

EXPLORING PARTICIPATION OF IIUM KUANTAN STUDENTS IN WALKING AS A PHYSICAL ACTIVITY

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ABSTRACT

Introduction: Walking is one of the physical activities that benefits people of all ages. The main objective of this study is to determine the participation in walking among IIUM Kuantan students and comparison with other physical activities. **Method:** The study was conducted by distributing an online google form questionnaire to all undergraduate IIUM Kuantan students via an online survey. 80 of the respondents participated in the study based on inclusion and exclusion criteria. **Result:** The outcome of the research regarding frequency and duration of walking was within average number of 5 days per week and 30 minutes duration per day. **Conclusion:** The adherent to simplest physical activity such as walking needs to be empowered to ensure the long-term applicability and benefits. However, the gender differences portrayed no significant difference between male and female respondents in walking activity. In terms of physical activity, walking was found to have the highest participation among IIUM students as compared to moderate and vigorous physical activity.

Keywords: walking, physical activity, IIUM Kuantan

INTRODUCTION

University or college as a centre of knowledge is a place where students supposed to develop healthy habits. Nevertheless, majority of students exhibit a decrease in motivation for physical activity as soon as their age increases. This is commonly occurred among university students due to their preoccupation with daily tasks and less motivation to exercise (Alkhateeb et al., 2019). During the Coronavirus disease 2019 (COVID-19) pandemic era, most of the learning activities were conducted online thus limit the student's involvement in any physical activity. Even before the pandemic, there was strong evidence that most children and adolescents, specifically school-going adolescents aged 11–17 years, in many countries do not participate in sufficient physical activity (Bronikowska et al., 2021). According to Kanniyan (2015), walking is the most natural activity and the only sustained dynamic aerobic exercise, common to all. There is no need for any special knowledge or equipment. Any frequency of walking at any pace will expend energy and provide benefits mentally and physically. Hence, the younger generation is encouraged to include walking activities in their daily routine as the simplest form of exercise than any other physical intervention to keep healthy. Therefore, this research study aimed to determine the participation in walking as a physical activity among IIUM Kuantan students compared to the other physical activities. This endeavour is considered as vital to achieving this objective as there are numerous benefits to be gained just by walking instead of enhancing the students' motivation to engage with physical activity and not just focusing on academic matters alone.

MATERIALS AND METHODS

Study Design

The study design was a cross-sectional study. The participants in the cross-sectional study were selected based on the inclusion and exclusion criteria.

Subjects

The study was conducted at the International Islamic University Malaysia (IIUM) in Kuantan, Pahang Darul Makmur. The study consisted of undergraduate students of IIUM Kuantan. The inclusion criteria of the study were Year 1 to Year 4 undergraduate students from the six Kulliyah age 18 years old and above. The students with walking difficulty or other lower limb deformity were excluded from the study.

Ethical Consideration

The study was approved by the Kulliyah Postgraduate and Research Committee (KPGRC: KAHS98/22). The subject acknowledged that they have the right to withdraw from the study at any time. The result of the study is kept confidential and not to be disclosed unless required by the law.

Sample Size Calculation

The sample size was calculated using a single proportion formula, with a confidence interval of 95% and an expected proportion of 29.4% of walking adults (Fitzhugh & Thompson, 2009). The precision in the study was 10%. Withdrawal of participants from the study was expected and an additional 10% for incomplete data was added to the sample size.

The formula is as below with:

- $Z = 1.96$ ($\alpha = 0.05$, at 95% CI)
- $p = 0.294$, mean for adult walking for leisure time physical activity (Fitzhugh & Thompson, 2009)
- $q = 1 - p$
- $\Delta = 0.10$ (precision 10%)
- $n = (Z\alpha/\Delta)^2 (p)(q)$
- $n = (1.96/0.10)^2 (0.294) (1-0.294)$
- $n = 79.7378$
- $n = 79.7378 + 10\%$ (possible error)
- $n = 79.8378$
- $n \approx 80$

From the sample size calculation, the sample size for this study was about 80 students.

