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Investigation of the relationship between physical activity level and healthy life-style behaviors of academic staff

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The purpose of the study was to determine the relationship of physical activity (PA) level and healthy life-style behaviors in academic staff in Bartın University, Turkey. The short form of International Physical Activity Questionnaire was administered for the determination of physical activity level of academic staff. Their PA levels were categorised as inactive, minimally active, and physically active by using MET method. For the determination of healthy life-style behaviors, Health-promoting Life-style Profile Questionnaire was used with self-actualization (SA), health responsibility (HR), exercise (E), nutrition (N), interpersonal support (IS), and stress management (SM) subscales. Results of Pearson's Product Moment Correlation analyses indicated significant positive correlations between total physical activity level and exercise ($r=0.52$; $p<0.01$) and healthy life-style behaviors ($r=0.47$; $p<0.01$) among the study subjects. There was no significant correlation between healthy life-style behaviors and sport index of physical activity questionnaire ($p>0.05$). The findings of the study indicated that healthy life-style behaviors were not indicators of physical activity level of academic staff.

Key words: Academic staff, health-promoting life-style, life-style profile scale, physical activity,

INTRODUCTION

Physical activity level and health-poromoting life-styles are two important interrelated topics under examination. Health-promoting life-styles include activities that are focused on improving the level of well-being. Physical activities take an important role in well-being. The focus of these activities is on the development of positive potential for physical, social, mental, intellectual or spiritual health (Ebem, 2007). Considering this multi-dimensional structure of health promotion (e.g. physical, social, mental, and intellectual), the researchers identified six health-promoting behaviors. These are social support, life appreciation, health responsibility, stress manage-ment, nutrition, and exercise (physical activity) behaviors (Walker et al., 1987; Walker and Hill-Polerecky, 1996; Physical Activity and Public Health, 1995; Esin, 1997). Therefore, it is generally accepted that physical activity (PA) can improve quality of life and is a critical component in reducing or eliminating health disparities through lowering heartbeat rate and blood pressure at rest; reducing hypertension and blood glucose; decreasing

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fat mass; increasing lean body mass, bone mass, bone strength and muscle strength; preventing arthritis, some types of cancer and type 2 diabetes (Kramer et al*.,* 1996; WHO, 2010; Turkish National Burden of Disease, 2004). There is also evidence that regular PA may reduce or prevent mild or moderate depression (Yıldırım, 2010). Further, with developing technology, many individuals pursue sedentary activities and become physically less active. Sedentary life-style leads to a greater risk of developing coronary heart disease, hypertension, high blood lipid profile, type 2 diabetes, obesity, and some forms of cancer, like colon and breast cancer (Turkmen et al*.,* 2013).

Several studies found some socio-demographic variables to be related to the practice of health behaviors (Beşer et al*.,* 2007). Duffy et al*.* (1986) found that age and education affected healthy life-style behaviors. Moreover, with increase in age, education, work experience, status, and income, health-promoting behaviors also increased. Kuster and Fong (1993) reported that age, education, and income play important roles in promoting healthy life-style behaviors. Walker et al. (1987) stated that workers received the highest scores on self-actualization and exercise, but that they got low scores on health responsibility and stress management. Similar to this finding, Esin (1997), in her study on 450 workers, established that workers had a moderate level of healthy life-style behaviors. In addition, physical activity and exercise play important roles in prevention and improvement of mild to moderate depressive disorders, anxiety, and stress management. Regular physical activity and exercise help improve physical fitness of individuals and, therefore, promote a healthy life-style. Physical fitness is the ability of an individual to perform occupational, recreational and daily activities without becoming unduly fatigued and has components, like aerobic fitness, muscular fitness, flexibility, and body composition. However, in order for the exercise to improve physical fitness of an individual, the exercise program should have standardized principles (ACSM, 2011; Heyward, 1997; Turkmen et al., 2013)

Previous studies in health-promoting behaviors indicated a high level of risky health behaviors in the university academic staff. Specifically, sedentary life-styles and low physical activity level were the most critical findings from these studies. Other studies examining the physical activity behavior as a health-promoting factor found that physical activity level dramatically decreases from high school to the university years (Ebem, 2007). Goldfield et al. (2012) pointed out the importance of gaining healthy life-style behaviours during preschool years. Although health-promoting behaviors of the university academic staff were examined in several studies, there is a lack of knowledge about those behaviors of the students who have just entered the university. Moreover, there have been limited studies on health-promoting behaviors, such as health responsibility, self-actualization, health control, stress management, nutrition, and exercise; also, very few health-promoting programs have been developed in Turkey (Beşer et al., 2007). The objective of this study was to examine the health-promoting behaviors, especially the physical activity levels of the academic staff in Bartın University to determine the relationship between healthy life-style behaviors and physical activity level in the study subjects.

