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Leisure Physical Activity in Turkish Adults: Difference Between Urban and Squatter Areas

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Abstract: To determine the area level socioeconomic disadvantage is important in leisure physical activity. A cross-sectional data from questionnaires by 768 adults aged 40-64 years was analyzed. The results showed that age, employment and income-expenditure rate did not affect leisure activity for both men and women in urban area, while being educated and unhealthy for women and being illiterate for men correlated with being active. In squatter area, low educated women were more active than high educated women and employed women were more active than unemployed ones, while age, income-expenditure rate, education and total health status were not related with leisure activity in squatter men. Different factors affect leisure activity in the urban and squatter areas. Physical inactivity was related with unemployment in only squatter women. There is not any relation with health status and leisure physical activity.

Key words: Health, leisure physical activity, socioeconomic status

INTRODUCTION

Physical activity has numerous physical and mental health benefits for people of all ages (US Department of Health and Human Services, 1996). Despite the accumulated evidence of its benefits, the prevalence of physical inactivity and the burden of a sedentary lifestyle are prominent (Onat, 2005; Aslan *et al.*, 2008). In a 10 year cohort study, the decline in physical activity in adults aged 30-79 years was 2% for men and 8% for women, especially between ages of 30-59 years (Onat, 2005). In a cross-sectional study of adults over 65 years of age, it is reported that 56.1% of women and 71.8% of men had no regular physical activity (Aslan *et al.*, 2008).

Understanding the determinants of physical activity is important to guide the development of public health programmes aimed at increasing population levels of physical activity participation, which is one of the aims of the national health objectives (Oztek *et al.*, 2001). Reports on the barriers to participation in physical activity show that society's influences on physical activity are multifactorial in that they included demographic, biological, psychological, cognitive, emotional, behavioral factors (US Department of Health and Human Services, 1996; Trost *et al.*, 2002). Recently, researchers have argued that the

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environment in which people live may also be an important determinant of physical activity participation independent of personal characteristics and that health promotion activities may need to focus on improving local environments to encourage physical activity (Owen *et al.*, 2000; Kavanagh *et al.*, 2005). Studies show that living in socioeconomically disadvantaged areas is associated with lower levels of overall physical activity participation (Owen *et al.*, 2000; Hallal *et al.*, 2005).

The demonstration of an independent effect of area-based characteristics on physical activity suggests that intervention is needed not only at the individual level, but also in the areas where people live. The relationship between deprived socioeconomic areas, individual socioeconomic factors and participation in physical activity in the adult population has not been studied in Turkey. Thus, we need to understand the physical activity behavior of adults that live in different socioeconomic settlements in order to assist them in initiation and/or maintenance of regular activity. As a basis for understanding patterns in activity and intervention opportunities, it is important to understand the independent contributions of urban-squatter areas and socioeconomic factors.

The literature suggest that lower level of leisure physical activity is found in lower educational groups (Crespo *et al.*, 1999; Lee *et al.*, 2007), income level groups (Oztek *et al.*, 2001; Parks *et al.*, 2003; Crespo *et al.*, 1999; Bopp *et al.*, 2006; Lee *et al.*, 2007; Fukuda *et al.*, 2005), poor health (Aslan *et al.*, 2008; Bopp *et al.*, 2006; Fogelman *et al.*, 2004), older age (Aslan *et al.*, 2008; Bopp *et al.*, 2006) and unemployment (Crespo *et al.*, 1999; Bopp *et al.*, 2006; Fukuda *et al.*, 2005). However, few studies are focused the importance of area level socioeconomic disadvantage in relation to physical activity (Parks *et al.*, 2003; Fukuda *et al.*, 2005). It was reported that rural residents were the least physically active, suburban residents were the most active (Kavanagh *et al.*, 2005) and individual income was significantly related to exercise in both women and men (Fukuda *et al.*, 2005). Therefore, the aims of this study were to compare the physical activity status between the two socioeconomically different areas, urban and squatter and to identify which factors such as age, income, education, employment and health status affected the physical activity status.

MATERIALS AND METHODS

Study Sample

A cross-sectional study was conducted in an adult population (40-64 years) within the borders of the Antalya municipality (years: 2003-2006). Detailed information was obtained from the municipal office responsible for the residential area in the region of the Primary Health Care Units (PHCU) to determine the urban (high socioeconomic area) or squatter (low socioeconomic area) areas. The area is defined as urban area when it has complete infrastructure development, real estate, residential zoning, apartments and city life. The area is defined as squatter area if it has incomplete infrastructure development, no real estate, no residential zoning, bad conditions and the residents work in marginal sectors of the urban economy (Gökçe, 1993). The PHCU were selected randomly as Ahatly (squatter area) and Bahçelievler (urban area). Total research population consists of 21468 adults of whom 7364 subjects lived Ahatly and 14104 of whom lived in Bahçelievler. From this population, the sample size was calculated as 377 using the EPI 2000 STATCALC program with the confidence interval was 95% and the cluster sampling method was used which was proportionate to the population size for selecting the sample size. The sample size (377) was multiplied by 2 (n=644) to prevent missing the design effect of cluster-sampling. In order to minimize the possible errors caused by communication problems with people and/or pollster

related problems, the final number of people to be included in the study was set at 800 (100 clusters, 8 individuals per cluster) which constituted 3.7% of the whole study population, 308 in Ahatly and 492 in Bahçelievler. Thirty two individuals mostly from Ahatly rejected participation in the research. A comparison between the sample population and the total population is shown in Table 1.

