Evaluation of Physical Activity Levels of Female Teachers Working In the Province Of Karaman

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ABSTRACT

In this study it is purposed to evaluate physical activity levels of female teachers working in the province of Karaman. Study was conducted with 277 female teachers from various branches working in the province of Karaman. Physical activity levels of female teachers determined with Physical Activity Evaluation Survey (PAES). According to the findings obtained from study 19.7 % of the teachers are inactive, 30.9% of them are active enough for health , 49% of them are active.It was undestood that the teachers participated in study; 14,2% thin, 54,9% normal, 25,3% overweigth and 5,6% obese accordig to their Body Mass Index (BMI). Significant differences found between the Met/week and kcal/week values in terms of demographic and some anthropometric features of teachers (P<05).Among physical activity levels and demographic features and some anthropometric features of teachers among the range of r = .208 and r = .294 and r = .384 and r = .777 significant positive relationship was observed.Although it was observed that the physical activity levels of the teachers working in the province of Karaman were enough in terms of health; it was determined most of their physical activity was related to housework.Female teachers also often need to include activities such as work, transportation, stairs and sport index in their lives.The fact that teachers educating the future generations often include issues related to the importance and necessity of physical activity in classes and be model to their students in this issue, can contribute to the growth of healthy generations.

Keywords: *Physical activity, Demographic features, Anthropometric features*

INTRODUCTION

Education is the most important requirement of our age for individuals have the basic qualifications, get information, make social relationships and have a good career in the globalizing world. Science and technology is progressing rapidly today, to be able to keep pace with developments, to achieve material and spiritual satisfaction, to look at the world from a large window and to generate ideas by analytical thinking are possible with education.In the proper functioning of the educational process teachers undertook an extremely important mission.Although there have been studies in which physical activities of teachers examined in terms of different variables in recent years (Arabacı 2007; Şanlı 2008; Carlomogna et al. 2010; Gündüz et al. 2010; Yoncalık et al. 2011; Keegan et al. 2012), further research is needed.

Today, to live by improving the quality of life become an important issue as much as to live long. Physical activity has an important place to get old in a healty manner and to minimize age-related health risks. From childhood getting the regular activity habit, making exercise an indispensable part of daily life and at least increasing the amount of daily physical activity for each individual has a great importance in the protection of individual health and reducing health

threats to be faced in the future. The benefits of physical activity is important at any age. It is known that children and teenagers not giving importance to physical activity,sitting in front of the computers or television for hours are more prone to obesity. Children and adolescents spend most of their time by playing computer games, waching television and sitting (Reed et al. 2010).

Life standarts of people have increased depending on world-wide economic growth and technological developments.Though this situation makes the life easier for people, in many societies has led to the emergence of the epidemic of inactivity. Sedentary lifestyle has lead obesity that causing degenerative diseases such as type 2 diabetes, cardiovascular disease, stroke, cancer, lung disease, gall bladder disease and kidney disorders (Abadie ve Brown 2010).

Long-term studies conducted on adults show regular physical activity increases the level of health and physical fitness. Adults participating in moderate intensity physical activity has an increase in cardiovascular endurance, bone density, muscular strength and endurance.Being physically fit reduces the risk of cardiovascular disease, colon cancer, diabetes, early death and obesity (Seabra et al. 2008).

Physical activity is also associated with mental health as well as physiological health. Physical activity speeds up the general circulation ; increases noradrenaline and endorphin levels by increasing blood flow to the brain (Taras, 2005). In studies investigating the effect of physical activity on brain flexibility observed that acting increases brain-derived neurotrophic factor improving the learning and detection and neurotrophic factor has been edited by physical activity. Regular physical activity increases the structural changes in the hippocampus of brain that is an important area for memory. In addition, it icreases neurons, dendrites and synapses which are embeded in the necessary structural elements throughout the central of regular physical activity and peripheral nervous system (Reed et al. 2010). There is some evidence related to better understanding of exercise, regulation of mood and the production of new cells in literature (Shelton 2009). There is also strong evidence that physical activity reduces the risk of clinical depression . Physical activity and sport participation improve self-esteem, self-perception and psychological health (Bailey et al. 2009). Like physicological variables including depression, anxiety, stress, and self-confidence ; bone and muscle-skeletal functions also develop and get better. Also, improvements in the quality of work and life are associated with increased physical fitness and activity level (Paluska and Schwenk 2000; Eveland-Sayers et al. 2009).

