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EDUCATION LEVEL AND SOCIOECONOMIC STATUS RELATED DIFFERENCES IN REGULAR PHYSICAL ACTIVITY LEVELS OF ADULTS

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ABSTRACT

This study aims to investigate the effects of education and socio-economic status on regular physical activity levels in 1350 males and 1350 female participants at the age range of 14-95 years. Turkish version of Physical Activity Stages of Change Questionnaire (Cengiz, Asci & Ince, 2010) was used for data collection in different age groups for both genders. Socioeconomic status information composed of monthly household income and final educational level of a participant. Results of this study showed that the mean body height and weight were significantly differentiated depending on male participants' educational status and monthly income level. There were significant differences in female participants' body height and body weight depending on their educational status. Only significant difference was observed in the mean of female's body height depending on monthly income level. The physical activity level of uneducated participants was highest in males and females. Significant negative correlations were observed between physical activity and educational status in males (r=-,108, p<.01) and females (r=-,129, p<.01). It can be concluded that physical activity level in both genders was affected by educational status not monthly income level. Basically, increasing awareness level of individuals about the effects of physical and sport activities on fitness and health level is only related to educational level of male and female individuals.

Key Words: Physical activity, Sports, Socio-economic status, Education Level

INTRODUCTION

There was a need to develop new policies to change the people' high level of inactive life style based on scientific data collection in Turkey. So, the participation rate in regular physical activity with new strategies was increased from 3.5% in 2010 to 33% in 2015 in Turkey (Ceker, Cekin & Ziyagil, 2015). In the participation of physical activity, males had a higher percentage (32.95%) than females (28.08%) while exercise participation percentages decreased with increasing age in both gender. These percentages are still the lowest for participation level in regular physical activity compared to European Countries. Turkey is a developing country with large socioeconomic and educational differences among the citizens. Low family income and educational level may limit people to buy sport wears and materials, to access sport fields and fitness centers with increasing their awareness level related to health and physical fitness. Education level indicates degree of knowledge, skill and attitudes along with the ability to attract material wealth. In other side, monthly income shows current economic or materialistic welfare. Both of these socio-economic parameters are related to physical activity levels. Studies focusing the relationships between education and physical activity during the aging process showed that there were education based differences in the physical activity level of different populations during middle and late life (Chad, Reeder, Harrison, Ashworth, Sheppard & Schultz, 2005; Grzywacz & Marks, 2001; Kaplan, Newsom, McFarland, & Lu, 2001; King, Castro, Wilcox, Eyler, Sallis & Brownson, 2000). He and Baker (2005) also stated that some forms of physical related to strenuous work activity are inversely correlated to education level. Wagenknecht, Perkins, Cutter, Sidney, Burke, Manolio & Hulley (1990) and Choiniere, Lafontaine & Edwards (2000) reported that the physical activity level was raised with increasing education level and there was a strong positive association between education level and physical activity. Schnohr (2004) also demonstrated that participants with the lowest level of education were frequently both physically inactive and heavy smokers. In many studies, physical activity seems to be related education level and monthly income in different levels (Wagenknecht et al. 1990; Choiniere et al. 2000). There are limited numbers of studies about the degree to which education level and monthly income are associated with within-person changes in physical activity in Turkish population. Health and physical activity policies

should be based on comprehensive data that represents all age groups in both genders. This study examines the possible relations of education level and monthly income to regular physical activity level from adolescents and adults for developing effective promotion strategies. Thus, the purpose of this study is to investigate the effects of education and socio-economic status on regular physical activity levels in males and females at the age range of 14-95 years.

METHOD

Data were collected from six groups consisted of 14-19, 20-29, 30-39, 40-49, 50-59 and 60-95 years of age. Totally 2700 participants including 1350 male and 1350 females at the age range of 14-95 years living in Samsun central districts were chosen randomly.

Turkish version of Physical Activity Stages of Change Questionnaire (Cengiz, Asci & Ince, 2010) was used for data collection in different age groups for male and females. In this study, participants were divided into five categories as stages of exercise behaviour change including a pre-contemplation, contemplation, preparation, action and maintenance stages. The physical activity score was determined by giving 1 point to pre-contemplation, 2 points to contemplation and 3 points to preparation, 4 points to action and 5 points to maintenance stages. Participants were divided into four socioeconomic categories as very low, low, middle and high classes. They were also divided five educational status depending on their graduation levels as university, high school, secondary school, primary school and uneducated.