Sampling Method

The sampling method that was used in this study was convenience sampling. The data was collected by using an online google form questionnaire that consists of four sections which are the participant information sheet, informed consent form, demographic data, and International Physical Activity Questionnaire (IPAQ). The questionnaire from Van der Ploeg et al., 2010 was distributed among the undergraduate students of IIUM Kuantan from Year

1 to Year 4 through social media platforms such as WhatsApp and Instagram. The English language was used and divided into 2 parts:

- a) Demographic data include age, gender, study program, department and year of study were recorded.
- b) Short-Form International Physical Activity Questionnaire (SF-IPAQ)

IPAQ measures the number of days and duration of PA that was conducted for at least ten minutes each time at vigorous intensity, moderate intensity, and walking during the last seven days, respectively. Here, PA at vigorous intensity refers to those that make hard effort to conduct and make people “breathe much harder than normal”. For instance, heavy lifting and fast bicycling. PA at moderate intensity refers to those that take moderate effort and make people “breathe somewhat harder than normal” moderate PA include carrying light loads and swimming at a regular pace. Walking is evaluated separately from PA at vigorous and moderate intensity in IPAQ but is generally considered low to moderate intensity. This paper focused on data collection from walking items in the IPAQ short form which assesses the frequency and duration of walking in the past 7 days. The respondents need to report the frequency and duration of participating in moderate-intensity and vigorous-intensity physical activity.

Statistical Analysis

The statistical analysis was done using the Statistical Package for the Social Science (SPSS) version 22 for Windows. Demographic data was analyzed by using descriptive statistics. Frequency and duration of walking activity, comparison with other physical activities and gender differentials was studied and reported using descriptive statistics and inferential statistics respectively. The parametric test of paired samples t-test was used to compare participation in walking with moderate and vigorous physical activity.

RESULTS

Demographic data

The total respondents were 83 in the research. The characteristics of the respondents are presented in Table 4.1. A total of 83 students aged 19-23 years old voluntarily participated in this study with no missing data. The mean age of the participants was 21.02 ± 1.288 years old. There were 73.5% of female and 26.5% of male participants in this study respectively. Most of the respondents were students of Year 4 with 45.8% followed by Year 1, 3 and 2 with 22.9%, 19.3% and 12% each respectively. Among the respondents, 36.1% were from Kulliyyah of Allied Health Sciences (KAHS), 27.7% from Kulliyyah of Pharmacy (KOP), 16.9% from Kulliyyah of Nursing (KON), 9.6% from Kulliyyah of Sciences (KOS), 7.2% from Kulliyyah of Dentistry (KOD) and 2.4% from Kulliyyah of Medicine (KOM).

Table 4.1: *Characteristics of the participants (n = 83)*

Variable	Frequency	Percentage (%)
Genders:		
Male	22	26.5
Female	61	73.5

Age:		
19	17	20.5
20	11	13.3
21	13	15.7
22	37	44.6
23	5	6.0
Year of study:		
1	19	22.9
2	19	12.0
3	16	19.3
4	38	45.8
Kulliyah:		
KAHS	30	36.1
KOD	6	7.2
KOM	2	2.4
KON	14	16.9
KOP	23	27.7
KOS	8	9.6

Frequency and Duration of Walking

The one-week frequency of walking in the current study was analyzed using descriptive statistics. The data of the respondents are presented in Table 4.2. The results demonstrated weekly participation in walking varied among the respondents. Most of the respondents were walking for seven days or the whole week (37.3%). Only 3.6% were involved in walking for six days, 19.3% for five days and 9.6% for four days in a week. There was participation of 15.7% walking for three days, 4.8% and 8.4% for two days and a day each respectively. Among the respondents, only 1.2% were not engaged in walking in a week, and Table 4.3 shows the mean score for walking frequency by the respondents which is 4.83 ± 2.088 . From this data, it can be concluded that the frequency of walking is approximately 5 days per week. Out of 83 respondents, the highest day participated in walking, which is seven days was obtained by 31 respondents while the lowest zero-day was obtained by one participant.

Table Error! No text of specified style in document..1: *Descriptive statistics for walking frequency (day) per week of the respondents (n = 83)*

Days of Walking	Frequency (n)	Percentage (%)
0	1	1.2
1	7	8.4
2	4	4.8
3	13	15.7
4	8	9.6
5	16	19.3
6	3	3.6
7	31	37.3

Table Error! No text of specified style in document..2: Mean score of walking frequency (n = 83)

Variable	Mean score of Walking Frequency (Days)	Standard Deviation
Days of Walking	4.83	2.088

Table 4.4 shows the descriptive statistics for duration of walking per day among the respondents. Among the respondents, the walking duration of 30 minutes per day has the highest percentage of participants which is 20.5%, followed by 19.3% for 60 minutes duration and 9.6% for 10,15 and 120 minutes of walking duration. For 20 minutes duration, there are 8.4% of respondents and 6.0% for 45 minutes. Besides, there are 4.8% for 40 minutes duration, followed by 3.6% for 90 minutes and 2.4% for 50 and 180 minutes of duration. Finally, there are 1.2% for 300-, 25- and 0-minutes durations of walking each respectively. Since the data is not normally distributed, the results are reported using the median score and interquartile range. The median score of walking duration per day is shown in Table 4.5 which is, 30.00 ± 40.00 minutes. Out of 83 respondents, the duration of 30 minutes has the highest respondents, which is 17.