Physical activity like age, gender, nutrition, and genetic structure is an important element that determines body composition.Physical activity is one of the main requirements of being healthy, having a balanced body composition and maintaining. For this reason, the acquisition of the habit of regular physical activity and being sustainable are extremely important.

Considering all these benefits of physical activity, the amount of physical activity levels of teachers that expected to model to students in upbringing healthy generations gain importance.Therefore, in this study it has aimed determining physical activity levels of female teachers and evaluating the relationships between demographic features and some anthropometric features.

MATERIAL METHOD

The population of this study consists of female teachers working in primary and secondary schools attached to the Ministry of National Education during the academic year 2009-2010 in the province of Karaman.

Study sample consists of 277 voluntary female teachers randomly accessed in 35 different primary schools in the province of Karaman in the same year. Due to missing data of 44 female teachers participated in study, data of 233 teachers evaluated in all.

Collection of Data:

Physical activity habits of participants evaluated with Physical Activity Evaluation Survey (PAES) developed by Karaca (2000).In this survey regular activities at least once a week and duration of these activites discussed. Survey contains descriptive information (age, height, weight), activities related to work, activities related to school, transportation activities, walking up stairs, housework, activities doing as a hobby and sport activities (Karaca et al. 2000).The reliability coefficient of the value obtained from the sum of the six section of this survey found 68 by Karaca (2000). The validity of the survey evaluated with the activity log and correlation value determined as 72 .The intensity of activities recorded determined according to MET (Metabolik Equivalent) values. MET values of activities found from activity list developed by Ainsworth et al. (2011). MET/week values of activities calculated with formula developed by Karaca (2000).

MET/week = (The Frequency of Activity * Duration of Activity * Intensity of Activity)

MET/kcal week = (The Frequency of Activity * Duration of Activity * Intensity of Activity * Weight)

Table 1. Descriptive Statistics of Female Teachers (n=233)

Variables		Number	%
Age group	21-28	62	26.6
	29-39	94	40.3
	37-44	62	26.6
	≥ 45 and over	15	6.4
Branch	Numeratical Teachers	36	15.5
	Verbal Teachers	89	38.2
	Grade Teachers	76	32.6
	SST Teachers	32	13.7
Physique	Thin	33	14.2
	Normal	128	54.9
	Overweight	59	25.3
	Obese	13	5.6
PAL	Inactive	46	19.7
	Enough	72	30.9
	Active	115	49.4
Marital Status	Single	45	19.3
	Married	188	80.7
Have Children	Yes	69	29.6
	No	164	70.4
Number of children	1	67	28.8
	2	82	35.2
	3	14	6
	4 and more	1	.4

SST: Special Skill Teachers (Physical Education. Music. Art …)

PAL: Physical Activity Level

In research the ones who have less than 1000 kcal/week taken to inactive, the ones have 1000-2500 kcal/week to enough, the ones have higher than 2500 kcal/week to active group according to PAES (Baş Aslan et al. 2007). Body Mass Index (BMI) values calculated with participants' weight in kilograms (kg) value divided by the square of the value of height in meters (m).Teachers who have ≥25 BMI value as overweight,the ones have ≥30 classified as obese (Keegan 2012).