One way analysis of variance (ANOVA) tests were used for comparison of physical activity participation rates between gender depending on education and socio-economic status level. The origin of differences was determined by post Hoc LSD test (Least Significant Difference).

RESULTS

Comparison of physical characteristics with respect to monthly income level in both genders was presented in Table 1, while comparison of physical characteristics with respect to education level in both genders was shown in table 2. In other side, comparison of physical activity levels with respect to educational status in both genders was demonstrated in Table 3, while comparison of physical activity level with respect to monthly income in both genders was shown in Table 4. Finally, correlation coefficients among physical activity level, monthly income and education level was presented in Table 5.

Tablo 1. Comparison of physical characteristics with respect to monthly income level in both genders.

Variable		MALES						FEMALES					
	Monthly Income	**N**	**M**	**S.D**	**F**	**Sig.**	**LSD**	**N**	**M**	**S.D**	**F**	**Sig.**	**LSD**
Age (Years)	**G 1.** Very Low	443	40,14	17,88	,051	,985	**n.a.**	416	39,00	18,08	1,987	,114	**n.a.**
	G 2. Low	532	39,99	17,82				601	40,06	17,71			
	G 3. Middle	273	39,72	17,53				242	42,44	18,45			
	G 4. High	102	39,54	17,45				91	39,05	17,94			
	Total	**1350**	**39,95**	**17,74**				**1350**	**40,09**	**17,99**			
Body Height (cm)	**G 1.** Very Low	443	168,94	10,47	13,379	**,000****	GG1<G2, G3,G4	416	162,65	8,15	14,815	**,000****	G1<G2, G3,G4; G2<G3, G4; G3<G4
	G 2. Low	532	172,08	9,96				601	164,55	7,46			
	G 3. Middle	273	172,85	10,55				242	166,57	7,83			
	G 4. High	102	174,05	9,93				91	166,33	9,37			
	Total	1350	171,35	10,39				**1350**	**164,45**	**8,00**			
Body Weight (kg)	**G 1.** Very Low	443	72,01	14,54	2,744	**,042***	G4>G1, G2	416	65,46	13,03	1,321	,266	**n.a.**
	G 2. Low	532	72,99	13,78				601	66,85	12,47			
	G 3. Middle	273	73,37	13,44				242	67,10	12,31			
	G 4. High	102	76,34	14,02				91	65,82	13,25			
	Total	**1350**	**73,00**	**14,01**				**1350**	**66,40**	**12,68**			
BMI	**G 1.** Very Low	443	25,18	4,49	1,835	,139	**n.a.**	416	24,78	4,97	1,676	,170	**n.a.**
	G 2. Low	532	24,63	4,30				601	24,74	4,69			
	G 3. Middle	273	24,57	4,27				242	24,24	4,55			
	G 4. High	102	25,14	3,94				91	23,81	4,61			
	Total	**1350**	**24,84**	**4,33**				**1350**	**24,60**	**4,75**			

***p<0.05; **p<0.01; G=Group.**

Tablo 2. Comparison of physical characteristics with respect to education level in both genders.