Table Error! No text of specified style in document..3: Descriptive statistics for duration of walking per day of the respondents (n = 83)

Duration of Walking (Minutes)	Frequency (n)	Percentage (%)
0	1	1.2
10	8	9.6
15	8	9.6
20	7	8.4
25	1	1.2
30	17	20.5
40	4	4.8
45	5	6.0
50	2	2.4
60	16	19.3
90	3	3.6
120	8	9.6
180	2	2.4
300	1	1.2

Table Error! No text of specified style in document..4: Median score of walking duration (n = 83)

Variable (n)	Median score of walking duration (Minutes)	Interquartile Range
Duration of walking (300)	30.00	40.00

Comparison Between Males and Females in Walking

In terms of walking frequency

The result of analysis comparing both genders regarding walking frequency per week is shown in Table 4.6. The one-week walking frequency was analyzed using independent samples t-test. According to Levene's test, this data meets the assumption of having equal variance ($p = 0.846$). From the statistical analysis, the comparison of p-value was done with the significance level (α) for 95% confidence level. The p-value for walking frequency was more than α ($p > 0.05$) where the null hypothesis cannot be rejected. Thus, there are no significant differences in the mean of walking frequency between males and females ($p = 0.613$) even though females have a slightly higher frequency than males.

Table Error! No text of specified style in document..5: Comparison of walking frequency between males and females using independent t-test ($n = 83$)

Variable	Males (n=22)		Females (n=61)		Mean differences (95% CI)	t- statistics (df)	p- value
	Mean	SD	Mean	SD			
Walking frequency (Days)	4.64	2.105	4.90	2.095	-.265 (-1.303,0.773)	-.058 (81)	.613

In terms of walking duration

The result of the analysis comparing both genders regarding walking duration per week was analyzed using the Mann-Whitney Test since the data is not normally distributed. According to Levene's test, this data meets the assumption of having equal variance ($p = 0.754$). However, normality distribution is not assumed for both groups, males and females. Thus, we can only report the results using median score. The walking duration was varied among respondents and Table 4.7 shows the median score and interquartile range for males and females which is 150.00 ± 371 and 200.00 ± 255 each respectively. Since the p-value a ($p > 0.05$), the null hypothesis cannot be rejected. Thus, there is no statistically significant difference between males and females even though the median score for female students was 200.00 ± 371 , which was higher than male students, 150.00 ± 255 ($U = 610.500$, $p = 0.532$).

Table Error! No text of specified style in document..6: Comparison of walking duration per week between males and females using Mann-Whitney test ($n = 83$)

Variable	Male Median (IQR) (n= 22)	Female Median (IQR) (n= 61)	p-value
Walking duration (minutes)	150.00 (371)	200.00 (250)	0.532

Table Error! No text of specified style in document..7: *Test statistics for walking duration (n = 83)*

Walking Duration (Minutes)	
Mann-Whitney U	610.500
Wilcoxon W	863.500
Z	-.625
Asymp. Sig. (2-tailed)	.532

Comparison Between Participation in Walking with Moderate and Vigorous Physical Activities Among IIUM Students

The comparison between participation in walking with other physical activities was analyzed using paired samples t-test to explore the differences between two numerical data: walking with vigorous physical activity and walking with moderate physical activity.

The statistical analysis is shown in Table 4.10 and Table 4.11. The p-value was compared with the significance level (α) for a confidence level of 95%. Based on the result, there is a significant difference between participation in walking with vigorous and moderate physical activity since p-value <0.001.

Based on the results, walking activity has the highest mean score (262.17 ± 303.034) compared to moderate (96.89 ± 143.388) and vigorous physical activity (66.69 ± 101.757). Even though there is a significant difference between participation in walking with other physical activities, moderate PA demonstrated higher mean of duration compared to vigorous PA. Therefore, it can be concluded that walking activity possesses the highest participation among IIUM students compared to moderate PA and vigorous PA while moderate PA has more participation compared to vigorous PA.

