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Determination Of Physical Activity Levels Of Men And Women In The 20- 30 Age Range: The Case Of Batman Province

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Abstract

The aim of this study is to determine the Physical Activity Levels of Men and Women between the ages of 20-30. The universe of the study included men and women living in the province of Batman; The sample included the voluntary men and women aged 20-30 who were living in the province of Batman. There are a total of 1524 people, 762 men and 762 women. A questionnaire consisting of two parts as socio-demographic characteristics and international physical activity questionnaire. SPSS package program is used in the calculation of the obtained filtering. In the 1524 computers for the study, 732 of them are between the ages of 20-25 and 792 of them are between 26-30 years of age. According to the findings of our study, both women and men had high levels of physical activity. There was a significant difference at the level of $p < 0.001$ between the physical activity levels of women and men. In addition, although there was no statistical relationship between age and physical activity level, it was determined that the physical activity level decreased as the age progressed. As a result, it can be said that the level of physical activity decreases in both women and men as the age progresses.

Keywords: Physical Activity, Nutrition, Exercise, Age.

INTRODUCTION

All of the body movements done by consuming energy are called physical activities (4). Physical activity is an internationally used term. Movements created using muscles and joints in daily life cause increasing heart and respiratory rate and fatigue at different levels depending on the increase in energy consumption during their formations (2). Regular practicing of physical activity is called exercise (3).

Exercises are body movements practiced repetitively and regularly. Regular physical activity, in other words, exercise plays an essential role in socializing, getting rid of undesired bad habits and healthy growth and development in adolescence period (11). The term MET, which is the abbreviation of metabolic threshold, is used to express amount of oxygen consumed during physical activity. It refers to approximately 3.5 ml oxygen consumed per minute per kilogram while one MET of rest (30).

Physical activity, one of the current research topics, is defined as volitional acts, resulting in increased energy consumption and produced by skeletal muscles (25). Considering the health protective aspect of physical activity, it should also

be remembered that psychological health and well-being are as important as physical health. On the other hand, a physically active lifestyle is of particular concern to the physical fitness of the individual. Individual's work, mode of transportation, walking, climbing stairs, leisure activities, nutritional status, climate and weather conditions affect the level of physical fitness of the individual (19).

On one-hand, moderate and high levels of physical activity provides decreasing the risk of coronary heart disease, diabetes, obesity and hypertension, blood pressure in people with hypertension, stress and related diseases and reduction in fatigue and pain complaints. On the other hand they provide increasing bone density accordingly protection against osteoporosis, increasing self-confidence, psychological well-being and strengthen immune system (7). It is also known that physical activity increases self-confidence, improves the spirit of success, social communication, solidarity and gentlemenship and helps to reduce the mental fatigue and tension (7).

Alongside technological developments in our era, new living conditions lead people to an inactive and stationary life. When considered from the review of the World Health Organization (WHO) in 2002, sedentary life, in other words, stagnant life causes 1.8 million people to die every year worldwide. Inactivity affects approximately 11-16% of breast and colon cancer, diabetes diseases and 23% of heart diseases in the world. There are four basic areas where people can be physically active in a day. These are work places, transportation, household chores and recreational activities (2).

It is possible to say that there are also cultural influences on practicing physical activities, even though they are not emphasized. As a matter of fact, especially because of their gender roles and social acceptance, individuals tend to focus on physical activities that they are not interested in or stay away from the activities they are interested in. This issue emerges as some sport branches are ascribed to women and some other sport branches are assumed to men. In other words, social approaches between individuals constitute specific gender identities for many sport branches. This can cause individuals to get away from sports because of the reason that they cannot do the sports activities they want (30).

In the study that we prepared about physical activity that is so important in social and individual terms, the physical activity levels of men and women living in the province of Batman were examined. The measurements not only have importance in terms of reflecting the general physical activity level of the province of Batman, but also in that regard of reflecting the difference between the sexes in physical activities.

The aim of this study is to determine the physical activity levels of individuals between the ages 20-30, living in Batman.

MATERIAL AND METHOD

In total 1524 individuals, 762 men and 762 women were included in the study on a voluntary basis. The selection of these individuals included in the research was made by random method. In other words, individuals being in the determined age range but having different education, occupation, marital status etc. were conducted a questionnaire. In this way, the study is pursued a goal to reflect the overall picture more accurately. In the study, a questionnaire form consisting of two parts, one of them is socio-demographic characteristics and the other is international physical activity survey (IPAQ), was conducted. The application time of the questionnaires took approximately 5-10 minutes. From the collected data, the time spent on participants' sitting, walking, moderate intensive activities and intensive activities were found and recorded. The ethical committee report of our study was taken with the decision of the ethical committee number 28 Selçuk University, Faculty of Sport Sciences, non-interventional clinical research.