MATERIALS AND METHODS

Subjects and experiment approach

One hundred and two male and female academic staff members (4 professors, 5 associate professors, 24 assistant professors, 39 lecturers, 30 research assistants) in Bartın University participated in this study voluntarily. The questionnaires were self-applied by the academic staff. Mean±SD age of them was 42.4±11.03 years; height was 169.4±7.1 cm; weight was 71.3±9.7 kg; and BMI was 23.4±3.4. Before data collection, the subjects were given information comprehensibility of the questions.

Health-promoting life-style profile scale

The participants were asked to provide information about the demographic factors, such as age, gender, and education. Health-promoting Life-style Profile Scale was used for collecting data on their health behaviors. The scale was developed by Walker et al. (1987). It is composed of 48 items and 6 subscales and consists of questions about health-promoting behaviors. The subscales were on self-actualization (SA), health responsibility (HR), exercise (E), nutrition (N), interpersonal support (IS), and stress management (SM). The total score reflects the healthy life-style behavior. Four more items were added to the scale, and now the scale is composed of 52 items (Walker et al., 1996). Each respondent was asked to rate each item on Likerts' 1 to 4 response scale where 1 corresponds to never, 2 sometimes, 3 often, 4 regularly. Alpha coefficient reliability of the scale was 0.92, and alpha coefficient reliability of the subscales varied from 0.70 to 0.90.

The reliability of the scale for Turkish population was tested by Esin and Akça. Alpha coefficient reliability of the scale was 0.91 in Esin's study and 0.90 in Akça's study.

International physical activity questionnaire (IPAQ)

IPAQ is a validated instrument to determine physical activity level of the participants (Craig et al., 2003). IPAQ measures the frequency, duration, and level of intensity of physical activity in the last seven days across all contexts and allows for the calculation of metabolic equivalents (MET). MET presents the weekly amount of physical activity. It is a product of frequency, duration, and intensity of the physical activity performed in the last seven days. Physical activity level was measured as hours per week (MET-hours/week) calculated according to the existing guidelines (IPAQ, 2005). Based on the self-reported MET, frequency, and intensity of the physical activity, people can be classified into groups having low, moderate and high level of physical activity.

Inactive (sedentary, low) group included the participants who reported lower than 600 MET-min/week of exercise, minimally active (moderate level of physical activity) group included the participants who reported 601-3,000 MET-min/week of exercise, and physically active group (high, recommended level) included the participants who reported more than 3,000 MET-min/week of exercise. In this study, PA levels of the participants were evaluated

Table 1. Mean and standard deviation of scores of the healthy life-style behavior among the study participants.

Healthy life style behavior	Mean	SD
Self-actualization	43.51	6.32
Health responsibility	27.52	4.60
Exercise	10.72	4.26
Nutrition	20.13	2.43
Interpersonal support	23.02	4.12
Stress management	18.25	4.39
Total score of the healthy and life-style behavior	153.28	28.14

Academic staff (n=102).

Table 2. Mean and standard deviation of the physical activity level among the study participants.

International Physical Activity Qustionnaira (IPAQ)			IPAQ categories
Walking	(3.3MET)	587.54 MET-min/week	Minimally active group (moderate level of physical activity) (601-3000 MET-min/week)
Moderate	(4.0MET)	319.76 MET-min/week	
Vigorous	(8.0MET)	345.19 MET-min/week	
Total IPAQ		1252.49 MET-min/week	

Academic staff (n=102).

Table 3. Correlations between physical activity level and healthy life-style behaviour.

Healthy life style behavior	Total physical activity level
Self-actualization	NS
Health responsibility	NS
Exercise	0.52**
Nutrition	NS
Interpersonal support	NS
Stress management	NS
Total score of the healthy and life-style behavior	0.47**

Academic staff (n=102).**p<0.05; **p<0.01; NS: Non Significant.*

through Turkish short version of IPAQ (Öztürk, 2005). Translation and validation study of Turkish version for the university students indicated an evidence for construct validity, criterion validity (accelerometer-IPAQ short form) (r=0.30), and test-retest stability (r=0.69) (Öztürk, 2005).

