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## DETERMINATION OF THE PHYSICAL ACTIVITY LEVELS OF MIDWIFERY STUDENTS

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### ABSTRACT

University students spend most of their time in their schools, and the university environment may affect students' nutrition and physical activity. On the contrary, midwifery students are an important part of health labor and should be a role model for individuals they serve in terms of positive health behaviors. This descriptive study aimed to determine physical activity levels of students in the Firat University, Faculty of Health Sciences, department of midwifery. The entire study population was included without sampling, and the study was conducted on 262 students (88.8%). Personal information form and short form of the International Physical Activity Questionnaire were used to collect data. The data were analyzed using the statistical package with a chi-square test. Of the midwifery students, only 4.6% were active at a sufficient level, 63.4% were active at a low level, and 32.1% were physically inactive. The physical activity levels of the students were analyzed according to their age, year in the university, and body mass index. The distributions were found to be similar to each other. Approximately three fourths of the midwifery students in this study were found to have normal body weight but insufficient physical activity levels.

**Key words:** Body mass index (BMI), midwifery, obesity, physical activity

### INTRODUCTION

Physical activity can be defined as any body movement generated by skeletal muscles, which results in energy consumption (1). Alternatively, these are the activities that are applied on the muscles over the relaxation level, cause energy consumption, and increase the cardiac rhythm and breathe rate (2,3).

Physical activity is a powerful determinant of health (4). From slow-pace walking to heavy exercise, physical activity at different levels can result in important health benefits (5). Physical activity is known to reduce the risk of many chronic diseases including osteoporosis, metabolic syndrome, and cardiovascular disorders and to increase physical, cognitive, and psychosocial well-being (6). The World Health Organization (WHO) recommends that an adult should be physically active at medium level for at least 150 minutes per week to improve bone health and cardiorespiratory and muscle vitality, and to reduce the risk of non-contagious diseases such as depression (7). Similarly, the American College of Sports Medicine and the American Heart Association recommends that all healthy adults between the ages of 18 and 65 be physically active at

medium level for at least 30 minutes for 5 days a week, or to be physically active at high level for at least 20 minutes for 2 days a week (8). However, with the developing technology, people have begun to spend more time sitting, and this has led to the adoption of a sedentary life style. Since sedentary life accelerates the increase of body fat in the long term, these people are at risk of overweight and obesity and thereby the problems such as diabetes, hypertension, and cholesterol (9). Considering that inactivity negatively affects the quality of life; increases the expenses due to pain; causes depression, anxiety, etc.; and reduces the number of days worked and working performance, it can be seen that inactivity also causes a serious economic burden around the world (10). The results of the 2010 Turkey Nutrition and Health Survey indicated that of people older than 12 years, 71.9% are inactive and 9.1% perform physical activity insufficiently (11).

Health behaviors acquired at early stages of life affect risks for disorders that may be observed in lifestyle in the future. Analyzing health behaviors of young people is therefore important (12). Studies on university students show that students do not perform physical activities sufficiently, and physical activity levels of female students are lower than those of male students (12-16). University students spend most of their time in their schools, and the university environment may affect students' nutrition and physical activity. On the contrary, midwifery students are an important part of health labor and should be a role model for individuals they serve in terms of positive health behaviors. This descriptive study aimed to determine physical activity levels of students in the Firat University, Faculty of Health Sciences, Department of Midwifery.

#### **MATERIALS AND METHODS**

The population of this descriptive study consisted of 295 students continuing their education in the Firat University, Faculty of Health Sciences, Department of Midwifery in the 2014-2015 academic year. The entire population was included in the study without sampling, and 262 students were accessed. The comprehensiveness of the study was 88.8%