The total activity score of each participant was calculated by considering the total duration of other activities, but by excluding the total score of sitting time. Residence time was calculated separately from the total activity score. Metabolic equivalent, oxygen consumption coefficients (MET)-minute (min)/week (wk.) score were calculated from the time obtained in evaluating the activities. While collecting the data, it was taken as a criterion that all activities were performed for at least 10 minutes at a time (17). In calculating these activities, standard MET values were used to calculate the total score of all activities for each individual besides the durations. These are as follows: (21).

Walking = 3.3 MET, moderate intensive physical activity = 4.0 MET, intensive physical activity = 8.0 MET, sitting = 1 MET. Using these standard values,

daily and weekly physical activity level was calculated as follows:

For example: for the walking MET-min/wk. score of a person walking 4 days and 40 minutes; Walking MET-min/wk. = 3.3 x walking minutes x the number of walking days was calculated as: 3.3 x 40 x 4 = 528 MET-min/wk. Medium intensity MET-min/wk. was calculated as: 4.0 x medium intensity activity minutes x medium intensity activity days. Severe intensity MET- min/wk. was calculated as 8.0 x severe intensity activity minutes x severe intensity activity days. Total amount of activity was calculated as: (total MET-min/wk.) = (walking + medium intensity + severe intensity) the number of MET-min/wks. (21).

The sitting question used in IPAQ has a hand as a determinant. It is not used as a part of scoring physical activity. There is little data on sedentary (sitting) behaviours and there is no accepted threshold value shown as a categorical level (20). In IPAQ questionnaire, three levels of physical activity are categorically determined when classifying populations. There are as follows: inactive (non-active-category 1), minimally active (low activity level-category 2) and very active (high physical activity increasing well-being, category 3). The criteria for these levels were established by calculating the continuous scorecard values obtained above (21).

The total energy spent during the calculation of IPAQ questionnaire sections was calculated according to the data of IPAQ score protocol (short-forms). Physical activity levels were classified as < 600 MET -min/wk. physically non-active, 600-3000 MET –min/wk. minimally active, > 3000 MET – min/wk. very active (beneficial for health (29). Data analysis of the questionnaire was done in SPSS 23 package program. Frequency and percentage values of socio-demographic characteristics were taken. In addition, independent T test was used in binary comparisons and one-way analysis of variance ANOVA was used to compare more than two groups. To calculate the differences resulting from ANOVA, the Tukey HSD test was used. Moreover, correlation analysis was used to determine whether the obtained data are related to each other.

FINDING AND RESULTS

The values of the ages of the individuals participating in the study over the percentile are as follows:

11,7% - 20 years old,

10% - 21 years old,

5,6% - 22 years old,

9,6% - 23 years old,

11% - 24 years old,

9,1% - 25 years old,

8,7% - 26 years old,

8% - 27 years old,

7,9% - 28 years old,

8,5% - 29 years old, and

9,8% - 30 years old

Fifteen point six percent of the individuals participating in the research are low income, 77, 9% are middle income and 6, 5% are high-income individuals. In addition 32, 6% of individuals smoke while 67, 4% of them are non-smokers.

Table 1. Distribution of individuals participating in the research according to their proximity to sports fields

Proximity to Sports Fields	F	%
Yes	741	48.6
No	783	51.4
Total	1524	100

According to the table 1, while there are places where 48, 6% of the individuals participating in the research can perform physical activities near the settlements they live, 51, 4% of the individuals have no opportunity to do their physical activities because of not being such places near to their settlement areas.

Table 2. Distribution of individuals participating in the research according to their diet

Nutrition Styles	f	%
Home cooking	1226	80.4
Prepared foods	298	19.6
Total	1524	100

According to table 2, while 80, 4% of the individuals participating in the study are fed with homemade meals, 19, 6% of them generally prefer ready-to-eat foods.

