



ISSN:1306-3111
e-Journal of New World Sciences Academy
2009, Volume: 4, Number: 2, Article Number: 2B0013

SPORTS SCIENCES

Received: November 2008

Accepted: March 2009

Series : 2B

ISSN : 1308-7266

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STUDY ON THE PHYSICAL ACTIVITY LEVEL OF TURKISH WOMENS (IN BURSA)

ABSTRACT

The aim of this study is to define physical activity (PA) level of the females who live in Bursa. Totally 439 females between 18-69 years old are participated to the this study. To define physical activity levels, International Physical Activity Questionnaire (IPAQ) is applied. Their PA levels is categorised as inactive (FA1) minimum active (FA2) and HEPA active (FA3) by MET method. The relation of parameters like their age, BMI, education, marriage status, number of children, smoking and alcohol use with PA level is determined. The results are analysed using Ki square test. The participants has 1725 min/week average physical activity level, 30,5% are physically inactive, 48.1,1% are FA1, 41% are FA2 and 10.9% are FA3. As a result it can be said that the physical activity level of the females are not sufficient and the inactive people are very common.

Keywords: Physical Activity, Exercise, Women, MET, Questionnaire

TÜRK KADINLARININ FİZİKSEL AKTİVİTE SEVİYELERİNİN İNCELENMESİ (BURSA ÖRNEĞİ)

ÖZET

Bu çalışmanın amacı, Bursa'da yaşayan Türk kadınlarının fiziksel aktivite (FA) seviyelerinin araştırılmasıdır. Araştırmaya 18-69 yaşları arasında toplam 399 denek katıldı. Fiziksel aktivite seviyesini belirlemek için Uluslararası Fiziksel Aktivite Anketi (IPAQ) uygulandı. Deneklerin fiziksel aktivite seviyeleri MET yöntemini kullanarak inaktif, minimum aktif ve heap aktif olmak üzere üç grupta kategorize edildi. Deneklerin yaş, VKİ, eğitim, evlilik durumu, çocuk sayısı, sigara içme, alkol kullanma gibi parametrelere göre fiziksel aktivite seviyeleri 1725 METdk/hf ve %48.1'i fiziksel olarak inaktif, %41 minimum aktif ve %10.9 hepa aktif olarak belirlendi. Sonuç olarak, Bursa'da yaşayan Türk kadınlarının fiziksel aktivite seviyelerinin yetersiz olduğu ve inaktivitenin yaygın olduğu söylenebilir.

Anahtar Kelimeler: Fiziksel Aktivite, Egzersiz, Kadın, MET, Anket



1. INTRODUCTION (GİRİŞ)

Physical activity (PA) is effective in an active and joyful daily life, protecting the body against diseases, preventing obesity by spending the gained extra energy in a natural way, anti-aging and slowing down the organic regression caused by aging, reducing neural tension and increasing the preventive and protective effect against the death cases caused by cardiovascular diseases, protecting the operability of the articulation, providing social contact and preventing loneliness and in preventing posture defects.

Physical activity (PA) affects psychological and physical health in every period of our lives [1]. The continuous and furtive progress of technology requires less physical activity in the environment. A new era has begun in the recreation activities for the children, adolescents and adults with the development of the computer games in the 1970s [2].

PA programs for adults have been developed for adults in Canada in 1998. In these programs, adults are recommended to perform mid-intense regular physical activities as these are best for their personal health [3]. Additionally, according to Canadian Health System, there is less expense by increasing the physical activities of the adults [4].

Rosenberger et al. [5] indicate that physical inactivity and obesity have reached to epidemic levels in the USA. Researchers indicate that there is a direct proportional and statistically meaningful relation between physical inactivity, obesity and health expenses. Carnegie, M.A. Et al. [6] indicate in a study they conducted with adults in New North Wales that physical activity and jogging are useful for health. Larsson, I [7] examined the 3-day physical activity levels of males and females (133 male and 139 female). The researcher indicates that there is a decrease in the physical activities with the increase of obesity in both males and females.

The studies so far point out that a few chronic diseases and death risk have decreased in the adults with high level physical activity. These are hypertension [8 and 9], hearth attack [10], diabetes [11] colon and genial organs cancer [12], obesity and chronic backaches [13 and 14].

Today, morbidity and death risk profile rapidly change in many countries. Although infection diseases decrease, there is an increase in the diseases life style [15]. Risk factor is related with chronic diseases are investigated in many studies and it is proved that physical activities have a preventive role [16, 17, 18, and 19]. For instance even the smallest changes in the form of transportation are useful against obesity [20]. Besides its preventive role, physical activity is recommended in the treatment of various diseases [21 and 22].