Variable		MALES						FEMALES					
	Monthly Income	**N**	**M**	**S.D**	**F**	**Sig.**	**LSD**	**N**	**M**	**S.D**	**F**	**Sig.**	**LSD**
Age (Years)	**G 1.** Uneducated	274	40,76	16,95	,273	,896	**n.a.**	348	41,13	17,30	,870	,481	**n.a.**
	G 2. Primary School	438	39,49	17,25				467	40,10	17,73			
	G 3. Secondary School	300	40,26	18,64				291	39,72	18,42			
	G 4. High School	238	39,55	17,96				195	39,74	18,61			
	G 5. University	100	39,75	18,86				49	36,35	20,27			
	Total	1350	39,95	17,74				1350	40,09	17,99			
Body Height (cm)	**G 1.** Uneducated	274	175,25	8,56	29,2	**,000****	G1<G2,G3, G4,G5; G2<G3,G4, G5; G3<G4,G5; G<G5	348	167,59	7,73	26,862	**,000****	G1<G2,G3,G4,G5; G2<G3,G4,G5; G3<G4
	G 2. Primary School	438	173,00	8,57				467	164,67	7,17			
	G 3. Secondary School	300	169,64	11,49				291	161,62	8,59			
	G 4. High School	238	168,46	11,31				195	163,03	6,99			
	G 5. University	100	165,51	11,04				49	162,47	9,56			
	Total	1350	171,35	10,39				1350	164,45	8,00			
Body Weight (kg)	**G 1.** Uneducated	274	75,16	13,00	6,01	**,000****	G1<G3,G4, G5; G2<G3,G4, G5;	348	68,32	12,54	3,043	**,016***	G1<G2,G3,G4,G5;
	G 2. Primary School	438	74,46	13,34				467	66,18	11,97			
	G 3. Secondary School	300	71,14	14,75				291	65,56	12,96			
	G 4. High School	238	71,24	14,31				195	65,08	13,45			
	G 5. University	100	70,42	15,14				49	65,06	14,17			
	Total	1350	73,00	14,01				1350	66,40	12,68			
BMI	**G 1.** Uneducated	274	24,44	3,80	1,770	,132	**n.a.**	348	24,34	4,33	1,645	,161	**n.a.**
	G 2. Primary School	438	24,86	4,09				467	24,42	4,35			
	G 3. Secondary School	300	24,68	4,58				291	25,21	5,33			
	G 4. High School	238	25,13	4,80				195	24,55	5,28			
	G 5. University	100	25,62	4,74				49	24,67	5,25			
	Total	1350	24,84	4,33				1350	24,60	4,75			

***p<0.05; **p<0.01; G=Group.**

Tablo 3. Comparison of physical activity levels with respect to educational status in both genders.

	Education level	N	M.	SD	Min.	Max.	F	Sig.	LSD
Males	**G 1.** Uneducated	274	3,10	1,52	1,00	5,00	6,248	**,000****	G1>G2,G4,G5; G2>G4; G3>G4
	G 2. Primary School	438	2,67	1,51	1,00	5,00			
	G 3. Secondary School	300	2,89	1,52	1,00	5,00			
	G 4. High School	238	2,42	1,53	1,00	5,00			
	G 5. University	100	2,56	1,48	1,00	5,00			
	Total	**1350**	**2,76**	**1,53**	**1,00**	**5,00**			
Females	**G 1.** Uneducated	348	3,18	1,54	1,00	5,00	6,248	**,000****	G1>G2,G3,G4,G5; G2>G4,G5; G3>G5
	G 2. Primary School	467	2,91	1,59	1,00	5,00			
	G 3. Secondary School	291	2,88	1,55	1,00	5,00			
	G 4. High School	195	2,61	1,56	1,00	5,00			
	G 5. University	49	2,31	1,56	1,00	5,00			
	Total	**1350**	**2,91**	**1,58**	**1,00**	**5,00**			

P<0.001, **G=Group.

Table 4. Comparison of physical activity level with respect to monthly income in both genders.

		N	M.	SD	Min.	Max.	F	Sig.	LSD
Males	**G 1.** Very Low	443	2,72	1,56	1,00	5,00	,416	,742	n.a.
	G 2. Low	532	2,76	1,48	1,00	5,00			
	G 3. Middle	273	2,77	1,57	1,00	5,00			
	G 4. High	102	2,90	1,55	1,00	5,00			
	Total	**1350**	**2,76**	**1,53**	**1,00**	**5,00**			
Females	**G 1.** Very Low	416	2,88	1,50	1,00	5,00	,678	,566	n.a.
	G 2. Low	601	2,89	1,59	1,00	5,00			
	G 3. Middle	242	2,91	1,63	1,00	5,00			
	G 4. High	91	3,13	1,67	1,00	5,00			
	Total	1350	2,91	1,58	1,00	5,00			

n.a.=not avaible. G=Group.

Table 5. Correlation coefficients among physical activity level, monthly income and education level.