Personal information form and short form of the International Physical Activity Questionnaire (IPAQ-Short Form) were used to collect data. The personal information form questioned the ages, years in the university, weights, and heights of the students. The international validity and reliability of the IPAQ was tested by Craig et al. (2003)(17). Öztürk (2005) tested the validity and reliability of IPAQ in Turkey (18). This questionnaire consists of seven questions on sitting, walking, and time spent for medium-level activities and high-level activities (19). At least 10 minutes for each activity is the criterion while evaluating all activities. A score of "metabolic equivalent (MET)-min/week" is obtained by multiplying minute, day, and MET value (the multiples of resting oxygen consumption). To calculate the score on walking, the value of 3.3 MET is taken for the time of walking, 4 MET for the medium-level activity, and 8 MET for the high-level activity. Physical activity levels are categorized as physically inactive (<600 MET-min/week), physical activity at a low level (600-3000 MET-min/week), and physical activity at a sufficient level (good for health) (>3000 MET-min/week). The total score comprises the addition of time (minutes) and frequency (days) of walking, medium-level physical activity, and high level physical activity. The score of sitting (sedentary behavior) is calculated separately (12).

Body mass index (BMI) is calculated dividing the body weight in kilogram by the square of height in meters. BMI  $\leq 18.5$  kg/m<sup>2</sup> is defined as slim, between 18.6 and 24.9 kg/m<sup>2</sup> as normal, 25.0 and 29.9 kg/m<sup>2</sup> as overweight, and equal to or above 30.0 kg/m<sup>2</sup> as obese.

The forms were applied in the classroom environment. The students were informed about the study and answers of the questions before distributing the forms. Then the forms were distributed to the students willing to participate.

The data were analyzed in the statistical package using a chi-square test, and the demographic data were expressed in numbers, percentage, and average.  $P < 0.05$  was accepted as the significance level.

**RESULTS**

The average age of the students was  $22.69 \pm 1.96$ . Of the students, 19.1% were in the first year, 29.0% in the second year, 26.3% in the third year, and 25.6 in the fourth year. The students' average height was  $1.63 \pm 0.05$ , average body weight was  $57.67 \pm 9.3$ , and average BMI was  $21.53 \pm 3.13$ .

**Table 1.** Body mass indices of the students

	Number	Percent
Slim	37	14.1
Normal weight	194	74.0
Overweight	29	11.1
Obese	2	0.8
Total	262	100.0

The body weight of 74.0% of the students were within the normal borders. Of them, 14.1% were slim, 11.1% were overweight, and 0.8% were obese (Table 1).

**Table 2.** Physical activity scores of the students

Physical Activity	IPAQ Score		
	Average $\pm$ SD	Median	Q25-Q75
Sitting (MET-min/week)	$3696.5 \pm 2354.6$	3150.0	2520.0-5040.0
Walking (MET-min/week)	$737.8 \pm 482.7$	693.0	396.0-990.0
Medium-level PA (MET-min/week)	$165.6 \pm 304.0$	0.0	0.0-240.0
High-level PA (MET-min/week)	$226.5 \pm 558.0$	0.0	0.0-90
Total (MET-min/week)	$1130.0 \pm 868.3$	924.0	495.0-1485.0

Q25-Q75: 25th and 75th quarter values.

SD, Standard deviation; IPAQ, International Physical Activity Questionnaire MET, metabolic equivalent. Table 2 shows the physical activity scores of the students.

**Table 3.** Physical activity levels of the students

	N (262)	Percent
Physically inactive	84	32.1
Physically active at a low level	166	63.4
Physically active at a sufficient level	12	4.6

Of the students, 63.4% were active at a low level, 32.1% were physically inactive, and only 4.6% were active at a sufficient level (Table 3).

**Table 4.** Physical activity levels of the students according to age

	Age						Total	
	19-21 age		22-24 age		$\geq 25$ age			
	N	%	N	%	N	%	N	%
Physically inactive	21	30.0	50	31.1	13	41.9	84	32.1
Physically active at a low level	45	64.3	105	65.2	16	51.6	166	63.4
Physically active at a sufficient level	4	5.7	6	3.7	2	6.5	12	4.6
<b>Total</b>	70	26.7 <sup>1</sup>	161	61.5 <sup>1</sup>	31	11.8 <sup>1</sup>	262	100.0

$\chi^2=2.548$  P=0.636

<sup>1</sup> Line percentage, the others are column percentages.

No significant difference was found among the physical activity levels of the students according to age ( $P > 0.05$ , Table 4).