Table 3. Relationship between MET values and variables

MET Values	R	P
Gender- Physical Activity Level (MET)	-.195	.000
Age- Physical Activity Level (MET)	-.033	.205
Marital status- Physical Activity Level (MET)	-.056	.029
Education- Physical Activity Level (MET)	.033	.202
Income- Physical Activity Level (MET)	.073	.005
Disease-Physical Activity Level (MET)	-.002	.927
Smoking-Physical Activity Level (MET)	-.083	.001
Sports- Physical Activity Level (MET)	-.107	.000
Nutrition- Physical Activity Level (MET)	.053	.040
Value- Physical Activity Level (MET)	.557	.000

According to table 3, there was no significant relationship between age, education level, disease variables and MET values (p>0, 05). As a result of correlation analysis, it was found that there were different correlation levels as follows: a very negatively weak correlation between MET values and gender (r=-0,195 p<0,05), marital status (r=-0,056, p<0,05), smoking (r=-0,083,p<0,05), sports (r=-0,107 <0,05), a very positively weak correlation between income (r=0,073 p<0,05) and nutrition (r=0,053 p<0,05) and positively moderate relationship between met and values(r=0,557 p<0,05).

Table 4. Comparison of the level of physical activity according to gender

Group	N	M	SD	Level of physical activity	T	P
Men	762	3335.88	2407.93	High	6.826	0.00
Women	762	2500.89	2367.00	High		

According to the independent T test, the physical activity level of both men and women was determined to be high in metrics. A statistically significant difference was found between male and female subjects at the p<0,001 level according to the physical activity value.

Table 5. Comparison of age and physical activity level

Group	N	M	SD	Level of physical activity	F	P
21-22	180	3858.26	2503.62	High	1.853	0.174
22-24	552	4083.18	1844.65	High		
25-28	513	3604.44	1600.34	High		
29-31	279	3317.23	1476.23	High		

The distribution of the 1524 participants by age is given in the table above. As a result of the one-way analysis of variance ANOVA, no statistically significant difference was detected according to the ages of participants. However, the physical activity level of all participants was found to be high.

Table 6. Comparison of average of age and physical activity level

Group	N	M	SD	Level of physical activity	t	p
20-25	732	3006.24	2267.03	High	2.124	0.034
26-31	792	2837.18	1678.43	High		

According to the table 6, 732 of the 1524 individuals participating in the study are in the 20-25 age range and the other 792 are in the 26-31 age range. Both of groups' physical activity levels were high. As a result of the T test, it was determined that the physical activity levels of the participants between the ages of 20-25

and 26-31 were different from each other. A statistically significant difference was found at p<0,05 level by age groups**.**

Table 7. Comparison of educational status and physical activity level

Group	N	M	SD	Level of physical activity	F	p	Tukey HSD
Primary	122	2101.46	1678.51	Low	7.165	0.000	Primary-Secondary*** Primary-University** Primary-Master*** Secondary-University*
Secondary	183	3393.41	2364.02	High			
University	1123	2880.18	2473.79	High			
Master	96	3517.84	2416.19	High			

According to the table, a significant difference was found at p<0,001 level between groups. According to the Tukey HSD test results carried out to determine which group causes the difference, the differences between them are as follows:

The difference between primary and high school is at p<0,001 level.

The difference between primary and university is at p<0,01 level.

The difference between primary and postgraduate is at p<0,001 level.

The difference between high school and university is at p<0,05 level.

Table 8. Comparison of income status and physical activity level

Group	N	M	SD	Level of physical activity	F	p	Tukey HSD
Low	238	2644.55	2163.61	High	5.231	0.005	Low-High** Modarate-High*
Modarate	1187	2918.18	2446.66	High			
High	99	3579.23	2617.75	High			

Two hundred-eight of the 1524 respondents who participate in the research are low income, 1187 are middle income and 99 are high income. As a result of one-way analysis of variance of ANOVA, a statistically significant difference was detected between groups at p<0,01 level. According to the Tukey HSD test results carried out to determine the groups, causing this difference, it was found that there are differences of p<0,01 level between low-high and medium-high of p<0,05 level.

Table 9. Comparison of smoking status and physical activity level

Group	N	M	SD	Level of Physical Activity	t	P
Smoking	497	2142.20	2414.31	High	2.513	0.012
Non-Smoking	1027	2810.08	2420.99	High		

Four hundred and ninety-seven of the 1524 respondents in the study smoke but 1027 of them do not. Regardless of the smoking status of the participants, level of smoking status was determined high. According to the independent T test, a statistically significant difference was found between groups at p<0,05 level.

Table 10.Comparison of doing sports and physical activity level

Group	N	M	SD	Level of Physical Activity	t	p
Athletes	741	3161.97	2495.22	High	3.835	0.000
Non-sports	783	2687.88	2330.92	High		

According to the table 10, 741 of 1524 people participating in the study perform sports but 783 of them do not. Participants who do sports and do not are high in both groups. As a result of the T test, it was found that physical activity levels of the participants who did sports or not. According to results of the independent T test, a statistically significant difference at high level was found at p<0,001 level.

