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Objective and Subjective Investigation of Physical Activity Levels and Its Relation with Socio-Demographic Characteristics among Medical Students

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Background: Combining the results of objective and subjective assessments of physical activity (PA) can provide a more complete assessment of PA patterns in medical students. This study aimed to determine the relationships between objective and subjective measured PA and its relation with socio-demographic characteristics among different stages of medical training.

Methods: This cross-sectional study was conducted on 186 students of four stages of medical training. The International Physical Activity Questionnaire Short-Form (IPAQ-SF) and pedometer were used.

Results: There were significant differences in total PA in terms of gender, weight, and serious illness. Differences between four stages of medical training in total ($p = 0.002$), vigorous ($p < 0.001$), and moderate PA (0.026) based on IPAQ-SF as well as pedometer-counted steps in Tuesday ($p = 0.002$) and Wednesday ($p = 0.006$) were significant. The results demonstrated a positive significant relationship between total PA based on IPAQ-SF and pedometer-determined steps in four days of the week.

Conclusion: There were positive low correlations between PA based on IPAQ-SF and pedometer among medical students. The PA of medical students at different years of medical training was different based on both IPAQ-SF and pedometer, which shows the need to pay attention to the special needs of students in terms of PA at each stage.

Key Words: Physical activity, Medical students, Pedometer, IPAQ, Self-report

INTRODUCTION

The beneficial effects of physical activity (PA) on health are widely acknowledged [1]. Enhancement of PA is a key strategy in reducing the burden of non-communicable diseases such as stroke, heart failure, and diabetes [2]. Although there are many studies showing the positive effects of PA on mental health, well-being [3], longevity [4], and quality of life [5], many people in the world have insufficient PA. Physical inactivity is a leading risk factor for global mortality [2].

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PA of students, as future leaders of society, not only affects their health but also plays an important role in the general health of the community [6]. Students undergo a variety of stresses and pressures during the transition process from high school to university, which can affect PA levels in them [7]. Among students in various disciplines, medical students face more challenges including patients' death and suffering, long-term educational period, and frequently rotate among various hospitals in the training system [8,9]. A study conducted in Poland found that medical students had the lowest PA and highest BMI among students in other medical sciences (22% severe, 52% moderate, 26% light PA) [10]. PA in medical students is associated with higher professional efficacy [11] and academic achievement [12].

Some socio-demographic factors can affect the levels of PA [13]. Previous studies have demonstrated an association between PA levels and gender in medical students [14,15]. In addition to gender, weight, stress, and year of study are the predictors of PA in college students [16,17]. PA level is associated with the year of study. In Sri Lanka, PA was significantly related to the academic year of medical training. It was found that students in the third year of study have the least PA [14].

There are various tools for measuring PA levels. Self-reporting of PA such as questionnaires and motion sensors such as pedometers are the most practicable PA measures [18]. The International Physical Activity Questionnaire (IPAQ) was developed in 1998 for self-reported measured PA which assesses people's levels of PA subjectively over the past week [19]. Because of its low cost and ease of administration, researchers often use questionnaires to assess the levels of PA in their studies [18]. The limited answer choices and recall bias in the self-reported instruments are some of the disadvantages which may lead to inaccurate data [20]. A pedometer is used to measure the actual and objective PA which the self-report questionnaires cannot do accurately. It is an affordable motion detector that records the number of steps taken over a period of time [21]. So far, several studies have been conducted to assess PA levels in medical students, often through a questionnaire or pedometer alone. Combining the results of objective and subjective PA assessments gives a more complete assessment of PA patterns [22].

No studies have been conducted before to determine the relationships between self-reported PA, objectively measured PA and socio-demographic factors in medical students. Also, due to the different challenges that medical students face in pre-clinical and clinical years of medical training, this study was designed to compare PA levels among medical stages (Basic Sciences, physiopathology, the clinical clerkship, the internship) according to the objective and subjective measurement of PA (using the pedometer and questionnaire) and agreement between them as well as its relationship with socio-demographic features.

MATERIALS AND METHODS

1. Study design and population

This cross-sectional study was conducted on medical students of Tabriz University of Medical Sciences in 2017-2018. Sampling began after approval by the Ethics Committee of Tabriz University of Medical Sciences (Code: IR.TBZMED, REC, 1396.77). Healthy male and female students were included in the study. Exclusion criteria were as follows: any movement limitations such as musculoskeletal disorders, contraindications for PA such as some physical ailments, participation in a championship sport, and pregnancy or breastfeeding for female students.