Statistical analyses

Means and standard deviations are given as descriptive statistics, and the relationship between healthy life-style behaviors and physical activity level was evaluated by Pearson's Product Moment Correlation Analysis. All analysers were executed in SPSS for Windows (version 16.0) and the level of statistical significance was set at $p<0.05$.

RESULTS

The healthy life-style behaviors and physical activity level of academic staff in Bartın University as assessed in this study are displayed in Tables 1 and 2, respectively. Table 3 shows the correlations between healthy life-style behaviors and physical activity level.

Table 1 shows the healthy lif-stye behaviors of the academic staff in Bartın University. According to this table, the highest rate was reached in self-actualization sub-scale, and the lowest rate in exercise. This finding depicts the contradictory attitude of academic staff towards exercise.

According to Table 2, the academic staff in Bartın University is in minimally active group.

Results of Pearson's Product Moment Correlation Analyses indicated significantly positive correlations between total physical activity level and exercise ($r=0.52$; $p<0.01$) and healthy life-style behaviors ($r=0.47$; $p<0.01$) in the study subjects. There was no significant correlation between healthy life-style behaviors and sport index of

physical activity questionnaire (p>0.05). The findings of the present study indicated that healthy life-style behaviors were not an indicator of physical activity level of academic staff in the Bartın University of Turkey.

DISCUSSION

This study explored the relationship between physical activity levels and healthy life-style behaviors of academic staff in Bartın University. It is important to find out the relationship between physical activity and healthy life-style behavior as the results would convey the need for more efficient applications of physical activities in campus life. Physical activity is defined as any bodily movement produced by skeletal muscles that requires energy expenditure. Physical inactivity (lack of physical activity) has been identified as the fourth leading risk factor for global mortality (6% of deaths globally). Regular physical activity and exercise help improve physical fitness (aerobic fitness, muscular fitness, flexibility, and body composition) of individuals and, therefore, promote a healthy life-style (Özkan, 2011). Also, regular physical activity and exercise help improve physical fitness of individuals, thus promoting a healthy life-style.

Physical fitness is the ability of an individual to perform occupational, recreational and daily activities without becoming unduly fatigued and has components, like aerobic fitness, muscular fitness, flexibility, and body composition. However, in order for the exercise to improve physical fitness of an individual, the exercise program should have standardized principles (ACSM, 2011; Heyward, 1997). Many of the previous researches have already outlined the positive relationship between academic success and physical activity in the literature (Chomitz et al., 2009; Logan *et al.*, 2013; Tagoe and Dake, 2011; Tomporowski et al., 2008; Turkmen et al., 2013). However, with developing technology and intensive workload, many individuals in academic institutions pursue sedentary activities and become physically inactive (Pirincci et al., 2008). Sedentary life-style leads to a greater risk of developing coronary heart disease, hypertension, high blood lipid profile, type 2 diabetes, obesity, and some forms of cancer, like colon and breast cancer. Many studies reported that engaging in physical activity and exercise on regular basis lowers blood pressure, improves lipoprotein profile, C-reactive protein, and other CHD biomarkers, enhances insulin sensitivity, and plays an important role in weight management (Ay et al., 2012; Knechtle, 2004; Macauley, 1994; Vail, 2005). In addition, physical activity, exercise, and healthy life-style play important roles in the prevention and improvement of mild to moderate depressive disorders and anxiety (Tsai and Liu, 2012).

Conclusion

The present study depicted that academic staff in Bartın University are minimally active in terms of physical activity level and have an average score in healthy life-style behaviors. This finding is almost in line with the results of Turkish National Burden of Disease Report (2004), which highlighted that 35% of the male and 71% of the female population in Turkey have healthy life-style behaviors. More specificaly Pirincci et al.(2008) and Guler et al. (2008) reached similar findings in their researches, which were carried on academic staffs in Fırat University and Cumhuriyet University in Turkey. Therefore this study once again confirmed that academic staff need to be motivated for physical activities and necassary facilities should be added to the plans of new university campuses.

This study found strong positive correlations between physical activity levels and healthy life-style behavior subscales. Therefore, based on the citations used in this study, the incorporation of physical activity into campus life would have many beneficial effects on physical, mental, social, and psychological well-being of the academic staff. Physical activity facilities of the universities and the awareness level of the academic staff about these were found to be an important factor for them to participate in physical activity of any kind.

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Conflict of Interests

The author has not declared any conflict of interest.

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