Table 11. Comparison of nutritional status and physical activity level

Group	N	M	SD	Level of physical activity	t	p
Home cooking	1226	2902.94	2446.27	Hepa aktif	-0.505	0.614
Prepared foods	298	2981.93	2327.90	Hepa aktif		

According to the table 1226 of 1524, individuals participating in the study prefer eating homemade food but 295 of them are fed ready-made food products. Physical activity levels of participants who eat at home or consume ready products were found at high level. According to the independent T test, there was no statistically difference between the groups.

DISCUSSION AND CONCLUSION

According to the data obtained, 732 of the 1524 people participating in the study are between 20-25 years old and 792 of them are between 26-30 years old. Physical activity levels of both groups were found at high level. As a result of T test, a significant difference was found between the physical activity levels of the participants in the specified age range at p<0,05 level.

According to the data obtained, 238 of the 1524 respondents who participate in the research are low income, 1187 are middle income and 99 are high income. Regardless of the income of all participants, the income level was found high. As a result of ANOVA test, it is concluded that the physical activity levels do not differ according to income status of participants (p = 0. 061>0, 05).

In the study conducted by Öztürk (20) to investigate the physical activity levels of university students, the prevalence of students' inactivity was found to be 14, 8 percent.

In this context, it is concluded that only 17, 7% of students have a physical activity level that can benefit health. The physical activity levels of male students participating in the study have statistically more positive and significant results than female ones. Findings about the physical activity levels of men and women show parallelism with our study.

In their research, Sallis et al. (24) stated that girls' participation in physical education lessons was less than that of boys'. In their research about physical activity levels of on university students conducted by Ocucu et al. (18) it was stated 36% of the students were at a sufficient level, 43% were at a low level and 21% were not physically active.

When we look at the physical activity levels of female and male individuals in the study conducted by Şanlı and Güzel (26) it is seen that 17,1 percent are not physically active, 63,9 percent are low in physical activity and 19,0 percent are sufficient to protect their health. In addition, it is seen that 17, 6% of women are not active physically. This rate is determined 16, 4% in male participants. It is seen that 17, 6% women have sufficient physical activity and 20, 9% men have sufficient physical activity (26).

Hopping et al. (12) examined the relationship between elevated physical activity level and obesity in adults in arctic Canada. In the study, while BMI women were obese, men were equally normal and obese. Male and female participants under the age of 50, who are in the category of high physical activity, stated that they had high physical activities. Participants over the age of 50 stated that they did their physical activities on moderate and high levels. Although most of the participants reported their physical activities as medium or high, they were found overweight and obese. This shows that women are not able to perform their physical activities sufficiently and this situation causes obesity with age. It shows parallelism with the majority of our study.

In the study conducted by Demirgüç et al (6) on women it was found that women working and performing physical activities were superior to housewives in terms of endurance, strength and agility.

In the study conducted by Polat (22) to determine the physical activity level of cops who participated in the research were seen that 58,44% of them were involved in low level in terms of physical activity level. In addition, while 32,47% of cops were found to perform their physical activities in moderate level, 9, 09% of them were determined to perform their physical activities in high level.

In this conducted study, while there was a significant relationship between variables such as age, occupational service year, body mass index and physical activity, on the other hand no significant relationship was found between education level and physical activity level. The results obtained are similar to the results that we achieved in our study.

In a report that examined five studies evaluating the level of physical activity in adults, it was shown that the level of physical activity of 51 percent of university students was insufficient (16). Burke et al. (5) showed that only 10% of individuals have sufficient physical activity levels in a study they conducted in 594 university students studying in the department of kinesiology in Canada.

Leslie et al. (15) found that 47 percent of female students and 32 percent of male students are not physically active in a study with 2729 university students in Australia. Haase et al. (10) showed that men are physically more active in their study with university students in 23 different countries. However, Von Bothmer et al. (28) found no significant difference between physical activity habits of boys and girls in their studies evaluation physical activity level, health habits and motivation among 479 university students in Sweden.

American Health Ministry's 2010 goal is to determine the amount of moderate to severe and severe physical activity in different groups and create areas and activities that will enable people to be physically active (13).

