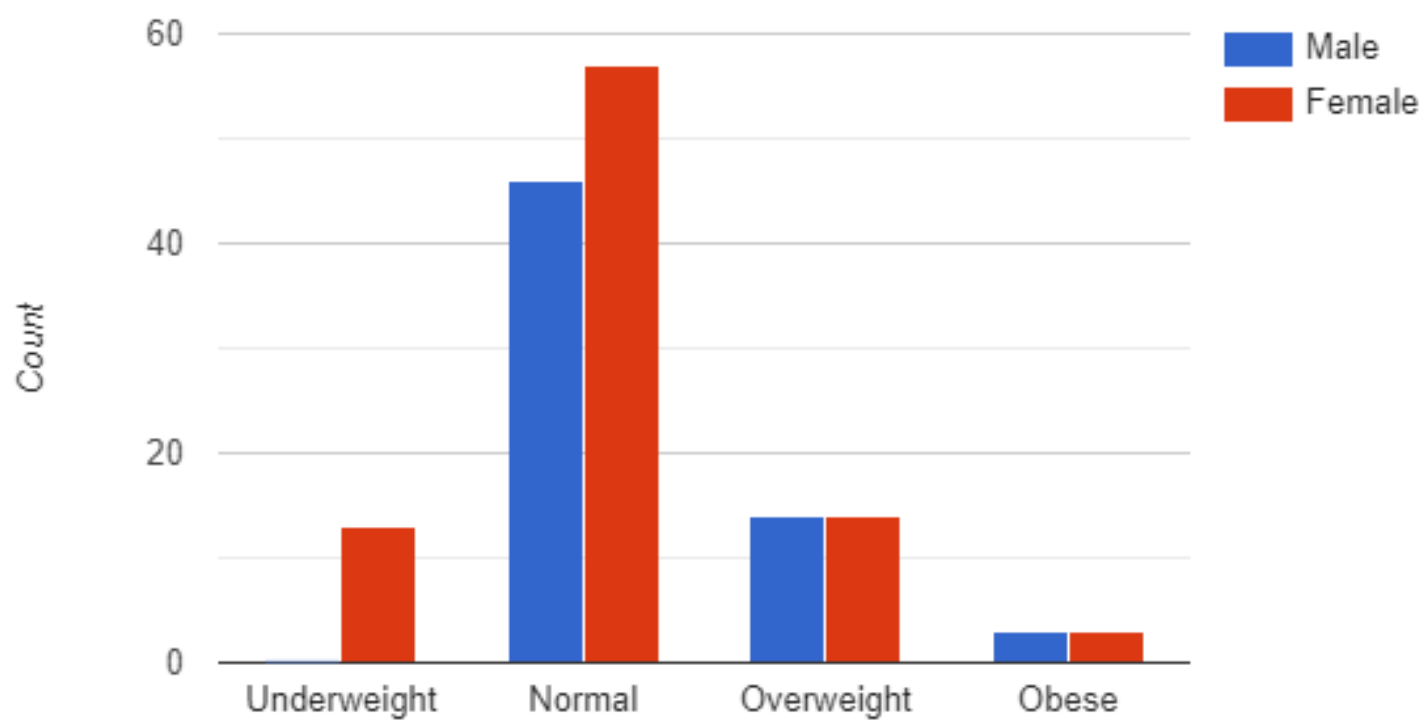


Figure 5: Distribution of the BMI according to the Gender.

