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Analysis of Physical Inactivity Based on Sociodemographic Criteria in Turkey

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Abstract

Physical activity, that is one of the significant indicators of healthy lifestyle, is included among priority public health problems in 2013-2017 Strategic Plan of Turkish Ministry of Health and 2014-2017 Strategic Plan of Institution of Public Health. In this study, physical inactivity was analyzed based on sociodemographic criteria, and the differences were addressed. The universe of this descriptive study was whole Turkey; and it was based on data from a total of 128.484 participants belonging to Health Studies of Turkish Statistical Institute which were held in 2008, 2010, 2012, 2014 and 2016. Dependent variable of physical activity was summarized based on various independent variables including sex, body mass index, education level and age groups. The results of the analyses were expressed by percentages and ratios; and bar graphics and line charts were used when necessary. It was found that males were more active than females; the levels of moderate and vigorous activity were decreased as age increased and the ratio of having walks were increased as education level increased. Based on marital status, it was seen that married and single ones had higher activity levels compared to widow individuals. Moreover, the individuals, who had highest level of physical activity, were the ones who stated to experience no depression. The ratios of having walks and low level activities were observed least among obese and underweight individuals. Public health policies made in our country are generally planned by considering the population as homogenous. However, it is required to make plans and to determine goals and strategies for high risk and priority groups, who experience these problems, by detecting priority public health problems.

Keywords: Physical activity, physical inactivity, sociodemographic analysis

Türkiye'de Fiziksel İnaktivitenin Sosyo-Demografik Kriterlere Göre Analizi

Özet

Sağlıklı yaşam biçiminin önemli göstergelerinden biri olan fiziksel aktivite, Türkiye'de Sağlık Bakanlığı 2013-2017 Stratejik Planı'nda ve Halk Sağlığı Kurumu'nun 2014–2017 Stratejik Planı'nda öncelikli halk sağlığı sorunları arasında yer almaktadır. Bu çalışmada, fiziksel inaktivitenin sosyo demografik kriterlere göre analizi yapılarak farklılıklar ele alınmıştır. Tanımlayıcı olan ve evreni Türkiye'nin oluşturduğu bu araştırmada, Türkiye İstatistik Kurumu tarafından yapılan Sağlık Araştırmaları 2008, 2010, 2012, 2014 ve 2016 yıllarına ait toplam 128.484 katılımcının verileri baz alınmıştır. Fiziksel aktivite bağımlı değişkeni, alt kırılımlarda cinsiyet, beden kitle indeksi, eğitim durumu, yaş grupları gibi çeşitli bağımsız değişkenlere göre özetlenmiştir. Analiz sonuçları yüzde ve oranlarla ifade edilmiş ve gerekli yerlerde sütun grafiği ve çizgi grafiğinden yararlanılmıştır. Erkeklerin, kadınlara göre daha aktif olduğu, orta ve ağır aktivite düzeyinin yaş arttıkça azaldığı, eğitim düzeyi arttıkça yürüyüş yapma olasılığının arttığı görülmektedir. Medeni duruma bakıldığında evli ve bekâr olanlar, dul bireylere göre daha yüksek fiziksel aktivite oranlarına sahiptir. Ayrıca fiziksel aktivite oranının en yüksek olduğu kişiler aynı zamanda kendimi depresyonda hissetmedim diyen kişilerdir. Yürüyüş yapma oranları ise en düşük obez bireylerde çıkmıştır. Genellikle hafif düzeyli aktiviteler obezler ve zayıflar tarafından tercih edilmekte olup orta ve ağır aktivite düzeyi obezlerde düşük olmaktadır. Ülkemizde yapılan halk sağlığı politikaları genellikle homojen bir toplum düşünülerek planlanmaktadır. Ancak öncelikli halk sağlığı sorunlarının tespit edilerek bu sorunları yaşayan yüksek riskli ve öncelikli gruplara yönelik planlamalar yapmak ve hedef ve stratejiler belirlemek gereklidir.