It is aimed to investigate socio-economic factors in spreading sports and sports activities. It was found from the results of the questionnaire that the sports branches they were interested in had changes in the event that the participants had better economic status (14). Fogelman et al. (9) examined the relationship between the intensity and type of physical activity with socio-economic and health factors and found that men had a higher sports index than women. In a study, although there was not much difference between education level, marital status and physical activity level, it was determined that the monthly income was higher and the rate of doing physical activity was higher among the women who have an occupation and work (8).

In his study on adults, Akova (1) found the rates of low, moderate and high levels of physical activity of women and men respectively: (41,4% and 29,4%), (46% and 50,6%), (12,6% and 20%). In a different study, it was determined that university students have 40,55% passive, 43,73% low active and 17,30% active physical activity levels (17).

In the study conducted by Sahebi (23), the average physical activity level of female students was 2630,43 MET-min/wk. and that of male students was 3273,18 MET-min/wk. In the study conducted by Topsaç and Bilgin (27), when the monthly income and physical activity levels of the students with disabilities were examined, they reached the conclusion that as the monthly income levels increase, their participation in physical activity also increases. This reveals the impact of the social environment and economy on physical activity. This shows parallelism with results of our study.

As a result of the interpretation of the obtained findings, it is seen that there is a significant difference in physical activity levels in the province of Batman regarding male and female gender. The difference can be defined that men do more physical activity and women do less physical activity than men. On the basis of this difference in physical activity between male and female sex, it is possible to base cultural, economic, social and similar factors.

REFERENCES

1. Akova, İ., & Koçoğlu, G. 20 Yaş Üstü Erişkinlerde Uyku Süresi̇ Kalitesi. Fiziksel Aktivite Düzeyi̇ ve Bazı Antropometrik Ölçümler Arasındaki İlişki̇ler. Ahi Evran Tıp Dergisi. 2018, 2(3), 67-73.
2. Akyol, A., Bilgiç, P., & Ersoy, G. Fiziksel aktivite, beslenme ve sağlıklı yaşam. Baskı. Ankara: Klasmat Matbaacılık, 2008.
3. Brown, W. J., Burton, N. W., & Rowan, P. J. Updating the evidence on physical activity and health in women. American journal of preventive medicine, 2007, 33(5), 404-411.
4. Bulut, S. Sağlıkta sosyal bir belirleyici; fiziksel aktivite. Turkish Bulletin of Hygiene & Experimental Biology/Türk Hijyen ve Deneysel Biyoloji, 2013, 70.4.
5. Burke, S. M., Carron, A. V., & Eys, M. Physical activity context and university students propensity to meet the Centers for Disease Control and Prevention/American College of Sports Medicine Guidelines, 2005.
6. Demirgüç. A, Fizyoterapi. Rehabilitasyon Dergisi, 1995, 1, 42-48.
7. Dönmez, S. Çocuklar ve fiziksel aktivite, İnternet adresi: http://www.sdonmez.com/sf-index-of-cocuklar_ve_fiziksel_aktivite-cp-2_59.htm, Erişim tarihi: 19.07.2007.
8. Eyler, A. A. Personal, social, and environmental correlates of physical activity in rural Midwestern white women. American journal of preventive medicine, 2003, 25(3), 86-92.
9. Fogelman, Y., Bloch, B., & Kahan, E. Assessment of participation in physical activities and relationship to socioeconomic and health factors. The controversial value of self-perception. Patient Education and Counseling. 2004, 53(1), 95-99.
10. Haase, A., Steptoe, A., Sallis, J. F., & Wardle, J. Leisure-time physical activity in university students from 23 countries: associations with health beliefs, risk awareness, and national economic development. Preventive medicine. 2004, 39(1), 182-190.
11. Hallal, P.C. Andersen, L.B. Bull, F.C. Guthold, R. Haskell, W. Ekelund, U. for the Lancet Physical Activity Series Working Group (2012). Global physical activity levels: surveillance progress, pitfalls, and prospects http://dx.doi.org/10,1016/S0140-6736(12)60646-1.