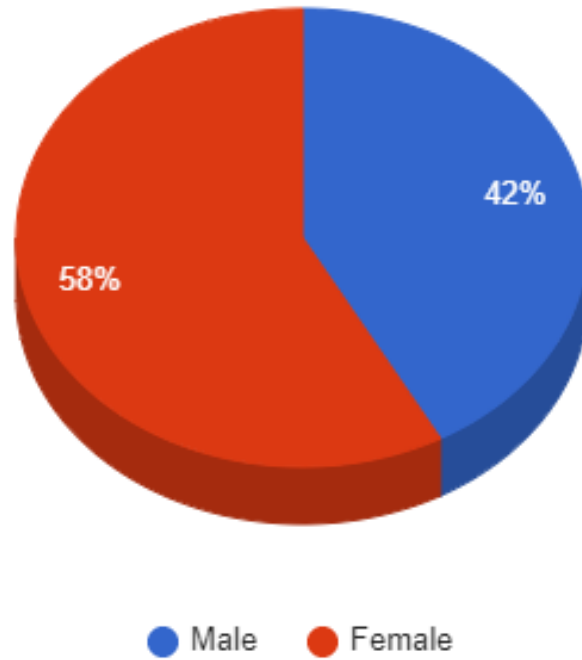


Figure 6: Distribution Male and Female participants

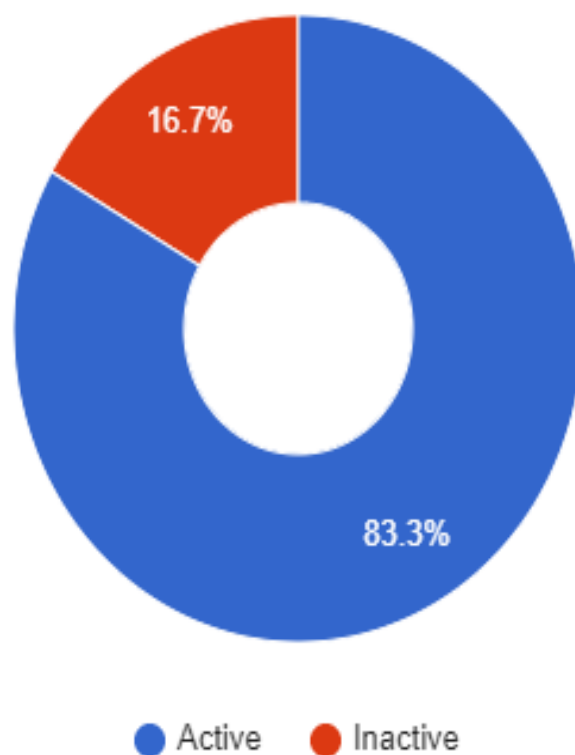


Figure 7: Distribution of physically active and not physically active participants.

Chapter Four:

Discussion

Discussion:

This study aims to evaluate the practice attitude and level of PA among medical students in Baghdad and its effects on academic performance and to determine the barriers of PA among medical students.

There were 150 participants, male and female, the prevalence of PA was 83.3%, in contrast to studies in other countries of the Gulf region that showed a lower prevalence of physical activity for example; a study in Kuwait reported a prevalence of physical inactivity of 34% and 55% among male and female university students respectively ⁽²²⁾. Regarding other medical colleges student in other Arab countries, in Egypt 11.3% of the students at Mansoura University were physically inactive ⁽²³⁾ and at Alexandria University one third were physically inactive ⁽²⁴⁾. In a Lebanese study about 73.6 % of the students were physically inactive ⁽²⁵⁾. A similar study was done at King Saud University among medical students, Riyadh, showing that 47.2% were physically active ⁽²⁶⁾. Another study was conducted in India, showing that PA was observed in 41.3% among medical students ⁽²⁷⁾. This variation in the level of physical activity between different countries may be a reflection of socioeconomic development, technology and urbanization.

The most common type of activity was walking or running Seventy-seven (33%). Sixty-one (41.3%) of the participants exercise in 1-2 days per week. Regarding time spending, the highest proportion of the students spend 10-30 minutes during exercise 52 (34%).

Regarding the effects of physical activity on academic performance, Ninety-eight (65.3%) students think that PA increases academic performance and Fifty-two (34.7%) think that it decreases their academic performance. In our study we found significant relation between PA and academic performance. A similar study was

conducted in Pakistan showing that PA was significantly associated with the academic performance ⁽²⁸⁾.