Anahtar Kelimeler: Fiziksel aktivite, fiziksel inaktivite, sosyo-demografik analiz

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INTRODUCTION

Almost one in four adults are not physically active enough today; and physical inactivity continues to be one of the severe public health problems across the countries (Moniruzzaman, Ahmed & Zaman, 2017). Epidemiological and clinical studies, that have been performed in the last fifty years, revealed a wide range of positive effects of physical activity on physical and mental health. Physical activity could attain its valid place in public health field only during the first quarter of 21st century; and it was integrated into public health proposals and policies as a part of promoting health and preventing chronic diseases (Pratt, Epping & Dietz, 2009).

Physical inactivity causes death of 3.2 million individuals in the world and ranked as fourth among the leading risk factors; and it is causing 6% of global deaths (WHO Global Strategy, 2016). The other three global causes of death are hypertension (13%), diabetes (6%), and overweight and obesity (5%) (WHO Global Recommendations, 2016).

The effects of physical activity on our physical and mental health can be categorized under three headings. The first one is physical activity effects on our "physical health" including its protective and supportive roles on musculoskeletal system and other systems in our bodies. It has also effects on our "mental and social health" by decreasing depression and anxiety. Besides, it has positive effects on our "future lives" by reducing the risks for several diseases of old age (Ministry of Health, 2014).

It has been observed that regular physical activity decreases the risk for coronary cardiac disease, stroke, diabetes, hypertension, colon cancer, breast cancer and depression. Moreover, physical activity is the most important determinant of energy consumption; and thus, it is essential for energy balance and weight control (www.who.int 2016). It is estimated that physical inactivity is the main reason of nearly 21-25% of breast and colon cancers, 27% of diabetes and 30% of ischemic cardiac diseases.[3] Physical activity and exercise support public mental health studies by preventing and treating conditions such as depression and anxiety (Smith, Jones, Houghton & Duffell, 2016).

Purpose of the Research

In this study, it was planned to analyze physical inactivity that was declared as priority public health problems in 2013-2017 Strategic Plan of Turkish Ministry of Health and 2014-2017 Strategic Plan of Institution of Public Health, based on sociodemographic criteria. In this study, it was aimed to provide information that will shed a light on the basic strategies for this public health problem and plan to meet the needs of high-risk groups, by analyzing physical inactivity according to socio-demographic criteria. Thus, this study will contribute to the literature on physical activity.

METHOD

In this descriptive study by using quantitative method, statistical data regarding a priority public health problem, that was addressed as physical inactivity, were analyzed based on various sociodemographic criteria such as age groups, sex, education level and income level; and the differences were examined.

Turkey Health Survey (THS) is a research that is carried out biennially by Turkish Statistical Institute (TurkStat) in order to reveal general health profile of the community and to retrieve data regarding health indicators. The universe of this study includes all settlements within the borders of Turkey; and data sources are the households chosen for the sample. The questionnaire form, general health states of the individuals, their chronic diseases, their weight and height values, states of smoking and alcohol use and many variables in this field can be obtained from this study (TUIK, 2016).

Data of Turkish Health Research Study were demanded with Micro Data Request Form in written form by the researcher and data from 2008 to 2016 were retrieved at the end of Turkish Statistical Institute approval. The study was based on the analysis of existing data from Turkey Health Surveys by Turkish Statistical Institute and therefore no ethics committee was needed.

A total of 128.484 individuals were participated in Turkey Health Survey including 20.624 in 2008, 20.200 in 2010, 37.979 in 2012, 26.075 in 2014 and 23.606 in 2016; and analyses were based on data from the individuals over 15 years old. Physical activity level was dependent variable whereas age, education level, sex, income level, body mass index and marital status were independent variables.

While THS data used in the study were assessed, categorical variables were summarized as n (%) and continuous variables were given as mean ± standard deviation. Physical inactivity was shown by percentages and ratios in many sub fractions and graphical approaches were used when required.

RESULTS

Due to the changes made in some questions in the questionnaire forms during the years, some data could not be presented comparatively in this section.