First, the total number of students in each stage was obtained from the Medical Education Department (710, 289, 468, 480 students in basic science, physiopathology, clerkship, and internship stages, respectively). Then, 186 students (45 students from three stages and 51 students from the internship stage with an equal sex ratio) were selected using stratified random sampling by online software (www.random.org). Due to the difficulty of accessing students at the internship stage and the possibility of a high drop-out rate, more students were selected from the internship stage. The researcher recruited the students to participate in the study and explained the aims. Students signed a written informed consent form. Participation in the study was anonymous and voluntary.

Admission to medical school in Iran is based on the national university entrance examination (Konkoor) after finishing high school [23]. Medical training in Iran lasts 7 years and is divided into 4 stages: basic science stage that students learn lessons such as biochemistry, anatomy, physiology, immunology, general pathology (including 5 semesters); the physiopathology stage in which internal medicine is taught (including 2 semesters); the clinical clerkship stage, in which students begin their clerkship in the clinical environment (including 4 semesters); the internship stage, which lasts 18 months and consists of 56 courses (including 3 semesters) [9]. Graduating from medical school depends on success in the practical clinical exam.

2. Study instruments

Three instruments were used for data collection: 1) a socio-demographic questionnaire to obtain information on age, gender, marital status, educational stage, BMI (Body Mass Index: was calculated from self-reports of height and weight), parental education and occupation, employment status, place of residence and family income. 2) A pedometer for objective assessment of participants' PA levels. It is a simple and inexpensive device that measures the amount of movement of a person directly by counting the number of steps taken throughout a given period of time (usually per day) [24]. The validity and reliability of this tool were confirmed by Bassett et al. [25]. The Asaklit pedometer (China) was selected for use in this study. We instructed students on how to use the pedometer according to the manufacturer's guidelines. It was attached to the subjects' belt or waistband on the dominant foot (right or left). Participants wore a pedometer for 7 consecutive days except while sleeping or bathing. At the end of each day, before going to bed, we asked participants to record the number of steps taken per day on a log given to them. Each night text messages were sent to remind participants to record the number of steps. Students were instructed to reset the device to zero each morning. 3) IPAQ-Short Form (IPAQ-SF) is a self-administrated tool for assessing PA and its levels in individuals during a typical 7-day period. The short version has 7 questions that measure different types of PA, including vigorous, moderate, and mild. Activity counts were presented in the metabolic equivalents (METs). One MET is a unit for estimating energy expenditure during rest. The PA score for each vigorous, moderate, and mild PA was calculated in MET-minutes per week. Mild PA is equal to 3.3 METs, moderate PA is equal to 4 METs, and vigorous PA is equal to 8 METs. Students' PA was categorized into three ranges of intensity: vigorous (8.0 METs), moderate (4.0 METs), and mild PA (3.3 METs), which were calculated using the following formula: MET level × minutes of activity/day × days per week. The sum of mild, moderate, and vigorous PA was considered as total PA [10,19]. In this study, we classified PA below 600 MET•min/week, 600-3000 MET•min/week, and greater than 3000 MET•min/week as mild, moderate, and sever activity respectively. The reliability of the Persian version of this questionnaire was reported in the study of BashiriMoosavi et al. with a correlation coefficient of 0.86 [26]. The validity and reliability of this tool have been assessed by Craig et al. in 12 countries [19].

3. Statistical analysis

Data were analyzed using SPSS/Ver 23. $p < 0.05$ was considered statistically significant. The Kolmogorov-Smirnov test was applied to assess the distribution of the quantitative data. Descriptive statistics including frequency, percentage, median (minimum, maximum), and median (range) were employed to express the data. Bivariate tests such as Spearman Rho correlation coefficient, Mann-Whitney, and Kruskal-Wallis were used to determine the relationship of PA with socio-demographic variables. A Kruskal Wallis Test was used to determine the relationship between quantitative PA (severe, moderate, mild) and steps per day with the educational stage. A Chi-square test was used to compare the groups in terms of frequency of vigorous, moderate, and mild PA. Spearman correlation test was used for investigating the relationship between pedometer-determined PA (steps per day) and total PA based on IPAQ-SF.