We observed that the percentage of participants with a BMI less than 18 kg/m² (underweight) were all females (8.7%) who represented 15% of the total females, this may be due to differences in biological (e.g., hormones) and behavioral characteristics (e.g., maintaining a healthy body style). In our study we found no significant relation between BMI and PA. A similar study was conducted in Malaysia showed that a significant relation between PA and BMI ⁽³³⁾.

Seventy-six (44.7%) found that they have no time to do physical activity. A similar study was done in King Khalid University and showed that the top reported barrier to physical activity among inactive students was time limitations (51.3%) ⁽²⁹⁾. Academic pressure was the second most important barrier found in Forty-four (25.8%) followed by habits such as sleeping in Twenty-seven (15.8%), not interested in Sixteen (9.4%) and find the exercise boring in Seven (4.3%). There was a study conducted at the University of Malaya showed that (62.3%) of participants considered lack of time main barrier for most of medical students ⁽³⁰⁾.

Regarding the practice of physical activity, Sixty-eight (45.3%) students practice to be fit and healthy, Fifty-three (35.3%) practice to relive stress and Twenty-nine (19.3%) practice to reduce weight. In other study was conducted in Kasturba Medical College, Manipal, India the reasons for exercising were to increase stamina, improve fitness and lose weight ⁽¹⁶⁾.

In the present study there were Eighty-seven (58%) females, Nineteen of them were not physically active, females were less likely to engage in vigorous PA than were males. The same finding has been reported by many studies in different cultures and different age groups ^(31,32). In many traditional communities, females face social pressures that have historically linked physical power and athleticism to maleness. Femininity is not consistent with vigorous activity and sports. Also, cultural norms and values in Iraq are more permissive for boys to practice PA and restrict females to the domestic domain.

Limitations of the study:

The study addresses the problem of physical inactivity among students of college of medicine only. A larger study to include all colleges should be done, because the results of the study may not be suitable to the general population. Furthermore, there is a need for a national study with a representative sample to address the issue of physical inactivity in university students in Iraq. The present study was carried out among students of college of medicine during the academic year. The levels of PA may differ in other youth groups and may vary during vacations and at the time of examinations.

Chapter five: Conclusion And Recommendations

Conclusion:

- The present study showed a significant relation was found between PA habits and academic performance.
- This study shows the majority of medical students were physically active, the females were more physically active than the males.
- The major reasons behind physical activity among medical students were to be fit and healthy, and the second reason is to relieve stress, another reason was to reduce weight.
- The main barrier that prevented the students from doing physical activity was lack of time, the second most was the academic pressure and lastly (sleeping, not being interested and finding exercise boring).
- The study showed no relation between BMI and PA.

Recommendations:

- 1-An approach among the medical students should promote physical activity to balance study and health-related behaviors.
- 2-Further population-based prospective studies are needed to focus on finding ways to improve physical activity.
- 3- We recommend expanding the places for physical activity and equipping them with all the necessary tools and devices to encourage students to commit to physical activity.
- 4-implementing community wide communication campaigns to raise awareness and knowledge of the multiple health, economic and social benefits of being physically active.
- 5-invest in new technologies, innovation and research to develop cost effective approaches to increasing physical activity, particularly in low resource contexts.

References:

