

Physical activity among medical students of university sultan zainal abidin (UniSZA), Malaysia

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Abstract

Introduction: Physical activity is considered as one of the best way by which we can keep our body active and disease free. Medical college students have to cope up with the stress and demands of the medical education. Therefore, this study was undertaken to assess the physical activities during the last 7 days among the medical students in UniSZA.

Objectives: To describe the physical activities during the last 7 days among the medical students of UniSZA and compare them according to gender and different study years.

Materials and Methods: A cross-sectional study was carried out among all medical students (from Year 1 to Year 5) of UniSZA.

Results: Of the 310 successfully distributed, a total of 238 completed questionnaires were received, indicating a response rate of 76.8%. From a total of 238 respondents, 69(29.0%) were males and 169(71.0%) were females. The ratio for gender male to female of medical students of UniSZA is 3:7. From the data, Year 1 respondents were 44 students (18.5%) out of 60 students, Year 2 were 52 students (21.8%) out of 64 students, Year 3 were 46 students (19.3%) out of 60 students, Year 4 were 40 students (16.8%) out of 62 students and 56 students (23.5%) out of 65 students for Year 5. For the past seven days, 109 students (45.8%) did vigorous activity. More than half of the students (59.2%) did moderate activity and 97 students (40.8%) did not. Meanwhile, for walking at least 10 minutes per day, 224 walked and 14 did not. As for sitting, 182 respondents chose Yes and 55 respondents chose No.

Conclusion: Implication of this study suggest that within this population, in the time diary provided (last 7 days) satisfied the recommendation on physical activity by WHO. There is a need to provide an enabling environment for promoting the physical activity amongst them so that can inculcate the same in their patients.

Keywords: Physical activities, Walking, Running, Moderate, Vigorous.

Introduction

It is known fact that a decrease in the physical activity is associated with various chronic diseases.¹ Physical activity is defined as any bodily movement produced by skeletal muscles that require energy expenditure. Physical inactivity has been identified as the fourth leading risk factor for global mortality causing an estimated 3.2 million deaths globally according to World Health Organisation(WHO).¹ Physical activity has been classified in three categories vigorous physical activity, moderate intensity and low intensity.² The American Heart Association together with WHO and the American College of Sport Medicine (ACSM) unanimously recommend 30 minutes of moderate-intensity physical activity 5 days per week or 20 minutes of vigorous-intensity physical activity 3 days per week for all adults.³ The WHO highlights that every activity that lasts more than 10 minutes is beneficial.²

Malaysia is in the midst of obesity epidemic, with almost half the county overweight or obese. New figures show that almost 18% of the country, or more than five million people, can be classed as obese. A further 30% are overweight. Twenty years ago, only 4.4% of Malaysians were considered obese. A decade later that had jumped to 14%.³

University students typically have a busy schedule with their academic, extracurricular activities, work and social lives, which is a primary contributing factor relating to the decline of physical activity, and additionally creates great stress for meeting high academic standards, which in turn can create various psychological complications.⁴ Epidemiological evidence indicates that the level of physical activity declines from high school to college, and activity patterns in college populations are generally insufficient to improve health and fitness. To be specific, only 38% of college students participate in regular vigorous activity and only 20% participate in regular moderate activity.⁵

Prior studies have shown that 60% of college students do not on average accumulate the recommended amount of physical activity for an adult and are unaware that adults should exercise five days a week for 30 minutes at moderate intensities in order to achieve maximum health benefits.⁶

Physical inactivity tends to increase during aging process with the most dramatic increase occurring in late adolescence and early adulthood. Recently, university students have demonstrated the propensity for being physically inactive.⁷ One study of vigorous physical activity (VPA) found 56% of college freshmen who had been vigorously active during their senior year of high school

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<http://doi.org/10.18231/IJFCM.2019.029>

were no longer engaging in vigorous amounts of physical activity.⁸⁻¹⁰ Overall, vigorous activity tends to decline from adolescence to adulthood.¹⁰⁻¹³

With this background in mind, the current study was designed to assess the physical activities during the last 7 days among the medical students in UniSZA.

Materials and Methods

Study design and study participants

A cross-sectional study was carried out among all medical students (from Year 1 to Year 5) of UniSZA.

Study instruments

Each student was interviewed by using the validated International Physical Activity Questionnaires (IPAQ) comprising a set of 7 items. Verbal consents will be taken from all respondents prior to the interview. All interviewees will be explained in details about full description of the research, confidentiality and voluntary participation. Those who do not want to participate in the study will be excluded in this study.

Data Analysis and statistical application

Data entry and analysis was done using SPSS version 22. Descriptive statistics was applied such as frequency (%) for categorical data and mean (SD) for numerical data.