RESULTS

Socio-demographic characteristics of medical students were indicated in Table 1. The mean (SD) age and BMI were 22.6 (2.8) years and 23.7 (10.4) kg/m^2. The gender ratio was 1:1, and 88% of students were single. There were significant differences in total PA of medical students in terms of gender ($p < 0.001$), weight ($p = 0.009$), serious illness ($p < 0.014$), and educational stages ($p < 0.001$) (Table 1).

Table 1. Socio-demographic characteristic of medical students and its relationship with physical activity (N = 186)

Socio-demographic characteristics	No. (%)	Physical activity median (range)	p
Age/mean (SD)	22.6 (2.8%)	r = −0.006	0.943*
Gender			< 0.001†
Male	93 (50.0%)	2431.5 (19998)	
Female	93 (50.0%)	1182 (30879)	
Marital status			0.154†
Single	162 (88%)	1732.5 (30879)	
Married	12 (22%)	1155.7 (5544)	
Educational grade			< 0.001‡
Basic sciences	45 (24.2%)	2445 (7893)	
Physiopathology	45 (24.2%)	870.7 (4158)	
Clinical clerkship	45 (24.2%)	1481.2 (5683.5)	
Internship	51 (27.4%)	1794 (39879)	
Weight (kg)/m (SD)	67.4 (12.6%)	r = 0.214	0.009*
BMI (kg/m^2)/m (SD)	23.7 (10.4%)	r = 0.051	0.543*
Underweight (< 18.5)	17 (9.9%)	3358.5 (5683.5)	0.096
Normal (18.5-24.9)	123 (71.9%)	1186.5 (19998)	
Overweight (25-29.9)	28 (16.4%)	1231.2 (6024)	
Obese (≥ 30)	3 (1.8%)	4906 (3559.5)	
Employment			0.112†
Yes	9 (5.4%)	2365.5 (6784.5)	
No	159 (94.6%)	1550.5 (19998)	
Inhabitant			0.105‡
Dormitory	48 (26.1%)	1182 (7626)	
Parent's home	93 (50.5%)	1550.5 (7893)	
Personal	22 (12.0%)	1455 (19998)	
Leased	20 (10.9%)	2735.2 (5040)	
Depression history			0.973†
Yes	7 (3.8%)	1786.5 (6024)	
No	178 (96.2%)	1611.0 (30879)	
Family history of depression			0.685†
Yes	15 (8.2%)	1485 (6024)	
No	169(91.8%)	1732.5 (30879)	
Father's education			0.950‡
Primary-secondary	8 (4.3%)	1546.5 (4239)	
Diploma	31 (16.8%)	1786.5 (6933.05)	
University	145 (78.8%)	1550 (19998)	
Mother's education			0.730‡
Primary-secondary	17 (9.2%)	1786.5 (7626)	
High school-diploma	48 (26%)	1455.0 (6933)	
University	119 (64.7%)	1717.5 (19998)	
Father's occupation			0.456‡
Unemployed	2 (1.1%)	3885 (0.0)	
Employee	88 (47.8%)	1546.5 (7893)	
Self-employment	54 (29.3%)	1477.5 (19998)	
Others	40 (21.7%)	1786.5 (6024)	
Mother's occupation			0.546†
House keeper	99 (54.7%)	1639.5 (7893)	
Occupied	82 (45.3%)	1717.5 (19998)	
Income			0.235†
Sufficient	113 (63.1%)	1786.5 (7893)	
Somehow sufficient and insufficient	66 (36.9%)	1380.7 (19998)	

Table 1. Continued

Socio-demographic characteristics	No. (%)	Physical activity median (range)	p
Death of loved ones			0.635†
Yes	5 (2.7%)	1346.5 (5685)	
No	179 (97.3%)	1664.2 (30879)	
Serious illness			0.014†
Yes	15 (8.2%)	3999 (6933)	
No	167 (91.8%)	1548.5 (30879)	
Stressful events			0.176†
Yes	34 (18.6%)	2365.5 (6024)	
No	149 (81.4%)	1477.5 (19998)	
Examinations period			0.110†
Yes	69 (38.3%)	1786.5 (19998)	
No	111 (61.7%)	1466.2 (30879)	
History of mood disorders			0.110†
Yes	7 (3.8%)	346.5 (462)	
No	177 (96.2%)	1732.5 (30879)	

SD: Standard deviation.
*Pearson correlation coefficient, †Mann-Whitney, ‡Kruskal-Wallis.