- 1- World Health Organization. (2020, November 26), A report about physical activity, <https://www.who.int/news-room/fact-sheets/detail/physical-activity>.
- 2- World Health Organization. Global status report on communicable diseases 2014. Geneva, Switzerland: World Health Organization, 2014.
<https://apps.who.int/iris/handle/10665/148114>
- 3- Samitz G, Egger M, Zwahlen M. Domains of physical activity and all-cause mortality: systematic review and dose–response meta-analysis of cohort studies. *Int J Epidemiol* 2011;40:1382–400.
- 4- Regina Guthold, Gretchen A Stevens, Leanne M Riley, Fiona C Bull
Worldwide trends in insufficient physical activity from 2001 to 2016: a pooled analysis of 358 population-based surveys with 1.9 million participants September 04, 2018 [https://doi.org/10.1016/S2214-109X\(18\)30357-7](https://doi.org/10.1016/S2214-109X(18)30357-7)
- 5- Haskell, William L., et al. "Physical activity and public health: updated recommendation for adults from the American College of Sports Medicine and the American Heart Association." *Circulation* 116.9 (2007): 1081.
- 6- Ajlan, S. K. (2012). Metabolic syndrome in obese versus non-obese persons In basrah. *AL-Kindy College Medical Journal*, 8(2), 112–120. Retrieved from <https://jkmc.uobaghdad.edu.iq/index.php/MEDICAL/article/view/593>
- 7- Hameed, E. K., & Al-Ameri, L. T. (2022). Lifestyle Medicine: A Promising tool to Restoring Health. *AL-Kindy College Medical Journal*, 18(3), 165–166.
<https://doi.org/10.47723/kcmj.v18i3.932>
- 8- Myers J, Kaykha A, George S, et al. Fitness versus physical activity patterns in predicting mortality in men. *Am J Med* 2004;117:912-8.
- 9- Bijnen FC, Feskens EJ, Caspersen CJ, et al. Baseline and previous physical activity in relation to mortality in elderly men: the Zutphen Elderly Study. *Am J Epidemiol* 1999;150:1289-96.

10- Zhang, Zhanjia, and Weiyun Chen. "A systematic review of the relationship between physical activity and happiness." *Journal of happiness studies* 20.4 (2019): 1305-1322.

11- Fox, Kenneth R. "The influence of physical activity on mental well-being." *Public health nutrition* 2.3a (1999): 411-418.

12- Dinas, P. C., Yiannis Koutedakis, and A. D. Flouris. "Effects of exercise and physical activity on depression." *Irish journal of medical science* 180.2 (2011): 319-325.

13- Warburton, Darren ER, Crystal Whitney Nicol, and Shannon SD Bredin. "Health benefits of physical activity: the evidence." *Cmaj* 174.6 (2006): 801-809.

14- El-Gilany, A., and Ragaa El-Masry. "Physical inactivity among Egyptian and Saudi medical students." *TAF Prev Med Bull* 10.1 (2011): 35-44.

15- Magdalena Dąbrowska-Galas, Ryszard Plinta, Jolanta Dąbrowska, Violetta Skrzypulec-Plinta, Physical Activity in Students of the Medical University of Silesia in Poland, *Physical Therapy*, Volume 93, Issue 3, 1 March 2013.

16- Rao CR, Darshan B, Das N, et al. Practice of physical activity among future doctors: a cross sectional analysis. *Int J Prev Med* 2012;3:365–9.

17- Lobelo F, Duperly J, Frank E. Physical activity habits of doctors and medical students influence their counselling practices. *Br J Sports Med* 2009;43:89–92. 14.

18- Stanford FC, Durkin MW, Stallworth JR, et al. Factors that influence physicians' and medical students' confidence in counseling patients about physical activity. *J Prim Prev* 2014;35:193–201.

- 19- Wattanapisit, A., Gaensan, T., & Anothaisintawee, T. (2015). Prevalence of physical activity and associated factors of medium and high activity among medical students at Ramathibodi Hospital. In *The 6th international conference on sport and exercise science* (Vol. 2015).
- 20- Manaf H. Barriers to participation in physical activity and exercise among middle-aged and elderly individuals. *Singapore Med J.* 2013;54(10):581-6.
- 21- About Adult BMI CDC. Retrieved from https://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/index.html
- 22- Al-Isa AN, Campbell J, Desapriya E, Wijesinghe N. Social and health factors associated with physical activity among Kuwaiti . college students. *J Obes.* 2011;2011:512363. doi: 10.1155/2011/512363.
- 23- El-Gilany AH, Badawi K, El-Khawaga G, Awadalla N. Physical activity profile of students in Mansoura University, Egypt. *Eastern Mediterranean Health Journal.* 2011;17(8):694–702
- 24- Abolfotouh MA, Bassiouni FA, Mounir GM, Fayyad RC. Health-related lifestyles and risk behaviours among students living in 38. Alexandria university hostels. *East Mediterr Health J.* 2007;13(2):376–91.
- 25- Musharrafieh U, Tamim HM, Rahi AC, El-Hajj MA, Al-Sahab B, El-Asmar K, et al. Determinants of university students physical exercise: a study from Lebanon. *Int J Public Health.* 2008;53(4):208– 13.
- 26- Al-Drees A, Abdulghani H, Irshad M, et al. Physical activity and academic achievement among the medical students: A cross-sectional study. *Medical Teacher* 2016; 38:S66-S72