In a standardized pre-tested questionnaire, the subjects were asked their age, income-expenditure rate, education, employment, leisure physical activity and health status. The Ethics Committee of the Akdeniz University School of Medicine approved the project. Informed consent was obtained from each participant.

Age

Age was classified into five categories (40-44, 45-49, 50-54, 55-60 and 60-64 years).

Income-Expenditure Rate

The income-expenditure rate was asked to the participant and then, the three categories were distinguished according to income-expenditure rate: high (income>expenditure), medium (income = expenditure) and low (income<expenditure).

Educational Level

Respondents were asked to provide their highest school level completed to evaluate educational level. Responses were coded to the highest education level completed within groupings of high university, >11 years, medium higher vocational, general secondary, 9-11 years, low elementary education, 1-8 years and very low illiterate.

Employment

Employment status was determined based on whether the participant reported working at a job or business during the past year by using a standard systematic assessment of occupational involvement. Employed persons are very heterogeneous, including soldier, lawyer, bank employee, civil servant, teacher, physician, academician, small shop-keepers, etc. The unemployed include those outside the active workforce, such as retired, homemaker, jobless. With this information, two categories of employment were established: employed and unemployed.

Health Status

Data on the subjects' health histories were collected by asking if they had signs or symptoms of illness during the past 12 months. For this analysis we required participants to check one of two responses (yes, 0 point or no, 1 point) for each of the 11 items (heart attack, chest pain during physical activity, high blood pressure, shortness of breath at rest or after mild exertion, unhealed wounds on their feet, lost 10 pound of body weight without trying, pain on their back or leg, irregular heartbeat, fracture, causeless fall, diabetes). A composite score for the number of health complaints was calculated.

Leisure Physical Activity

Data on the subjects' leisure physical activity history were collected by asking respondents whether they do exercise or play sports regularly. People who answered no were defined as being physically inactive.

Statistical Analysis

Means, standard deviations and percentage values were calculated for all data. The independent t test was used to compare the health score between the settlements and a

χ^2 test was used to establish any significant differences in the age, income-expenditure rate, education, employment and leisure physical activity. Then, logistic regression for multiple analyses was used because the hypothesis of this study was the factors such as age, income-expenditure rate, education, employment and health status affected the leisure physical activity difference between the urban and squatter area. The significance level was set at $p < 0.05$.

RESULTS

As shown in Table 1, 35.8% of study participants resided in a squatter area. The average ages of men and women that lived in the squatter area were 49.5 ± 6.8 years and 49.4 ± 7.2 years, respectively and 47.3% of them were women. The average ages of men and women that lived in the urban area were 50.3 ± 6.3 years and 49.9 ± 6.8 years, respectively and 48.9% of them were women.

Forty five percent of subjects in the urban area were educated at low and very low levels, 37% of them had low income level and 40% of them were employed. Seventy four percent of subjects in the squatter area were educated at low and very low levels, 85% of them had low income level and 44% of them were employed (Table 2). Active women and also men were more plentiful in the urban area than in the squatter area ($\chi^2 = 7.676$, $p = 0.004$ and $\chi^2 = 7.767$, $p = 0.004$, respectively).

When all independent variables (employment status, income, education, age groups, health score) were analyzed with the logistic regression model, it was found that education and the total health score related to physical activity in urban women (OR = 2.21, 95% CI = 0.21-98, $p = 0.043$ and OR = 1.23, 95% CI = 0.71-0.94, $p = 0.004$, respectively) and only education related to physical activity in urban men (OR = 3.67, 95% CI = 1.79-7.51, $p < 0.001$). Medium educated women were more active than low educated women and the higher health

Table 1: Age and gender distribution in sample and research populations

Sample												
Ahatli						Bahçelievler						
Age groups	Male		Female		Total		Male		Female		Total	
	N	%*	N	%	N	%	N	%	N	%	N	%
40-44	47	17.1	39	14.2	86	31.3	62	12.6	66	13.4	128	26.0
45-49	40	14.6	38	13.8	78	28.4	66	13.4	61	12.4	127	25.8
50-54	27	9.8	25	9.1	52	18.9	59	12.0	53	10.8	112	22.7
55-59	17	6.2	17	6.2	34	12.4	37	7.5	32	6.5	69	14.0
60-64	14	5.1	11	4.0	25	9.1	28	5.7	29	5.9	57	11.6
Total	145	52.7	130	47.3	275	100.0	252	51.1	241	48.9	493	100.0
Research population												
Ahatli						Bahçelievler						
Age groups	Male		Female		Total		Male		Female		Total	
	N	%*	N	%	N	%	N	%	N	%	N	%
40-44	1293	17.6	1092	14.8	2385	32.4	1703	12.1	1908	13.5	3611	25.6
45-49	1093	14.8	1018	13.8	2111	28.7	1868	13.2	1892	13.4	3760	26.7
50-54	756	10.3	618	8.4	1374	18.7	1638	11.6	1408	10.0	3046	21.6
55-59	504	6.8	396	5.4	900	12.2	1116	7.9	929	6.6	2045	14.5
60-64	323	4.4	271	3.7	594	8.1	822	5.8	820	5.8	1642	11.6
Total	3969	53.9	3395	46.1	7364	100.0	7147	50.7	6957	49.3	14104	100.0