Table 2. Comparison the frequency of physical activities (vigorous, moderate, mild) basedon IPAQ-SF between medical students in different educational stages (N = 186)

Physical activity	Categories	Basic science	Physiopathology	Clinical clerkship	Internship	Total	p*
		n (%)					
Vigorous	Positive	36 (80%)	12 (26.7%)	22 (48.9%)	21 (41.2%)	91 (48.9%)	< 0.001
	Negative	9 (20%)	33 (73.3%)	23 (51.1%)	30 (58.8%)	95 (51.1%)	
Moderate activity	Positive	26 (57.8%)	9 (20.0%)	20 (44.4%)	26 (51%)	81 (43.5%)	0.002
	Negative	19 (42.2%)	36 (80.0%)	25 (55.6%)	25 (49%)	105 (56.5%)	
Mild activity (walking)	Positive	45 (100%)	45 (100%)	45 (100%)	51 (100%)	186 (100%)	-
	Negative	-	-	-	-	-	

Physical activity level less than 600 METs-min/week: low physical activity, between 600-3000: moderate physical activity, and more than 3000: vigorous physical activity.
*Chi-square test.

The frequency of PA based on IPAQ-SF in two categories of vigorous (< 0.001) and moderate was significantly different among medical students in different educational stages (0.002). The most vigorous (80%) and moderate (57.8%) PA during the past week was related to basic science and the least (vigorous: 26.7%, moderate: 20.0%) to physiopathology stages. All students stated that they had mild PA (walking) during the past week (Table 2).

The median (min, max) of total PA according to IPAQ-SF among medical students was 1725 (346.5, 31225.5) MET min/week. There was a statistically significant difference between the four groups of students in terms of total (p = 0.002), vigorous (p < 0.001), and moderate PA (346.5, 8239.5)]. The highest median (min, max) of PA was related to basic science [2445 (346.5, 8239.5)] and the lowest to physiopathology [935 (346.5, 11208.0)] (Table 3).

There were significant differences between pedometer-counted steps of medical students in different educational stages in Tuesday (p = 0.002) and Wednesday (p = 0.006). The most median (min, max) of steps [9085.5 (1543, 17000)] was related to basic science similar to total PA according to IPAQ-SF (Table 4).

The results demonstrated a positive significant relationship between total PA based on IPAQ-SF and pedometer-

Table 3. Median (maximum, maximum) of physical activity based on IPAQ-SF among medical students in different educational stages (N = 186)

Physical activity (MET min/week)	Basic science	Physiopathology	Clinical clerkship	Internship	Total	p*
Total physical activity	2445 (346.5, 8239.5)	935 (346.5, 11208.5)	1481.2 (346.5,13608.0)	1794 (346.5, 31225.5)	1725 (346.5, 31225.5)	0.002
Vigorous physical activity	720 (0, 4800)	0 (0, 1920)	0 (0, 3600)	0 (0, 28800)	40 (0, 28800)	< 0.001
Moderate physical activity	180 (0, 3600)	0 (0, 2160)	0 (0, 4320)	60 (0, 14400)	0 (0, 14400)	0.026
Mild physical activity (walking)	1039.5 (346.5, 3861)	594 (346.5, 7128.0)	668.2 (346.5, 7128.0)	717.7 (346.5, 8316.0)	742.5 (346.5, 8316.5)	0.131

*Kruskal-Wallis Test.

Table 4. Median (maximum, maximum) of pedometer counted steps per day among medical students in different educational stages (N = 186)

Day	Basic science	Physiopathology	Clinical clerkship	Internship	Total	p*
Monday	8204.5 (814, 16122)	6182 (1648, 14543)	4114 (1650, 13883)	5060 (998, 12033)	6045 (814, 16122)	0.236
Tuesday	9085.5 (1543, 17000)	7670 (1288, 21220)	5868 (1220, 13459)	4474 (750, 14506)	6134 (750, 21220)	0.002
Wednesday	7750.4 (2388, 12352)	7050 (1202, 15053)	2980 (1200, 6000)	5675 (721, 13000)	5776 (721, 15053)	0.006
Thursday	6000 (1213, 14375)	8575 (699, 15322)	5734 (700, 12545)	4500 (897, 10675)	6000 (699, 15322)	0.103
Friday	5863 (561, 8763)	5120 (498, 16500)	4085 (500, 8561)	6251 (600, 12000)	5700 (498, 16500)	0.514
Saturday	4902.5 (2946, 15626)	8000 (780, 14291)	7000 (800, 11857)	6728 (323, 33163)	6632 (323, 33163)	0.463
Sunday	4997.3 (2009, 15670)	8700 (778, 15608)	7321 (1100, 22400)	5266 (750, 16179)	5266 (750, 22400)	0.156