When we compared 2014 and 2016 based on physical activity levels, an increase was observed in low level physical activity (figure 1) whereas a decrease was found in vigorous physical activity. No change was observed in moderate level physical activity. While activities such as aerobics, fast cycling, field work, construction work and heavy lifting were considered as vigorous activities, moderate level activities included playing tennis, cycling at normal speed and light-load lifting (Ministry of Health, 2014).

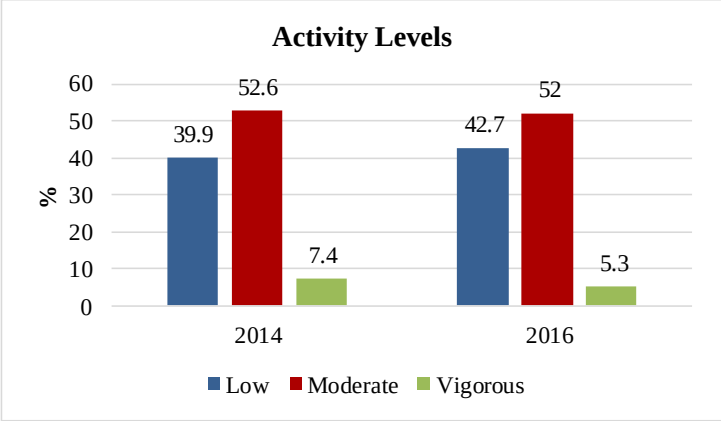

Figure 1: Physical activity ratios in 2014 and 2016.

Based on sex, significant increases were detected in the ratio of having 10-minute walks (figure 2) in both sexes between 2008 and 2016 except 2012. The response of yes for "having a 10-minute walk daily" was found to be 82.8% among females and 90% among males in 2016. Similarly, vigorous activities were found to be lower among females (1.6%) compared to males (10.0%) in 2016. The ratios of moderate level activities were very comparable between females and males (F=50.0%; M=54.6%). Moreover, low level activities were found to be higher among females (48.4%) compared to males (35.4%).

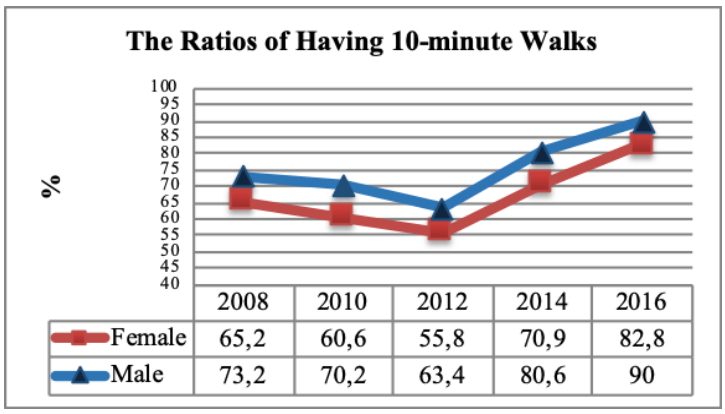

Figure 2: Distribution of the individuals who responded as "yes" for "having 10-minute walk daily" based on sex.

Physical activities were also assessed based on age groups, and the ratios in 2016 were presented in Table 1. It can be stated that vigorous level activities were highest among 25-34 and 35-44 year old age groups; and similarly, moderate level activities were highest among the same age groups. For 10-minute walks, the ratios decreased as age increased. While the percentage of the ones responding as "yes" was 86.7% in the youngest group, it was decreased to 52.8% in 75+ group.