Limitations

The number of respondents were relatively small. The main study limitations included its cross-sectional nature and the possibility of self-report biases. Further research is

warranted to expand the study nationally and determine which factors influence physical activity.

Results

Of the 310 successfully distributed, a total of 238 completed questionnaires were received, indicating a response rate of 76.8%. From a total of 238 respondents, 69(29.0%) were males and 169(71.0%) were females. The ratio for gender male to female of medical students of UniSZA is 3:7. From the data, Year 1 respondents were 44 students (18.5%) out of 60 students, Year 2 were 52 students (21.8%) out of 64 students, Year 3 were 46 students (19.3%) out of 60 students, Year 4 were 40 students (16.8%) out of 62 students and 56 students (23.5%) out of 65 students for Year 5.

For the past seven days, 109 students (45.8%) did vigorous activity. More than half of the students (59.2%) did moderate activity and 97 students (40.8%) did not. Meanwhile, for walking at least 10 minutes per day, 224 walked and 14 did not. As for sitting, 182 respondents chose Yes and 55 respondents chose No (Table. 1).

Statistical tests used are Independent T test for gender comparison and One-Way ANOVA for year of study comparison. Parametric test are chosen as the sample size is large (more than 30 participants), although the graph is skewed to the right. Levene's test was performed for Independent T test to check for variance equality. For One-Way ANOVA, post hoc analysis were made due to significant value for Year 1 and Year 2 (Table 2, 3).

Table 1: Physical activities during the last 7 days among the medical students in UniSZA (n =238)

Variables	Frequency (%)	Median (IQR)
Year of study		
Year 1	44(18.5)	
Year 2	52(21.8)	
Year 3	46(19.3)	
Year 4	40(16.8)	
Year 5	56(23.5)	
Age		22.00(2.00)
Gender		
Male	69(29.0)	
Female	169(71.0)	
If Yes, how many hours did vigorous physical activities on one of those days (n = 109)		1.00(2.00)
If Yes, how many minutes did vigorous physical activities on one of those days (n = 109)		60.00(90.00)
Did moderate physical activities during the last 7 days		
Yes	141(59.2)	
No	97(40.8)	
If Yes, how many days per week did moderate physical activities (n = 141)		3.00(3.00)
If Yes, how many hours did moderate physical activities on one of those days (n = 141)		1.00(2.00)
Spent sitting on a week day during the last 7 days		5.50(3.00)
Yes	182(76.5)	
No	55(23.1)	
If Yes, how many hours per day spent sitting (n =182)		6.00 (6.00)

Comparison by gender

We compared responses of the study by revealing the intensity of physical activity done by male and female. This study shows females are more likely to get involve in physical activity compared to males for the past seven days. However, it is not significant according to Independent T test values (Table 2).

Table 2: Comparison of the physical activities between male and female medical students in UniSZA (n= 238)

Variables	Mean (SD)		Mean difference (95% CI)	t statistics (df)	p-value*
	Male	Female			
How many days per week did vigorous physical activities (n = 109)	2.72 (1.43)	2.64 (1.78)	0.08 (-0.58, 0.73)	0.226 (107)	0.822
How many hours did vigorous physical activities on one of those days (n = 109)	1.20 (0.74)	5.53 (19.95)	-4.33 (-9.09, 0.433)	-1.814 (69.335)	0.074
How many minutes did vigorous physical activities on one of those days (n = 109)	71.78 (44.08)	81.29 (68.10)	-9.50 (-33.54, 14.53)	-0.784 (107)	0.435
How many days per week did moderate physical activities (n = 141)	3.36 (2.06)	3.01 (1.71)	0.35 (-0.35, 1.06)	0.994 (70.849)	0.323
How many hours did moderate physical activities on one of those days (n = 141)	7.93 (24.93)	10.06 (28.61)	5.00 (-12.02, 7.76)	-0.425 (139)	0.325
How many minutes did moderate physical activities on one of those days (n = 141)	77.84 (49.62)	61.75 (58.80)	10.20 (-4.09, 36.25)	1.577 (139)	0.759
How many days spent walking for at least 10 minutes at a time (n = 222)	5.39 (1.95)	5.90 (7.64)	-0.51 (-2.45, 1.43)	-0.521 (220)	0.603
How many hours spent walking on one of those days walking (n = 223)	13.72 (33.14)	11.98 (31.01)	1.74 (-7.57, 11.05)	0.368 (221)	0.713
How many minutes spent walking on one of those days (n = 223)	69.80 (103.63)	66.30 (100.29)	3.50 (-26.29, 33.29)	0.232	0.817
How many hours per day spent sitting (n=182)	9.75 (13.55)	6.96 (4.53)	2.79 (-1.06, 6.64)	1.452 (55.623)	0.152
How many minutes per day spent sitting (n=182)	472.38 (300.32)	417.46 (271.89)	54.93 (-35.81, 145.66)	1.194 (180)	0.234