*Kruskal-Wallis Test.

Table 5. Relationship between pedometer-counted steps and total physical activity on the basis of IPAQ-SF in medical students (N = 186)

Pedometer-counted steps per day	Total physical activity (MET min/week)		Mild physical activity (MET min/week)	
	r	p*	r	p*
Monday	0.281	0.017	0.133	0.273
Tuesday	0.139	0.247	0.118	0.331
Wednesday	0.204	0.088	0.160	0.185
Thursday	0.350	0.003	0.215	0.075
Friday	0.447	< 0.001	0.282	0.022
Saturday	0.325	0.005	0.384	0.001
Sunday	0.206	0.079	0.161	0.159

*Spearman rho correlation coefficient.

determined steps in four days of the week (Monday, Thursday, Friday, and Saturday) (Table 5).

DISCUSSION

The purpose of this study was to evaluate the subjective and objective measures of PA and its relationship with socio-demographic factors between different stages of medical training. The results of this study showed a significant relationship between some socio-demographic characteristics such as gender, weight, serious disease, and year of study with the level of PA. Previous studies have shown a gender difference in the level of PA in medical students [14,27,28]. In our study, female students showed less PA than male students and this finding is consistent with previous studies across 17 countries out of 23 geographical regions [29]. Perhaps the reasons for this gender difference are due to cultural issues, social norms, and low self-efficacy [30,31]. In terms of the objective and subjective comparison of PA, Mestek and Colleagues also reported that there was a better agreement between pedometer-measured and self-reported PA in college-aged men than women [22].

Our finding revealed a relationship between weight and PA levels but there was no significant difference in terms of BMI. A study by Yousif et al. [32] showed that there was no significant relationship between BMI and PA among medical students, which is consistent with our findings. However, the significant relationship between weight and levels of PA remains largely unjustifiable. In addition, in the study of Hsu et al. [20] comparison of the objective and subjective measurement of PA showed higher correlations between different activity modalities among lower body fat college students than those higher body fat.

Our findings showed that serious illness had a significant relationship with PA levels. We could not find any study that examined the relationship between serious illness and PA in medical students. In Connolly et al. [33] study, low PA behavior between critical illness patients was observed. It seems that the relationship between serious illnesses or a history of chronic illnesses with levels of PA needs to explore in medical students. However, the impact of chronic disease on physical activity seems reasonable.

In our study, the levels of PA varied with different years of study, based on both IPAQ-SF and pedometer-counted PA (in just two days). It can be said that there was a little relative agreement between the two types of measurements of PA in terms of the study year. In both types of measurements, the highest PA level was observed in the basic sciences. The highest level of PA based on IPAQ-SF which was observed in the stage of the basic science is not consistent with previous studies [11]. Also, we did not find any study based on the pedometer-counted PA to compare our findings. In previous studies, the year of study was one of the predictors of students' level of PA [14,17] but, this has been reported differently. For example, Macilwrait et al. study [11] reported that the highest PA level was observed in the third year and the lowest in the final year. In contrast, Medagama's study [14] reported the lowest PA in the third year and the highest in the fourth year of medical training. These discrepancies may be originated from the different study conditions at medical schools between countries. In our study, the lowest level of PA was observed in the physiopathology stage. The physiotherapy stage coincides with the second half of the third year and the fourth year of medical training, which shows that our findings are in line with Medagama et al. study based on IPAQ-SF. However, it should be noted that the mentioned study examined only the third, fourth and fifth-year medical students. The different challenges that medical students face in their training years especially greater academic pressure of theory courses during the third year of study can be explained the discrepancy in PA levels among academic stages [14]. Due to insufficient evidence in this regard, there is a need for further studies to compare objective and subjective measures of PA in different years of study in medical students.