*Percentages were calculated according to the general total

Table 2: Sample characteristics

Characteristics	Urban area		Squatter area	
	Women (N = 241)	Men (N = 252)	Women (N = 130)	Men (N = 145)
Employment				
Employed n (%)	54 (22.4)	145 (57.5)	21 (16.2)	101 (69.7)
Education				
Very low, n (%)	7 (2.9)	6 (2.4)	12 (9.2)	13 (9)
Low, n (%)	111 (46.1)	97 (38.5)	83 (63.8)	96 (66.2)
Medium, n (%)	68 (28.2)	79 (31.3)	20 (15.4)	20 (13.8)
High, n (%)	55 (22.8)	70 (27.8)	15 (11.5)	16 (11)
Income-expenditure rate				
Low, n (%)	86 (35.7)	95 (37.7)	111 (85.4)	124 (85.5)
Medium, n (%)	115 (47.7)	111 (44)	15 (11.5)	16 (11)
High, n (%)	40 (16.6)	46 (18.3)	4 (3.1)	5 (3.4)
Leisure time physical activity				
Active n (%)	129 (53.5)	125 (49.6)	50 (38.5)	51 (35.2)
Health status, score	8.7 (2)	9.2±1.8	7.6 (2.3)	7.9±2.6

score was associated with physical inactivity while illiterate men were more active than low educated men. Age, employment status and income-expenditure rate did not show significant relation with the physical activity status ($p > 0.05$). In squatter area, illiterate women were more active than low educated women (OR = 18.98, 95% CI = 2.39-150.48, $p = 0.005$), low educated women were more active than medium educated women (OR = 12.55, 95% CI = 1.24-126.89, $p = 0.032$, respectively) and employed women were more active than unemployed ones (OR = 6.73, 95% CI = 1.84-24.65, $p = 0.004$), while all independent variables were not related with physical activity in squatter men ($p > 0.05$).

DISCUSSION

These preliminary findings are the first report of leisure physical activity determinants among adults aged 40-64 years from two different socioeconomic areas-urban and squatter-using a PHCU data source in Turkey. The finding that more active women and men were in the urban area than in the squatter area is consistent with other evidence that shows that living in socioeconomically disadvantaged areas is associated with lower levels of physical activity (Kavanagh *et al.*, 2005; Fukuda *et al.*, 2005).

The lack of a significant association between income and physical activity in this study is a surprising finding. Perhaps, the descriptive nature of income information in this study account for the contrast between present findings and those in other studies (Lee *et al.*, 2007; Bopp *et al.*, 2006; Fukuda *et al.*, 2005; Crespo *et al.*, 1999).

Studies have found that the physical activity rate is higher among employed persons (Bopp *et al.*, 2006; Fukuda *et al.*, 2005; Crespo *et al.*, 1999). We found that physical inactivity was related with unemployment in only squatter women. This result is probably due to the use of different methodological approaches.

Studies have conflicting results in relation to physical inactivity and education. Some of the researchers found that physical inactivity was strongly associated with a low level of education for both men and women (Crespo *et al.*, 1999) whereas some of them reported that low educational attainment was not associated with a reduced likelihood of exercise association for men (Bopp *et al.*, 2006). Probably, the lower educated women in squatter area had more health complaints, therefore, they might be more active and how so ever we did not find any relation with health status and leisure physical activity. Nevertheless, inverse relation was found between leisure physical activity and health status in urban women. It was

reported that there were significantly positive associations between not doing exercise with presence of a chronic disease (Aslan *et al.*, 2008) and meeting exercise recommendations were associated with fewer chronic conditions (Bopp *et al.*, 2006).

We found no significant association between physical activity and age, although, studies suggested that physical inactivity was strongly associated with older age (Aslan *et al.*, 2008; Bopp *et al.*, 2006). The study participants were older (Aslan *et al.*, 2008) and younger subjects compared with older ones (Bopp *et al.*, 2006) when compared with present study.

Present pilot study has several limitations. The first limitation is its cross-sectional design, which does not allow for the establishment of causalities. Second, physical activity levels were assessed on a single question and neither activity choices nor content and intensity of leisure physical activity were available. Third, physical activity was recorded only for leisure time and as such, non-leisure activities that may be influenced by socioeconomic status are unknown. Bearing these limitations in mind, while high education and the total health score related to physical activity in urban women and only low education related to physical activity in urban men, low education and employment for women were positively associated with physical activity in the squatter area.

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