Statistical Analysis:

SPSS 17.0 statistical package program used to evaluate the data. Complience of observations to normal distribution was determined by Kolmogorov – Smirnov test. As all of the data shows normal distribution, Independent Sample T Test which is one of the parametrik tests used for comparing two independent groups and One-Way ANOVA Test which is also one of the parametric test used for comparing more than two groups.Correlation analysis done for relationships between variables. In this study, the error level was .05.

FINDINGS

Table 2. Comparison The MET Values of Female Teachers According to Their Marital Status

Variables	Single (n=45)		Married (n=188)			
	X	S	X	S	t	P
Work Index Met/week	51.18	10.791	54.38	23.688	-.883	.378
Work Index Kcal/week	2984.60	856.980	3484.08	174.627	-1.868	.063
Transportation Index Met/week	31.24	20.951	27.41	22.884	1.024	.307
Transportation Index Kcal/week	1763.31	113.767	1752.88	149.540	.044	.965
Housework Index Met/week	997.11	387.231	1562.28	722.739	-5.069	.000*
Housework Index Kcal/week	58985.38	287.420	99328.94	478.558	-5.416	.000*
Hobby Index Met/week	24.91	72.874	6.14	44.571	2.210	.028*
Hobby Index Kcal/week	1298.00	354.909	378.81	253.641	2.011	.046*
Stairs Index Met/week	13.33	89.443	38.03	143.489	-1.103	.271
Stairs Index Kcal/week	653.33	438.693	2750.05	106.067	-1.298	.196
Sport Index Met/week	15.02	39.636	18.49	62.755	-.354	.723
Sport Index Kcal/week	874.38	235.964	1127.04	372.123	-.435	.664

*P <.05

Understood that there is a statistically significant difference (P<.05) in favor of married teachers between housework index and hobby index Met/week and kcal/week values of female teachers according to their marital status from the information of Table 2. It was not found a statistically significant difference (P>05) among work index, transportation index, stairs index and sport index Met/week and kcal/week values

Table 3. Comparison The MET Values of Female Teachers According to They Have Children or not

Variables	Have children (n=69)		Have not children (n=164)			
	X	S	X	S	t	P
Work Index Met/week	50.33	10.304	55.20	25.022	-1.563	.119
Work Index Kcal/week	2993.79	805.692	3553.31	1835.651	-2.433	.016*
Transportation Index Met/week	29.67	22.936	27.52	22.399	.657	.512
Transportation Index Kcal/week	1726.55	1323.949	1766.82	1479.769	-.195	.845
Housework Index Met/week	1058.07	387.870	1619.34	744.491	-5.928	.000*
Housework Index Kcal/week	6357.06	2739.728	103301.43	4933.521	-6.288	.000*
Hobby Index Met/week	16.25	59.826	7.04	47.673	1.245	.214
Hobby Index Kcal/week	846.52	2919.517	434.25	2708.225	1.036	.301
Stairs Index Met/week	18.55	101.652	39.45	146.544	-1080	.281
Stairs Index Kcal/week	1148.99	6442.144	2848.35	1081.587	-1.216	.225
Sport Index Met/week	14.32	38.226	19.30	65.787	-.588	.557
Sport Index Kcal/week	827.17	2240.885	1183.87	3907.243	-.710	.478

*P <.05

According to Table 3, there is a statistically significant difference (P<.05) in favor of female teachers have not children; between work index, kcal/week , housework index Met/week and kcal/week values. Whereas, observed that there is a statistically significant difference among work index Met/week, transportation index, hobby index, stairs index, sport index Met/week and kcal/week values (P>05).