The results of the present study showed that there is a positive correlation between total PA based on IPAQ-SF and pedometer in 4 days of the week (rs = 0.28-0.44), which is consistent with the previous studies. In a study by De Cocker et al. [34] conducted on 310 adults, a positive low correlation was reported between step counts measured by the pedometer and IPAQ-SF (rs = 0.33). The results of a systematic review, conducted to the validation of IPAQ-SF, showed that the correlation of IPAQ-SF with pedometer in the included studies was 0.25-0.33, median = 0.28 [35]. But, on the other hand, this relationship has not always been positive and reported negatively or positively correlated in other studies. In a systematic review, the correlations between self-report and direct measures of PA were generally low to moderate and ranged from −0.71 to 0.96, without any clear pattern [36]. A review study also found that the agreement between self-reported PA and pedometer, varied depending on the questionnaire used, individuals assessed and how to report pedometer outputs [37].

As mentioned above, the assessed individuals can influence the concordance between self-reported PA and pedometer. College students can be considered as a special group in the population because the university environment creates new conditions for them [38]. Entering adulthood, having a new social life, and increased pressure to focus on academic performance can add a lot of stress to students and lead to a significant change in their PA pattern [7,39]. A study by Hsu et al. [20], examined students' objective and subjective measures of PA, found that there were low positive correlations (rs = 0.20-0.47) in light and vigorous PA between subjective and objective assessments of PA (accelerometer) which is consistent with our finding. We did not find any other studies that examined the correlation between IPAQ-SF and pedometer exclusively in medical students. Medical students in pre-clinical and clinical years of training are facing more problems than other college students. Prolonged medical education, high-stakes examinations, exposure to death and suffering of patients, rotation in different hospitals during clinical years, and full-time clinical education create special conditions for medical students [8,9,40]. However, it seems that subjective assessment and recall of physical activity during the past week in the medical students is more accurate due to being young and having a high level of education. Further studies are needed to confirm positive correlation, as shown in our study, between IPAQ-SF and pedometer in medical students.

Despite the positive correlations observed between IPAQ-SF and pedometer in 4 days in our study, these correlations were not very high. In a review study of Lee and colleagues [35], it was reported that the correlation between the IPAQ-SF and objective measures of PA in the most included studies was lower than the acceptable standard (0.09-0.39). The modest correlations in our study may be because IPAQ-SF and pedometer capture different dimensions of PA [20]. Each of these instruments has advantages and limitations that need to be addressed simultaneously. The pedometer counts individual's steps directly and reduces the subjectivity inherent in surveys. So a pedometer is a reliable instrument for measuring walking-type movements [25]. But pedometers cannot measure all types of PA, such as swimming, cycling, and weight lifting [37]. The IPAQ-SF is based on respondents' ability to remember their PA over the past week and their honesty in the report [41]. In addition, the IPAQ-SF overestimated PA level by 36 to 173 percent. Overestimation is one of the key limitations of such self-reported questionnaires. For these reasons, the IPAQ-SF cannot be used as an indicator of relative or absolute PA [35]. Therefore, it is not possible to say exactly which one of these instruments is a good tool for measuring PA. More precise tools should be developed to minimize the limitations mentioned above. For example, although a pedometer is a proper instrument for measuring PA, it needs to be upgraded so that it can measure other forms of PA.

Our study was limited to one medical school, which eliminates the possibility of comparing results with other medical colleges. One of the potential limitations of the present study was the type of cross-sectional study, allowing us only to assess activity levels for a short period of time. In this study, we applied only one type of objective and subjective measures and did not use other instruments such as accelerometer or Long form IPAQ. The relatively small sample size was also one of the limitations of our study that may affect statistical power.

CONCLUSION

There were positive low correlations between PA based on IPAQ-SF and pedometer-counted steps among medical students. Further large, multi-institution studies are needed to confirm positive correlation, as shown in our study, between IPAQ-SF and pedometer in medical students as a special group in the population. The PA of medical students at different years of medical training was different based on both IPAQ-SF and pedometer, which shows the need to pay attention to the special needs of students in terms of PA at each stage. Moreover it seems necessary to investigate the main reasons for the low physical activity in female students and eliminate the underlying factors to promote the health of this group.

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CONFLICTS OF INTERESTS

None to declare.

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