12. Hopping, B. N., Erber, E., Mead, E., Roache, C., & Sharma, S. High levels of physical activity and obesity co-exist amongst Inuit adults in Arctic Canada. Journal of human nutrition and dietetics. 2010, 23, 110-114.
13. Kahn, E. B., Ramsey, L. T., Brownson, R. C., Heath, G. W., Howze, E. H., Powell, K. E., & Corso, P. The effectiveness of interventions to increase physical activity: a systematic review. American journal of preventive medicine. 2002, 22(4), 73-107.
14. Kara, D. Sporun Topluma Yaygınlaştırılmasında Sosyo-Ekonomik Faktörlerin Araştırılması (Niğde İli Örneği)". Niğde Üniversitesi, Sosyal Bilimler Enstitüsü. Beden Eğitimi Ve Spor Anabilim Dalı. Yüksek Lisans Tezi, 2006.
15. Leslie, E., Owen, N., Salmon, J., Bauman, A., Sallis, J. F., & Lo, S. K. Insufficiently active Australian college students: perceived personal, social, and environmental influences. Preventive medicine. 1999, 28(1), 20-27.
16. Martin, S. B., Morrow Jr, J. R., Jackson, A. W., & Dunn, A. L. Variables related to meeting the CDC/ACSM Physical activity guidelines. Medicine & Science in Sports & Exercise. 2000, 32(12), 2087-2092.
17. Murathan, F. Üniversite öğrencilerinde obezite sıklığı, fiziksel aktivite düzeyi ve sağlıklı yaşam biçimi davranışlarının incelenmesi. Yüksek Lisans Tezi, Fırat Üniversitesi. Sağlık Bilimleri Enstitüsü, Beden Eğitimi ve Spor Anabilim Dalı, 2013
18. Olçucu, B., Vatansever, S, Özcan, G., Çelik, A. Paktas, Y. Üniversite öğrencilerinde fiziksel aktivite düzeyi ile depresyon ve anksiyete ilişkisi. Uluslararası Türk Eğitim Bilimleri Dergisi. 2015, 3(4), 294-303.
19. Özer, K. Fiziksel uygunluk. 6. Basım: Nobel Yayın Dağıtım, 2016.
20. Öztürk M. Üniversitede eğitim-öğrenim gören öğrencilerde uluslararası fiziksel aktivite anketinin geçerliliği ve güvenirliği ve fiziksel aktivite düzeylerinin belirlenmesi. Hacettepe Üniversitesi Sağlık Bilimleri Enstitüsü: Bilim ve uzmanlığı tezi, 2005.
21. Özüdoğru, E. Üniversite personelinin fiziksel aktivite düzeyi ile yaşam kalitesi arasındaki ilişkinin incelenmesi. Mehmet Akif Ersoy Üniversitesi Eğitim Bilimleri Enstitüsü, 2013.
22. Polat, Ö. (2018). Polis memurlarının fiziksel aktivite düzeylerinin değerlendirilmesi (Artvin ili örneği) Master's thesis, Niğde Ömer Halisdemir Üniversitesi/Sosyal Bilimler Enstitüsü, 2018.
23. Sahebi A. Üniversite Öğrencilerinin Fiziksel Aktivite Düzeyleri ile Akademik Başarıları Arasındaki İlişkinin Incelenmesi, Yüksek Lisans Tezi, Gazi Üniversitesi Eğitim Bilimleri Enstitüsü, Ankara, 2014.
24. Sallis, J. F., Zakarian, J. M., Hovell, M. F., & Hofstetter, C. R. Ethnic, socioeconomic, and sex differences in physical activity among adolescents. Journal of clinical epidemiology. 1996, 49(2), 125-134.
25. Soyuer, F., & Soyuer, A. Yaşlılık ve fiziksel aktivite, İnönü Üniversitesi Tıp Fakültesi Dergisi, 2008, 15 (3), 219-224.
26. Şanli, E., & Güzel, N. A., Öğretmenlerde fiziksel aktivite düzeyi-yas, cinsiyet ve beden kitle indeksi ilişkisi. Gazi Beden Eğitimi ve Spor Bilimleri Dergisi, 2009, XIV (3), 23- 32.
27. Topsaç, M., & Bilgin, H. Üniversitede okuyan engelli öğrencilerin fiziksel aktivite düzeylerinin incelenmesi. Dumlupınar Üniversitesi Sosyal Bilimler Dergisi, 2013.
28. Von Bothmer, M. I., & Fridlund, B. Gender differences in health habits and in motivation for a healthy lifestyle among Swedish university students. Nursing & health Sciences. 2005, 7(2), 107-118.
29. Vural, Ö., Eler, S., & Güzel, N. A. Masa Başı Çalışanlarda Fiziksel Aktivite Düzeyi ve Yaşam Kalitesi İlişkisi. Spormetre Beden Eğitimi ve Spor Bilimleri Dergisi, 2010, 8(2), 69-75.
30. Zorba, E., & Saygın, Ö. (2009). Fiziksel aktivite ve fiziksel uygunluk. Baskı. Ankara: İnceler Ofset Mat.