- 27- Padmapriya K, Krishna P, Rasu T. Prevalence and patterns of physical activity among medical students in Bangalore, India. *Europe PMC*. 2013; 5:606-610
- 28- Satti M, Khan T, Qurat-ul-ain Q, et al. Association of physical activity and sleep quality with academic performance among fourth-year MBBS students of Rawalpindi medical university. *Cureus* 2019.
- 29- Awadalla NJ, Aboelyazed AE, Hassanein MA, et al. Assessment of physical inactivity and perceived barriers to physical activity among health college students, south-western Saudi Arabia. *East Mediterr Health J* 2014; 20:596-604
- 30- Asousi M. Physical activity among preclinical medical students at the University of Malaya, Malaysia. *J Nutritional Health Food Sci* 2016; 4:1-8.
- 31- Al-Nakeeb Y, Lyons M, Collins P, Al-Nuaim A, Al-Hazzaa H, Duncan MJ, et al. Obesity, physical activity and sedentary behavior 35. amongst British and Saudi youth: a cross-cultural study. *Int J Environ Res Public Health*. 2012;9(4):1490–506.
- 32- Arzu D, Tuzun EH, Eker L. Perceived barriers to physical activity in university students. *J Sports Sci Med*. 2006;5(4):615–20.
- 33- You HW, Tan PL, Mat Ludin. The Relationship between Physical Activity, Body Mass Index and Body Composition among Students at a Pre-University Centre in Malaysia. *IIUM Medical Journal Malaysia*, 19(2).
<https://doi.org/10.31436/imjm.v19i2.1567>

Appendices:

1- Gender:

- ☐ Male.
- ☐ Female.

2- Stage:

- ☐ 2nd.
- ☐ 3rd.
- ☐ 4th.
- ☐ 5th.
- ☐ 6th.

3- You consider yourself: (BMI is weight in kilograms divided by height in meters* squared) OR you can use this website >>>

<https://www.bupa.com.au/healthlink/health-tools/bmi-calculator>

- ☐ Underweight (BMI less than 18.5 kg/m²).
- ☐ Normal weight (BMI between 18.5-24.9 kg/m²).
- ☐ Overweight (BMI between 25-29.9 kg/m²).
- ☐ Obese (BMI more than 30 kg/m²).

4- Number of days per week you perform physical activity:

- ☐ 1-2 days.
- ☐ 3-4 days.
- ☐ 5-6 days.
- ☐ 7 days.
- ☐ No physical activity.

5- The time spent on physical activity/day:

- ☐ 10-30 min/day.
- ☐ 30-60 min/day.
- ☐ 1 hr/day.
- ☐ No physical activity.

6- Where do you exercise?

- ☐ At home.
- ☐ At gym.

7- Type of physical activity:

- o Walking/jogging or running.
- o Aerobic exercises.
- o Muscle building.
- o Playing football.
- o Riding bicycle.
- o Non specific.

8- Do you think that the physical activity effect your academic performance?

- o No.it does not change anything.
- o Yes, it increases my academic performance.
- o Yes.it decrease my academic performance.

9- What do you think about physical activity during study of medicine?

- o Appropriate.
- o Inappropriate.

10- Why do you exercise?

- o To reduce weight.
- o To be fit and healthy.
- o To relive stress, depression and acquire positive energy.

11- What are the barriers that prevent you from doing physical activity?

- o Lack of time.
- o Academic pressure.
- o Habits (ex: sleeping, hang out, etc).
- o Not interested.
- o Find exercise boring.