Table 1. Physical Activity and Age Groups, 2016

		Age Groups						
Activity Level		**15-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65-74**	**75+**
Low level activity	n	1142	1041	1126	1211	1086	956	795
	%	39.3	34.6	32.7	40.3	45.9	61.9	82.2
Moderate level activity	n	1646	1754	2018	1605	1209	569	165
	%	56.7	58.3	58.6	53.4	51.1	36.8	17.1
Vigorous level activity	n	117	211	300	191	73	20	7
	%	4.0	7.0	8.7	6.4	3.1	1.3	0.7

When physical activities were evaluated based on education levels, 10-minute walking activity was found to be lowest among the illiterate ones and highest among college, faculty and master-doctorate graduates. The ratios of having walks increased as education level increased. This ratio was 78.1% among the illiterate individuals whereas it was 88.9% among college/faculty or master-doctorate graduates. The ratios of vigorous and moderate level activities were found to be highest among elementary school graduates. When marital status was examined, it was found that married and single individuals had higher physical activity rates compared to widow individuals. Ratio of low level physical activity was found to be higher among the widows.

When number of days for doing exercises was addressed, the ratio of participants express their answers to this question, who stated to do no exercise, was found to be 93.4% as seen in Table 2 (92.6% in 2014). The percentage of the ones stating as "1-3 days" was 4.4% whereas it was 2.2% among the ones stating as "4-7 days". The percentage of the ones, who stated to do no exercise, was found to be highest among the females.

Table 2: Distribution of the Number of Exercise Days Based on Sex, 2016

Days Category	**Male**		**Female**		**Total**	
	n	**%**	**n**	**%**	**n**	**%**
No	6.979	91	9.120	95,3	16.099	93,4
1-3 days	459	6	305	3.2	764	4.4
4-7 days	230	3	149	1.6	379	2.2
Total	7.668	100	9.574	100	17.242	100

The ratios of low, moderate and vigorous level activities and 10-minute walking activity were examined in body mass index (BMI) groups based on 2016 data in the scope of daily physical activities. Based on the answers given to the question as "Which of the following describes your situation best while working/performing your daily activities?", the ratios across BMI groups were presented in Table 3. In general, low level activities were preferred by underweight and obese individuals. When daily 10-minute walks were evaluated, the ratio was found to be lowest among the obese ones (74.6%); and the ratios were 81.4% , 84% and 81.7% in underweight, normal and overweight groups, respectively.

Table 3: Physical Activity and BMI Groups, 2016

		BMI Category			
Activity Level		**Underweight**	**Normal**	**Overweight**	**Obese**
Low level activity	n	278	2604	2582	1893
	%	44.2	39.4	41.6	49.9
Moderate level activity	n	331	3640	3264	1731
	%	52.6	55.0	52.6	45.6
Vigorous level activity	n	20	371	358	170
	%	3.2	5.6	5.8	4.5

When the relationship between physical activity levels and depression was examined, it was seen that the group who responded to 10-minute walk question as "yes" at highest ratio included the individuals who never felt themselves in depression. Assessment for other activities based on the state of feeling in depression was given in Table 4.

Table 4. Physical Activity Walking and Feeling in Depression

n		**Depression (within last 2 weeks)**			
(%)		**Never**	**Some days**	**More than one week**	**Almost everyday**
10-minute walk	Yes	8334	4829	350	458
		83.70	79.20	72.60	64.20
	No	1618	1266	132	255
		16.30	20.80	27.40	35.80
Physical activity and feeling in depression					
n		**Depression (within last two weeks)**			
(%)		**Never**	**Some days**	**More than one week**	**Almost everyday**
Low level activity		3963	2722	252	420
		39.8	44.7	52.3	58.9
Moderate level activity		5434	3062	205	265
		54.6	50.2	42.5	37.2
Vigorous level activity		555	311	25	28
		5.6	5.1	5.2	3.9

DISCUSSION

Physical inactivity takes the first place among the preventable public health problems in Turkey as well as in the world. It is required to bring healthy lifestyle behaviors into the society for this public health problem, that is included among the risk factors of chronic diseases and to plan basic strategies and activities in health policies of the countries for that.