*Independent t-test

Comparison by year of study

One-Way ANOVA was used to compare the study years. There was a significant value between Year 1 and Year 2 at the $p < 0.05$ for the three conditions [$F(4,104) = 2.522$, $p = 0.045$]. Year 1 ($M = 3.69$, $SD = 1.92$) and Year 2 ($M = 2.12$, $SD = 1.92$) (Table 2)

Table 3: Comparison of the physical activities among medical students with different study years at UniSZA

Variables	Frequency (%)					X ² (df)	P value*
	Year 1	Year 2	Year 3	Year 4	Year 5		
Did vigorous physical activities during the last 7 days	16(14.7)	25(22.9)	23(21.1)	19(17.4)	26(23.9)	3.248(4)	0.517
Did moderate physical activities during the last 7 days	30(21.3)	33(23.4)	30(21.3)	19(13.5)	29(20.6)	4.071(4)	0.396
Walked for at least 10 minutes at a time during the last 7 days	43(19.2)	52(23.2)	42(18.8)	36(16.1)	51(22.8)	3.991(4)	0.407
Spent sitting on a week day during the last 7 days	32(17.6)	39(21.4)	40(22)	32(17.6)	39(21.4)	1.791(4)	0.774

*Pearson's chi-square goodness-of-fit

Discussion

From the study, percentage on moderate-intensity physical activity was higher compared to vigorous-intensity physical activity. It might be due to lacking in facilities and services related to vigorous physical activity while moderate physical activity is easier to be done.¹⁴

The results showed significant differences between physical activities between male and female according to vigorous, moderate, walking and sitting. Regarding the difference in study years, the results showed significant differences only in between Year 1 and Year 2 and no significant difference across other study years.

Most investigators report higher rates of inactivity in women compared to men, with 10-37% of the college-aged men and 22- 48% of the college-aged women reporting no physical activity in the past month.⁷ Women were significantly more likely than men to report participation in aerobics and moderate activities such as walking.⁸ Male students were significantly more physically active than their female counterparts when assessed by days per week spent engaged in aerobic exercise and strength training. Male students also reported significantly higher levels of overall screen time and television viewing, whereas female students reported significantly higher levels of time spent engaged in homework.⁹ New findings showed that 49% of women and 44% of men in Malaysia were found to be obese.¹⁰

Comparison between gender

In vigorous activity, female presented slightly higher in frequency of day and quite significantly greater in time spent per day compared to male. Regardless of the gender, it satisfied the recommendation governed by WHO to spend at least 75 minutes of vigorous-intensity aerobic physical activity throughout the week.¹⁵

As for moderate activity, male indicated slight higher for regularity of day but female showed higher in time spent per day. Both genders fulfil the recommendation that adults aged 18–64 years should do at least 150 minutes of moderate-intensity aerobic physical activity throughout the week.¹⁶

No suggestive difference in time spent for walking between genders. It may be due to the same factor which is route distance between their college and campus that students need to go through daily regardless of their gender.

Male suggested greater time spent in sitting compared to female. This result may suggested that because male spent more of their time sitting to play games on leisure time. It corresponded to previous findings which proposed female play fewer games than male because they are required to fulfil more obligatory activities, leaving them less available leisure time, which in turn makes them less likely to “make” time for games.¹⁷

Overall from all type of physical activities, female students showed more physically active than male. This may relate to previous findings,¹⁸ that concluded females are more concern about their physical appearance and body weight.^{19, 20}

Comparison between study years

From the result, there was significantly difference in vigorous physical activities between Year 1 and Year 2. Year 1 students did more vigorous physical activities due to less commitment for examination compared to Year 2 that needed to sit for Professional Examination. Thus Year 1 students have more free and leisure time to spend on doing physical activity.

There was no significant difference between Year 3, Year 4 and Year 5 students since these three groups of students are in the clinical phase of study. They shared

almost the same pattern of schedule thus no such big differences between each.

Conclusion

University students are continuously challenged by choosing between all kinds of activities (including physical and sedentary activities). Depending on their time schedule, a certain amount of self-discipline is needed to be physically active and not to engage in convenient sedentary activities.

Source of Funding

None.

Declaration of Interests

None.

Conflicts of Interest

None.

Ethical Approval

The study protocol was approved by the University Human Research Ethics (UHREC), UniSZA: UniSZA.N/1/TD2/628-1 (31).

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How to cite this article: Shetty CK, Aung MMT, San San OO, Simbak N. Physical activity among medical students of university sultan zainal abidin (UniSZA), Malaysia. *Indian J Forensic Community Med* 2019;6(3):125-9.