It is very important to measure physical activity level for public health. However the fact that there are more than 30 methods in the literature related with this parameter forms a difficulty in comparing the results [23]. Due to feasibility and cost expenses many researchers prefer to use questionnaires and many questionnaires are used for this purpose [24]. International Physical Activity Questionnaire (IPAQ; www.ipaq.ki.se) is one of them.

DiPietro [25] showed that, whereas survey determined walking for leisure had no impact on the weight of younger individuals, walking was significantly linked with lower body weights among those 40 years or older. However, there is lack of research examining the association between quantified PA and body composition variables in middle age women [25]. The aim of the present study is; to determine the physical



activities level of the females in Turkish society, to correlate the body composition, social economical parameters to the activity level.

2. RESEARCH SIGNIFICATION (ARAŞTIRMANIN ÖNEMİ)

The life long Physical activities are important for the well being of people. The main habits for the young people are come from the family. In the Turkish society the role of the woman in family is very important. They determine also the way of life for other family members. The major contribution of this study will be to demonstrate either Turkish women are involved in physical activities or not. On the other hand in literature there are not to much data on the subject. This study is also present the collected data on the participant sample.

3. METHOD (YÖNTEM)

International Physical Activity Questionnaire is given to a total of 439 females between the ages of 18-69 living in the City Centre of Bursa and the districts between 01-15 June 2005 a group of students studying in Uludag University Faculty of Education Physical Training and Sports Department applied these questionnaires. The survey takers were trained and tested before the application on the questionnaire. The questionnaire was applied with face to face interview method.

Development Process of IPAQ: In 1996, Dr. Michael Booth (Sydney-Australia) designed a reliable and valid questionnaire in order to examine health and physical levels of the society and the relations between them. A year later based on this questionnaire International Physical Activity Assessment Group developed IPAQ. IPAQ is designed as short and long form in order to determine physical activity and sedative lifestyles of the adults.

In 1998-1999, in a total of 12 countries and 14 research centers in 6 continents validity and reliability studies were performed by using IPAQ test-retest method. As a result of these studies it is explained that IPAQ is valid and reliable method to determine physical activity.

IPAQ- short form is applied in the present study. The questionnaire consists of four separate sections and the total of seven questions. It is suggested to give the questionnaire to the adults aging between 18-69. The questionnaire includes questions related with PA performed at least 10 minutes in the last seven days. The questionnaire determines how many days and for how long within a single day in the last week the following were performed;

- Heavy Physical Activities (HPA)
- Mid-intense Physical Activities (MPA)
- Walking (W)

Physical Activity Level is determined with MET method. 1 MET=3,5 ml/kg/min.

When resting, a single person consumes 3,5 ml oxygen for 1 kg in 1 minute. In IPAQ it is accepted that HPA = 8.0 MET, MPA = 4.0 MET, W=3.3 MET.

The total MET amount spent as a result of these three different physical activities is calculated by determining for how many days a week and for how long a single person performs HPA, MPA,W. A sample is given in Table 1.

Table 1. Determining PA levels by using MET method (sample)
 (Tablo 1. MET'de kullanılan PA düzeylerinin hesaplanması)

Physical Activity Type	MET	In 1 day/min	Week/day	Total
Walking	3,3	30	5	495 MET-min/week
MPA	4,0	40	4	640 MET-min/week
HPA	8,0	30	3	720 MET-min/week
Total				1855 MET-min/week

Physical Activity Level is determined in three categories.

- 1st category : in active subjects : 600 MET-min/week
 2nd category : minimum active subjects : 600-3000 MET-min/week
 3rd category : HEPA actives : <3000 MET-min/week

Statistical Method: Frequency values and Chi-square test are used in the evaluation of the gathered data.

4. FINDINGS (BULGULAR)

Table 2. Descriptive characteristics of subjects
 (Tablo 2. Deneklerin tanımlayıcı özellikleri)

Gender	Variable	Age (year)	Height (cm)	Weight (kg)	BMI (kg/m ²)	Income (YTL)
Male N=365	Mean	31,5	165.5	62,2	22,8	1322
	Min.	18	150	42	15,4	100
	Max.	69	182	98	37,5	4000
	SS	11,5	6,5	10,9	4,1	2004

BMI: Body Mass Index

TSSPD: Time Spent Sitting per Day

X : Average

Inc : Monthly income of the family

Min: Minimum value

Max : Maximum value

According to Table 2, it can be said that age average of the females is 31,5 years, height average is 165.5 cm, weight average is 62.2 kg, BMI is 22.8 kg/m² and average monthly income is 1322 YTL.