Table Error! No text of specified style in document..8: *Comparison between participation in walking and vigorous physical activity by using paired samples t-test (n = 83)*

Variable	Walking Activity		Vigorous Physical Activity		Mean difference (95% of CI)	t-statistics (df)	p-value
	Mean	SD	Mean	SD			
Duration (Minutes)					195.482	5.621 (82)	<0.001
	262.17	303.034	66.69	101.757	(126.295, 264.669)		

Table Error! No text of specified style in document..9: *Comparison between participation in walking and moderate physical activity by using paired samples t-test (n = 83)*

Variable	Walking Activity		Moderate Physical Activity		Mean difference (95% of CI)	t-statistics (df)	p-value
	Mean	SD	Mean	SD			

Duration (Minutes)	Mean	SD	Mean	SD	165.277	4.508 (82)	<0.001
	262.17	303.034	96.89	148.388	(92.349, 238.205)		

DISCUSSION

The respondents demonstrate walking frequency of approximately 5 days per week on average. 30-minutes walking duration is the average of participation among respondents. The students may practice walking for different purposes, and it mainly combined with leisure, study, transport, or work activities. The current results are probably due to walking is one of the easiest with great benefits of physical activities to do for leisure compared to the other physical activities. According to a study by the Sport Sciences for Health, walking is acknowledged as a sustainable type of exercise that may be performed without an expert's teaching, opening the door to the possibility of public health promotion (Wang & Boros, 2020). Besides, the preference for walking is because it can be done independently, costs little, allows the individual to determine the level of intensity, and is done around university area (Doyle et al., 2019). Additionally, weather can become a significant factor. Commonly, the students are more encouraged to walk on a sunny day. However, even though the distance to class or campus is appropriate for walking, students choose to take a bus or a car to avoid walking on rainy days (Ma et al., 2019). Thus, it may affect also affect the weekly frequency of walking especially in a raining or monsoon season.

This study also found that there is no statistically significant difference between males and females regarding participation in walking in terms of frequency and total duration per week. This current study is supported by Azevedo et al. (2017). Men appeared to have higher activity level than women in terms of moderate-intensity, vigorous-intensity, and total-leisure-time physical activity practice but walking was the only activity that have similarity among males and females. Men is more likely to cite fun, challenge, social acceptance, affiliation, competition, and strength and endurance as reasons for exercising. In contrast, women is more on preventing illness, maintaining good health, controlling weight, and appearance (Lauderdale et al., 2015). Both perceptions may be obtained from the benefits of walking. Walking is one of the physical activities that is suitable to be done in groups or in pairs. According to one study, both male and female university students in Canada preferred exercising with others outside of a structured class (Doyle et al., 2019). Both genders may have similar participation in walking due to the tendency of doing physical activities with friends.

The most likely reason walking was the most preferred type is that it is one of the easiest physical activities to perform, easy to maintain the pace, safe, has no cost associated with it, and does not require any special skills or equipment as compared to other physical activities, for instance, cycling. In contrast, other physical activities which are not provided on the campus such as Zumba classes and horse-riding commonly require specific skills where students will need to spend their money to learn from a qualified coach or instructor. Apart from that, another research study in different population stated that 78% of the obese adult preferred low-cost or no-cost PA over paid activities (Baillot et al., 2021). Furthermore, university students are often associated with hectic daily schedules, therefore, walking during leisure time is one of the easiest ways to maintain mental, emotional, and physical

health. Ma et al. (2022) proved that outdoor mindful walking enhanced the trait mindfulness levels, mood and quality of sleep-in university students.

The result from this research study is supported by Alkhateeb et al. (2019) that found the most preferred physical exercise practiced during school and college years was walking with a percentage of 71.7% and 61.6% each respectively. Walking activity has the highest percentage of participants rather than other physical activities such as cardio (28.3%), weightlifting (16.8%) and swimming (14.6%). Similarly, the study from the previous years by the Bureau of Health Promotion, Department of Health (2012), reported that 42% of the Taiwanese population's most preferred choice of physical activity was walking. After all, walking is an activity practiced by many people for many years ago.

CONCLUSION

The study concluded that the frequency and duration of walking among the respondents is five times weekly and 30 minutes per day. There is no significant difference between males and females regarding participation in walking in terms of frequency and total duration per week. There is a significant difference between participation in walking with vigorous and moderate physical activity based on the IPAQ. Improvement and encouragement towards these students to increase their physical activity is still needed. It is imperative to improve not only our physical health but also our mental health.

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