**Table 5.** Physical activity levels of the students according to the years in the university

	1 <sup>st</sup> year		2 <sup>nd</sup> year		3 <sup>rd</sup> year		4 <sup>th</sup> year		Total	
	N	%	N	%	N	%	N	%	N	%
Physically inactive	20	40.0	25	32.9	19	27.5	20	29.9	84	32.1
Physically active at a low level	28	56.0	47	61.8	47	68.1	44	65.7	166	63.4
Physically active at a sufficient level	2	4.0	4	5.3	3	4.3	3	4.5	12	4.6
<b>Total</b>	50	19.1 <sup>1</sup>	76	29.0 <sup>1</sup>	69	26.3 <sup>1</sup>	67	25.6 <sup>1</sup>	262	100.0

X<sup>2</sup>=1.161 p=0.281

<sup>1</sup> Line percentage , the others are column percentages.

The distribution of the physical activity levels of the students were similar, and no significant difference was found according to the years in the university (P > 0.05, Table 5).

**Table 6.** Physical activity levels of the students according to body mass indices

	BMI					
	<25 BMI		≥25 BMI		Total	
	N	%	N	%	N	%
Physically inactive	78	33.8	6	19.4	84	32.1
Physically active at a low level	143	61.9	23	74.2	166	63.4
Physically active at a sufficient level	10	4.3	2	6.5	12	4.6
<b>Total</b>	231	88.2 <sup>1</sup>	31	11.8 <sup>1</sup>	262	100.0

X<sup>2</sup>=2.691 p=0.260

<sup>1</sup> Line percentage, the others are column percentages.

Table 6 shows the comparison of the physical activity levels of the students with their BMI. The difference was not found to be statistically significant (P> 0.05).

## DISCUSSION

The body weight of 74.0% of the students in the study were within the normal borders. The literature includes different findings. Avsaret *al.* found the rate of university students with normal weight to be 76.5% (20). Ozdoganet *al.* found this rate to be 72.5% in their study (21). Gulecet *al.* found the rate of students with normal weight to be 82.3%, which is higher than the findings of the present study (22). Delienset *al.* found the rate of students with normal weight to be 67.4% in their study conducted in Belgium on mostly female students (23). Majeed found that 63.7% of female students in his study conducted in Saudi Arabia were at normal weight (24). These findings are lower than the findings of the present study. These different findings might have been caused by different nutrition habits in different cultures.

Wrong information on nutrition and incorrect nutrition habits are among the most important reasons for obesity and deterioration of the quality of life (25). Overweight and obesity are responsible for 5% of global mortality (26). In the present study, 11.8% of the students were overweight and obese. Similarly, Hanafi *et al.* found the rates of overweight and obese female university students to be 10.9% and 1.9%, respectively (27). Chourdakis *et al.* found in their study conducted in Greece on female students of medicine that 8.4% were overweight and 1.5% were obese (28). A study conducted in India on the prevalence of obesity in university students found the rate of overweight and obese students to be 37.5% (29). Lugitoet *al.* found the rate of obese students to be 26.9% in their study conducted on medicine students (30). Delienset *al.* found the rate of overweight students to be 21.8 (23). All these findings are higher than the findings of the present study.

The BMI average of the students in this study was found to be 21.53 ± 3.13. Raduet *al.* and Ayhanet *al.* found the BMI average of female students of the university to be 20.47 ± 1.95 and 20.98 ±

2.87, respectively, which are close to the finding of the present study (31,32). Downes found the BMI average of students to be  $23.3 \pm 4.7$ , which is a normal finding despite being a little higher than the findings of the present study (33). Altin found the BMI average of female students to be  $26.23 \pm 7.74$  in his study in different faculties of Selcuk University (34). Robinson *et al.* found the BMI average of nursing/midwifery students to be  $25.4 \pm 7.0$  in his study conducted in Australia on university students (35). These findings are higher than the findings of the present study.

The students included in this study were mostly sitting and walking, and their medium- and high-level physical activities were insufficient. This finding complies with the finding of the study of Vural conducted on desk-job employees (19). Although the study groups are different, these similar findings show that physical activity does not become a habit in the Turkish community.