Table 3. Determining physical activity levels of subjects
 (Tablo 3. Deneklerin fiziksel aktivite düzeyleri)

Parameters	Total
N	439
%	100
Average PA period (MET min/week)	1500
SS (min/week)	2151.3
Skewness	2.1
0 min/week PA %	30.5
Minimum (MET min/week)	0
Maximum (MET min/week)	9772

According to Table 3, females perform an average of 1500 min/week PA. Additionally, 30,5% of the females indicated performing no physical activity.



Table 4. PA levels of subjects according to some demographic and socioeconomic conditions.
 (Tablo 4. Deneklerin bazı demografik ve sosyo ekonomik özelliklerine göre fizikselaktivite seviyeleri)

Variable	N	%	PA1	PA2	PA3	Chi-Square
Total	439	100	48.1	41	10.9	p<0.05 (18.6)
Age (year)						
18-29	226	51.5	45.1	40.7	14.2	P<0.05 (18.6)
30-39	87	19.8	42.5	41.4	16.1	
40-49	95	21.6	58.9	38.9	2.1	
50≤	31	7.1	54.8	45.2		
Education						
University	175	39.9	46.9	37.7	15.4	P<0.05 (9.64)
Post-Graduate	17	3.9	29.4	52.9	17.6	
Other	247	56.3	50.2	42.5	7.3	
BMI						
underweight	57	13	43.9	43.9	12.3	P>0.05 (1.96)
normal	272	62	47.4	40.8	11.8	
overweight	80	18.2	52.5	38.8	8.8	
obesity	30	6.8	37.5	45.8	16.7	
Marital Status						
Married	223	50.8	48	42.2	9.9	P<0.05 (7.3)
Unmarried	204	46.5	46.1	41.2	12.7	
Divorced	5	1.1	80	20	25	
Widowed	6	1.4	83.3	16.7	0	
Lives separately	1	0.2	100	0	0	
Number of children						
0	216	49.2	45.4	40.3	14.4	P<0.05 (10.65)
1	80	18.2	52.5	36.3	11.3	
2	96	21.9	44.8	47.9	7.3	
3≤	47	10.7	59.6	38.3	2.1	

PA1: Physically inactive PA2: Physically minimum active
 PA3: Physically hepa active

Table 4 displays that 48,1% of the females are in PA1, 41% are in PA2 and 10,9% are in PA3 category (p<0.05). According to age, 18-29 year olds (45,1%), 30-39 year olds (42,5%), 40-49 year olds (58,9%), 50 and over (54,8%) are mostly in the PA1 category (p<0,05). According to education level, university graduates are mostly in the PA1 group (46,9%), postgraduates are in PA1 group (52,9%) and the others are in PA1 group (50,2%) (p>.05). According to BMI, Thin, Normal and Slightly Obese females are mostly in PA1 category (48%, 46,1%, 52,3% in order). The females in the overweight group are mostly in PA2 category (45,8%) (p<0.05). Married and Single females are mostly in PA1 category (48%, 46,1% in order). When the number of children is considered, it is seen that no children, 1, 2, 3 and more are mostly in PA1 category (45,4%, 52,5%, 44,8%, 59,6% in order).

Table 5. PA levels of subjects according to alcohol and smoking habits and institution of work.

(Tablo 5. Deneklerin alkol ve sigara içme alışkanlıkları ve çalışma yerlerine göre fiziksel aktivite düzeyleri)

Variable	N	%	PA1	PA2	PA3	Chi-Square
Institution						
Private	310	70.6	47.4	41.6	11	p>0.05 (0.2)
Public	129	29.4	49.6	39.5	10.9	
Alcohol						
Yes	83	18.9	44.6	37.3	18.1	P<0.05 (5.36)
No	356	81.1	48.9	41.9	9.3	
Smoking						
Yes	158	36	44.9	45.6	9.5	P<0.05 (2.26)
No	281	64	49.8	38.4	11.7	

PA1: Physically inactive PA2: Physically minimum active
PA3: Physically hepa active

According to Table 7, 44,6% of the females having alcohol habit are in PA1 category and 43,7% with no alcohol habit are in PA1 category. When smoking habit is considered, it is seen that 45,6% of the smokers are in PA2 category and 49,8% non-smokers are in PA1 category as well. Females with left-dominant side are mostly in PA1 category (46,3%) and males with right-dominant side are mostly in PA1 category as well (49,8%) (p>0.05). Females working in private and public institutions are mostly in PA1 category (47,4% and 49,6% in order) (p>0.05).