Table 4.Comparison The Met Values of Female Teachers According to Their Age Group

	Variables	Source of Change	Sum of Squares	Squares Mean	F	P
Age Groups	Work Index Met/week	between the groups	1526.124	508.708	1.070	.363
	Work Index Kcal/week	between the groups	2.26687	7554835.607	2.953	.033*
	Transportation Index Met/week	between the groups	1484.583	494.861	.975	.405
	Transportation Index Kcal/week	between the groups	1.10847	3693840.662	1.819	.145
	Housework Index Met/week	between the groups	1.00857	3361287.504	7.276	.000*
	Housework Index Kcal/week	between the groups	5.124610	1.708410	8.266	.000*
	Hobby Index Met/week	between the groups	8430.627	2810.209	1.056	.369
	Hobby Index Kcal/week	between the groups	2.83397	9443167.112	1.232	.299
	Stairs Index Met/week	between the groups	273791.071	91263.690	5.290	.002*
	Stairs Index Kcal/week	between the groups	2.06569	6.88528	7.893	.000*
	Sport Index Met/week	between the groups	23406.097	7802.032	2.283	.080
	Sport Index Kcal/week	between the groups	8.21537	2.73817	2.277	.080

*P <.05

When Table 4 examined, understood that work index kcal/week, housework index and stairs index Met/week and kcal/week values shows a statistically significant difference (P<05).It could not found a statistically significant difference among work index Met/week, transportation index, hobby index and sport index Met/week and kcal/week values (P>05).

Table 5.Comparison The MET Values of Female Teachers According to Their Branches

	Variables	Source of Change	Sum of Squares	Squares Mean	F	P
Branch	Work Index Met/week	between the groups	3869.238	1289.746	2.772	.042
	Work Index Kcal/week	between the groups	2.24047	7467698.128	2.917	.035*
	Transportation Index Met/week	between the groups	3840.686	1280.229	2.573	.055
	Transportation Index Kcal/week	between the groups	1.67087	5566255.328	2.774	.042*
	Housework Index Met/week	between the groups	182793.724	1280.229	1.223	.302
	Housework Index Kcal/week	between the groups	5.96159	3.30727	.878	.453
	Hobby Index Met/week	between the groups	27805.862	9268.621	3.597	.014*
	Hobby Index Kcal/week	between the groups	9.92147	3.30757	4.497	.004*
	Stairs Index Met/week	between the groups	37655.521	12551.840	.687	.561
	Stairs Index Kcal/week	between the groups	1.32228	4.40617	.461	.710
	Sport Index Met/week	between the groups	637.589	212.530	.060	.981
	Sport Index Kcal/week	between the groups	141663.173	472212.724	.038	.990

*P <.05

Table 5 stated that there is a statistically significant difference (P<05) between work index and transportation index kcal/week and hobby index Met/week and kcal/week values of research group according to branches. There is not a statistically significant difference among work index and transportation index Met/week , housework index, hobby index, stairs index and sport index Met/week and kcal/week values (P>05).

Table 6. Comparison The MET Values of Female Teachers According to Their Physique

	Variables	Source of Change	Sum of Squares	Squares Mean	F	P
Physique	Work Index Met/week	between the groups	2244.102	748.034	1.583	.194
	Work Index Kcal/week	between the groups	9.30187	3.10017	13.77	.000*
	Transportation Index Met/week	between the groups	1080.109	360.036	.707	.549
	Transportation Index Kcal/week	between the groups	937296.043	312432.681	1.533	.207
	Housework Index Met/week	between the groups	660818.026	220272.675	.438	.726
	Housework Index Kcal/week	between the groups	4.937210	1.646610	7.933	.000*
	Hobby Index Met/week	between the groups	17961.891	5987.297	2.285	.080
	Hobby Index Kcal/week	between the groups	3.89867	1.29997	1.706	.167
	Stairs Index Met/week	between the groups	130077.512	43359.171	2.425	.066
	Stairs Index Kcal/week	between the groups	1.31749	4.39158	4.853	.003*
	Sport Index Met/week	between the groups	9060.762	3020.254	.868	.458
	Sport Index Kcal/week	between the groups	4.25587	1.41877	1.163	.325

Understood that there is a statistically significant difference (P<05) among work index, housework index and stairs index kcal/week values of female teachers acording to their body structure from the data in Table 6. But, it could not found a statistically significant difference among work index, housework index, stairs index Met/week, transportation index, hobby index, sport index Met/week and kcal/week values (P>05).