The daily activities with breath and heart rates only a little higher than the resting values and with very little effort requirement (such as slow walking, housework, etc.) are low-level physical activities (2). The walking score average of the students in this study were  $737.8 \pm 482.7$  MET-min/week. Fagaraset *al.* found the walking score average of female students to be  $1243.16 \pm 749.06$  MET-min/week in their study conducted on university students (14). Hawker found this average to be  $1467.6 + 1317.5$  MET-min/week in his study conducted on nursing students (36). These score averages are higher than the score averages of the students in the present study.

The activities with breath and heart rates more than normal and with a medium-level effort requirement when the muscles strain (such as fast walking, low-pace running, swimming, or low-pace cycling) are medium-level physical activities (2). The medium-level physical activity score average of the students in this study was found to be  $165.6 \pm 304.0$  MET-min/week. Musselmanet *al.* found the medium-level activity score average of students to be  $236.15 \pm 460.23$  MET-min/week, which is higher than the score average of the students in the present study (37).

The activities with breath and heart rates much more than normal and with a very high effort requirement when the muscles strain more (such as jogging, basketball, football, volleyball, step aerobics, etc.) are high-level physical activities (2). Hawker found the high-level physical activity score average of the students to be  $919.4 + 1558.4$  MET-min/week (36). The high-level physical activity score average of the midwifery students in this study was found to be  $226.5 \pm 558.0$  MET-min/week.

The total physical activity score average of the students in this study was found to be  $1130.0 \pm 868.3$  MET-min/week. Musselmanet *al.* found the total physical activity score average to be  $1727.36 \pm 1973.09$  MET-min/week (37). Matolet *al.* found this score average to be 1910 MET-min/week (38). These findings show that the physical activity level of the students in the present study was very low. Taking less time for exercise, watching TV, spending more time in front of computers, concomitant with the modern life style, are among the reason for this situation.

The decrease in physical activity levels and the increase in the time spent for sedentary behaviors are important problems for public health. Chronic diseases, such as type 2 diabetes and cardiovascular disorders, and some types of cancer, as well as weight gain and obesity, are the undesirable effects of sedentary behaviors and physical inactivity (39). The Chronic Disorders and Risk Factors Survey of the Republic of Turkey, Ministry of Health reported that the physical activity levels of 23% of males are sufficient, 22% are at a medium level, and 55% are at a low level. These rates are 13%, 18%, and 69% for females, respectively. The rate of people with sufficient- and medium-level physical activities decreases in both males and females as their age increases (40). Of the students in this study, approximately one third students were physically inactive and two thirds were active at a low level. The rate of sufficiently active students was 4.6%. This shows that the physical activity insufficiency is significantly high in university students, who represent the early adult population. Lapa found the rate of sufficiently active university students to be 20.3% (41), and Olcucuet *al.* found this rate to be 26.6%, which are higher than the findings of the present study (42). Majeed reported that 57% of female students of medicine did not exercise at all (24).

The physical activity levels of the students were analyzed according to their age, year in the university, and BMI, and no statistically significant difference was found. The reason for the similar findings according to age may be due to the similar age groups of the students in the present study. Also, the similar distribution of physical activity level according to BMI might have been caused by the fact that approximately three fourths of the students had normal body weight. Savcı *et al.* also found no significant relationship between BMI and physical activity levels (12). Although physical activity is an effective factor in weight control, it is not adequate on its own. Acquiring correct eating habits is also important in addition to physical activity.

#### CONCLUSION

In conclusion, approximately three fourths of the midwifery students in this study were found to have normal body weight but insufficient physical activity levels. The individuals who are active when they are young are likely to be active and independent when they grow older. Therefore, young people should make physical activity a part of their life and give a place to physical activity in all aspects of their life. In addition, studies may be conducted on the reasons of insufficient physical activity in students.

#### APPLICABLE REMARKS

Incentive programs can be organized for students to increasingly participate in physical activity. The physical activity of university students and effective educational approaches should be addressed to increase their motivation.

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