5. DISCUSSION (TARTIŞMA)

The findings and results gained from the scientific studies indicate that regular physical activity has beneficial effects for the body throughout life. One of the biggest opportunities provided by physical activity is to leave independently for long years, to decrease disabilities and inadequacies, to improve life quality in the middle and late ages [26 and 27]. The study carried out by Hallal P.C. [31] indicates that as BMI increases physical inactivity increases as well.

Table 6. Grouping according to BMI values - World Health Organization WHO [1]

(Tablo 6. Dünya sağlık örgütüne göre VKİ değerlerinin gruplandırılması [1])

Groups	Underweight	Normal weight	Overweight	Obese
BMI (kg/m ²)	<18,5	18,5-24,9	25,0-29,9	30,0 and above

Participating in this study females are average 22.8 kg/m² BMI. According to Table 8, it can be said that 13% of the males participating to the present study are thin, 62% are normal, 18.2% are slightly obese and 6,8% are in the overweight group.

Some studies [29 and 32] indicate that there is a positive relation between physical inactivity and age. The present study also points out that there is a positive relation between physical inactivity and age according to the findings. Pivarnyk et al. [30] compared free time activities of 1635 female and 1208 male adults in different seasons in Michigan State. They stated that the activities last longer (p<0.05) in the summer (58.6±1.6 min) than in winter (53.4±1.8 min), yet there is no difference among seasons in the intensity of the activities. (4,6±0.1 and frequency (3.1±0.1/in a week). Hallal P.C. [31], in the study carried out in Pelotas City of



Brazil found out that 41,1% of the adults (n=3182) are physically inactive. In this study 26,4% of the adults (25,3% males, 27,2% females) indicated performing no physical activity at all. The study also indicated that adults perform 748 min/week (711,7 females, 797,9 males min/week) of physical activity on the average.

In the present study it is seen that 48,1% of the females are in PA1, 41% are in PA2 and 10,9% are in PA3 category ($p < 0.05$). Females perform an average of 1500 min/week PA. Moreover, 30,5% of the males perform no physical activity. In the study conducted by Burton N.W. and G. Turrell [32], it is stated that parents with children perform more physical activities than non-parents, not married couples or parents with no children. In the present study it is seen that 14,4% of the females with no children are in PA1 category but females with 1,2,3 or more children are 11,3%, 7,3%, 2,1% respectively in PA3 category. Thus, it can be said that females with no children perform more PA.

In Hallal's study [31], it is seen that physical activities of single females or females living alone are lower than married ones. In the present study it is seen that 54,4% of the married females are in PA1 category, 32% are in PA2 category and 13,6% are in PA3 category. 42,6% of the single males are in PA1 category, 29,2% are in PA2 category and 28,2% are in PA3 category.

In a study conducted in Australia [32] it is underlined that there is high physical inactivity among smokers. In the present study, it is seen that 44,9% of the smoking females are in PA1 category, 45,6% are in PA2 category and 9,5% are in PA3 category; 49,8% of the non-smoker females are in PA1 category, 38,4% are in PA2 category and 11,7% are in PA3 category. Physical activity levels of smoking females are lower than non-smoker males ($p > 0.05$). 44,6% of females drinking alcohol are in PA1 category, 37,3% are in PA2 category and 18,1% are in PA3 category; 48,9% of the females who do not drink alcohol are in PA1 category, 41,9% are in PA2 category and 9,3% are in PA3 category. It can be said that physical activity levels of the females drinking alcohol are lower than the females who do not drink alcohol.

In the present study, it is determined that 47,4% of the females working in private institutions are in PA1 category, 41,6% are in PA2 category and 11% are in PA3 category; 49,6% of the females working in public institutions are in PA1 category, 39,5% are in PA2 category and 10,9% are in PA3 category. There is no statistically meaningful difference from physical activity point of view between females working in private and public institutions ($p > 0.05$).

As a result it can be said that physical activity levels of the females living in Bursa are insufficient and that physical inactivity is quite common.

NOTICE (NOT)

This research was presented in "The 46th ICHPERD-SD Anniversary World Congress", November, 9-13,2005, Istanbul, Turkey

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