Table 7. Comparison The MET Values of Female Teachers According to Their Physical Activity Levels

	Variables	Source of Change	Sum of Squares	Squares Mean	F	P
Physical Activity Levels	Work Index Met/week	between the groups	62.439	31.219	.065	.937
	Work Index Kcal/week	between the groups	343579.09	1717897.046	.653	.521
	Transportation Index Met/week	between the groups	1086.518	543.259	1.071	.344
	Transportation Index Kcal/week	between the groups	745693.59	3728466.796	1.829	.163
	Housework Index Met/week	between the groups	7.52747	3.76417	213.196	.000*
	Housework Index Kcal/week	between the groups	3.118811	1.559611	168.584	.000*
	Hobby Index Met/week	between the groups	5820.531	2910.266	1.093	.337
	Hobby Index Kcal/week	between the groups	1.82197	9104007.790	1.186	.307
	Stairs Index Met/week	between the groups	120991.90	60495.950	3.391	.035*
	Stairs Index Kcal/week	between the groups	6.38978	3.19538	3.433	.034*
	Sport Index Met/week	between the groups	20844.241	10422.120	3.053	.049
	Sport Index Kcal/week	between the groups	7.47637	3.73827	3.114	.046

P <.05

There is a statistically significant difference (P<05) between housework index and stairs index Met/week and kcal/week values of female teachers according to their physical activity level. It could not found a statistically significant difference (P>05) when work index, transportation index, hobby index, sport index Met/week and kcal/week values evaluated.

Table 8 .Demographic Features of Female Teachers,Correlation Matrix on Their MET Values

Variables	Total Met/week	Total Kcal/week	Age	Marital Status	Children Status	Number of Children	Branch
Total Met/week	1						
Total Kcal/week	.927**	1					
Age	.114	.208**	1				
Marital Status	.309**	.332**	.337**	1			
Children Status	.361**	.382**	.448**	.754**	1		
Number of Children	.341**	.394**	.541**	.616**	.817**	1	
Branch	-.089	-.059	.242**	.037	.060	.107	1

** P <.01.

It has seen that there is a positive relationship 01 that vary between r=.208 and r=.294, between Met/week and kcal/week values of female teachers and demographic features (age, marital status, having children or not, number of children and branch).When examined the relationship of demographic features, seen a significant relationship 01 that vary between r=.337 and r=.817.

Table 9. Some Anthropometric Features of Female Teachers and Correlation Matrix on Their MET Values

Variables	Total Met/week	Total Kcal/week	Height (cm)	Weight (kg)	BMI (kg/m²)	Physique
Total Met/week	1					
Total Kcal/week	.927**	1				
Height(cm)	.017	.115	1			
Weight (kg)	.86	.427**	.291**	1		
BMI (kg/m²)	.78	.384**	-.154*	.899**	1	
Physique	.820**	.777**	-.007	.129*	.131*	1

*P <.05 ** P <.01

Understood from Table 9 that there is a statistically positive relationship 05 that vary between r=.384 and r=.777 between Met/week and kcal/week values and some anthropometric features (BMI and body structure).But, there is not a statistically significant relationship among Met/week values and height, weight and BMI values of participants. In the same way, there is not a statistically significant relationship between kcal/week and height. Anthropometric features show a relationship between 01 and 05 that vary r= -.154 and r=.899 between them.