The important outcomes of this study are the facts that males were more active than females, moderate and vigorous activity levels were decreased as age increased and the possibility of having walks increased as education level increased. According to the results of field study which was conducted in 28 countries by European Commission in 2013 (Special Eurobarometer 412 "Sport and physical activity"), males were found to perform exercise and sports more than females. The ratio of performing exercises and sports showed a decrease by increasing age. The percentage of the ones, who perform exercise and sports once a week, was found to be highest in 15-24 year old group (European Commission, 2014). These data support the outcomes of Turkey Health Survey. Macro and micro environment, individual factors and unchangeable factors such as genetic structure, age, gender, geographical structure and weather conditions, affect individuals' participation in physical activity. For instance, women have less leisure time for sport activities than for men because women are more frequently engaged household chores and childcare. In addition, chronic diseases and problems that occur with advancing age affect a person's daily activity level. In the studies, it was found that there was a negative correlation between age and physical activity and the rate of physical activity decreased with increasing age (Vaidya & Krettek, 2014).

In Turkey Health Survey, the question as "how many times do you do sports (sports, fitness, leisure activities) in a week?" was responded as "never" by 93.4% (within the ratio of participants answering this question) in 2016. In European Union countries, the ratios of doing sports (aerobics, fast cycling, etc.) were reported as "never" by 54% (European Commission, 2014). When the outcomes of Turkey Health Survey were compared with European Commission data, it was striking to see that the ratio of the ones, who never did sports, was higher in Turkey. Considering that many factors such as socio-economic, cultural, environmental and individual factors affect the individual's physical activity status, it is important to encourage the placement of healthy lifestyles throughout the society and to make and maintain plans that will lead to behavior change. In Turkey, significant studies are done in order to increase the level of awareness in the community about physical activity in recent years. It is important to address the issue in a

social dimension by providing cooperation between different sectors (health, sports, transportation, city planning, education, etc.) that will encourage physical activity.

Furthermore, the individuals, who had highest physical activity levels, were the ones who stated to experience no depression. The ratio of walking (10 minutes daily), that is one of the most popular physical activities for public health, was found to be lowest among the obese individuals. In a cross-sectional study which was carried out to find prevalence and correlation between physical activity level and sociodemographic characteristics of 1733 adults over 35 years old in South Africa during 2008-2009, physical activity levels were found to be lower among obese (>30.0) and underweight individuals; and these data also support the outcomes of Turkey Health Survey (Malambo, Kengne, Lambert, De Villiers & Puoane, 2016).

"Turkish Healthy Nutrition and Active Life Program" was introduced in Turkey for struggling with physical inactivity; and it was planned to cope with obesity as well as to enhance physical activity levels by encouraging society for physical activity. "Turkish Healthy Nutrition and Active Life Program (2010-2014)" was updated for 2014-2017 period to be compatible with new strategic plan during reconstruction of Ministry of Health by "Decree Law no. 663 concerning the organization and duties of the Ministry of Health". "National Physical Activity Plan" was prepared based on age groups and published. In the scope of the program, it was planned to promote local authorities, private sector and such organizations that carry out various activities encouraging for physical activity and to make attempts for including proper messages on obesity and physical activity on the media. Besides, there are other arrangements in the scope of the program such as expanding green and sports fields in the city centers, giving priority to the construction of cycling paths, creating exercising fields in the shopping malls, encouraging walking instead of driving and using escalators and introducing exercise programs on television (Public Health Institution of Turkey, 2017).

In strategies for public health problems addressed in Turkish health policies, it is important to make plans for high risk and priority groups rather than a homogenous population. There are differences between the strategies for enhancing physical activity among children and adolescents and the programs organized for advanced age groups. Public health is affected by many factors including social, physical and financial; and public health policies should be generated and carried out by an evidence-based decision making mechanism. Monitoring and evaluation of public health policies planned within the framework of the criteria to be determined will contribute to the success of these policies.

In this study, the use of Turkey Health Interview Survey data for 2016 can be expressed as the limitations of the research. Next Turkey Health Survey will be held at the end of 2019 and due to the article being in writing at these dates, current data will be available in future studies. In addition, accessing data on factors that prevent physical activity in future studies will provide important guidance for the strategies to be developed.

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