	M A L E S			**F E M A L E S**		
	Stages of Exercise Behavior Change	**Monthly Income**	**Education Level**	**Stages of Exercise Behavior Change**	**Monthly Income**	**Education Level**
Stages of Exercise Behavior Change						
Monthly Income	,027			,028		
Education Level	**-,108****	**-,311****		**-,129****	**-,247****	

**. Correlation is significant at the 0.01 level.

DISCUSSION AND RESULTS

There was a need to develop new policies to change the people' high level of inactive life style based on scientific data collection. Increasing participating of individuals in moderate level of regular physical activity throughout the year, understanding the influence of socio-

economic status and educational level of people can contribute to plan the physical fitness and healthy life style policies. Thus, the aim of this study is to investigate the effects of education and socio-economic status on regular physical activity levels in males and female participants at the age range of 14-95 years in the City Center of Samsun at the Middle Black See Region of Turkey.

Results of this study showed that the mean body height and weight were significantly differentiated depending on male participants' educational status and monthly income level. Significant difference was only observed in the mean of regular physical activity level depending on education level. The physical activity level of uneducated participants had the highest in males and females. Monthly income level had no effect on physical activity level in males and females. Significant negative correlations were observed between physical activity and educational status in males (r=-,108, p<.01) and females (r=-,129, p<.01). No significant correlation was observed between physical activity and monthly income level in males and females.

The lowest participation percentage of Turkey for regular physical activity compared to European Countries reflects the importance of development new health strategies. Hence, Turkey as a developing country needs new policies considering of socioeconomic and educational differences in the society. Low family income and educational level may lower the increasing the awareness level related to health and physical fitness. This study showed that educational status and monthly income level had an effect on the mean body height and weight in males. Significant difference was only observed in the mean of regular physical activity level depending on education level. Uneducated participants had a higher physical activity level than other groups in males and females. The physical activity level of uneducated participants had the highest in males and females. Monthly income level had no effect on physical activity level in males and females. Studies focusing the relationships between education and physical activity during the aging process support the results of this study that there were education based differences in the physical activity level of different populations during middle and late life (Chad et al., 2005; Grzywacz & Marks, 2001; Kaplan, Newsom, McFarland, & Lu, 2001; King et al., 2000). Schnohr (2004) also demonstrated that participants

with the lowest level of education were frequently both physically inactive. Wagenknecht et al. (1990) and Choiniere, Lafontaine & Edwards (2000) reported that the physical activity level was raised with increasing education level and there was a strong positive association between education level and physical activity. The results of three studies are not consistent with inverse results of this study. On the other hand, significant negative correlations were observed between physical activity and educational status in males (r=-,108, p<.01) and females (r=-,129, p<.01). There was no significant correlation between physical activity and monthly income level in males and females. In many studies physical activity seems to be related education level and monthly income in different levels (Wagenknecht et al. 1990; Choiniere et al. 2000). In a study, it was stated that socio-economic status is one of the critical factors that influence participation in sports and physical activity. Family income, parents‟ education level and occupation were found also to affect the perception to sports participation barriers (Elmagd, Tiwari, Mossa & Tiwari, 2018). There are limited numbers of studies about the degree to which education level and monthly income are associated with participation in physical activity in Turkish population.

Health and physical activity policies should be based on comprehensive data that represents all age groups in both genders. This study examines the possible relations of education level and monthly income to regular physical activity level from adolescents and adults for developing effective promotion strategies. Thus, the purpose of this study is to investigate the effects of education and socio-economic status on regular physical activity levels in males and females at the age range of 14- 95 years.

Clearly, the well-educated male participants had a disadvantage for participating regular physical activity compared to uneducated participants. It may be considered that participants with increasing education level and monthly income had a higher tendency toward to physical activity and may contribute to better physical education in the regulation of behavior change strategies if they had enough free time daily life.

It can be concluded that educational status had an effect on male and female physical activity level. Monthly income level had no effect on physical activity participation in both

genders and the increasing awareness related to positive effects of physical activity and negative effects of inactivity makes possible the new interventions in the regulation of behavior modifications strategies in different groups.

Further research is required to assess whether regular physical activity stages of behavior change were differentiated by monthly income status and education levels in males and females from different age groups for promotion physical activity.

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