RESULTS

Physical activity habits of individuals changes by reason of cultural structure, socio-economic level, individual differences and health. Occupation is one of the important factors that influences physical activity habits.In this study evaluated physical activity levels of the teachers in terms of different variables, 19.3% of female teachers are single, 80.7% of them are married. While 29.6% of married teachers have children, 70.4% of them have not any children (Table 1). According to their marital status, between MET/week and kcal/week values of housework and hobby index there is a statistically significant difference in favor of married teachers (Table 2). Arabacı and Çankaya (2007), concluded that there is a statistically significant difference between their physical activity levels according to marital status of teachers in their research that they investigated pyhsical activity levels of physical education teachers. Work index kcal/week and housework index MET/week and kcal/week values of female teachers according to they have children or not vary (Table 3). 28.8% of female teachers participated in research have 1 child , 35.2% of them have 2 children, 6% of them have 3 children, 4% of them have 4 or more children (Table 1).

There is a statistically significant difference among teachers according to their values of work index kcal/week and housework index and stairs index MET/week and kcal/week in terms of age groups (Table 4). Arabacı and Çankaya (2007), concluded that there was a statistically significant difference like in this study when they compared physical activity levels of physical education teachers in terms of age groups. Whereas; Yoncalık et al. (2011),could not find a significant difference among teachers in terms of their physical activity levels according to their age group. According to branches of the research group, it was found that a statistically significant difference between the values of work index, transportation index kcal/week and values of hobby index MET/week and kcal/week (Table 5).

Webster et al. (2010), stated that physical biographical character has an effective role on physical activity levels of teachers in their study 247 teachers participated in. In this study one of the reasons of the difference between Met/week and kcal/week values of teachers according to branches may be biographical factors.

Yoncalık et al. (2011) stated that there was no statistically difference between physical activity levels of teachers in terms of their branches.

It has understood that 14.2% of teachers participated in study are thin, 54.9% of them are normal, 25.3% of them are overweight and 5.6%of them are obese according to their BMI values (Table 1). In Keegan et al. (2012) study 58.4% of female teachers are normal, 23.8% of them are overweight and 13.3% of them are obese. Results of both studies show similarity. There is a statistically significant difference among female teachers among work index, housework index and stairs index kcal/week values according to their body structure (Table 6).This situation means as BMI values of female teachers increase, kcal values increase,too.

It is seen that 19.7% of female teachers are inactive, 30.9% of them are active enough for health, 49% of them are active (Table 1). When participants compared in terms of physical activity levels, it was concluded that there was a statistically significant difference between housework index and stairs index MET/week and kcal/week values (Table 7). Keegan et al. (2012),has stated that 49.8% of female teachers are low (<2.5 hour/week moderate or severe activity), 49% of them are active (≥2.5 hour/week) in their study 118315 which female teachers or administrators participated in; evaluated physical activity, BMI and interaction of neighborhood. Yoncalık et al.(2011), has concluded that 11% of female teachers are inactive, 47% of them are active in low level, 53% of them have enough physical activity in their study that they has aimed to determine physical activity levels of teachers working in province of Konya. Gürel et al. (2004), stated as 77.9% rate of the ones that had insufficient physical activity level in their research that they determined nutrition information, information sources and physical activity levels of 143 teachers working in five different cities. Şanlı (2008), has stated that 17.1% of teachers are not active physically, 63.9% of them have low physical activity and 19% of them have enough physical activity to protect their health in his research

that he aimed to evaluate the relationship among physical activity levels, age, gender and BMI of 286 teachers working in Beypazarı, Ankara.

There is a positive relationship 01 that vary between r=.208 and r=.294 among Met/week and kcal/week values of female teachers and demographic features (age, marital status, having child or not, number of children and branch) (Table 8).There is a statistically positive relationship 05 that vary at r=.384 and r=.777 interval between Met/week and kcal/week values and some anthropometric features (BMI and body structure).

As a result; though seen that physical activiy levels of female teachers working in the province of Karaman are enough; it is obvious that most of their activities consist of housework index.It has understood that teachers needs to include activities related to work, transportation, hobby, stairs and sport index in their lives.Physical education teachers should include issues related to physical activity, health and obesity in classes and they should be a model to students and society.

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