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Research Article

Examination of Possible Effects of Physical Activity Level (IPAQ) on Quality of Life (SF-36) in Health Care Workers Who Employed in a Training and Research Hospital

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Abstract

Objective: This research was conducted with the aim of determining the possible effects of physical activity levels on quality of life in health care workers who are employed in a Training and Research Hospital.

Materials and Methods: This descriptive study was performed on 120 personnel consisting of physician, allied health and administrative personnel who employed and had no any chronic illness in GATF Training and Research Hospital. The life qualities of 30 health care employees who go to the gym regularly and whose physical activities were observed as being high, according to the results of the International Physical Activity Assessment Questionnaire-Short Form; and the life qualities of 90 employees whose socio-demographic characteristics and work places are similar to the first group were evaluated by using the SF-36 Life Quality Questionnaire. The Statistical Package for Social Sciences (SPSS) version 22.0 was used in the statistical analysis of data. p <0.05 was considered statistically significant.

Result: The mean age of the participants was 36.09 ± 4.89 years. There was no statistically significant difference between the groups for age, sex, education, occupation, body mass index and sitting time. Total Physical Health Score and Mental Health Score which is SF-36 subscales were found to be statistically higher in the group with high physical activity (p<0.001). Although mental health, pain and energy/fatigue scores did not make a statistically significant difference, they were found to be higher in HPA group.

Discussion: According to the results obtained from this study; quality of life has been found to be affected positively in health care workers with high physical activity. The development by encouraging action and opportunities should be provided for increasing the physical activity levels of health care workers who are role models in the community.

Introduction

Physical inactivity, which is one of 10 most important risk factors causing death worldwide has been associated with approximately 3.2 million deaths [1]. According to World Health Organization (WHO); 15% of adults over the age of 31 were found to be physically inactive in 2008 and physical inactivity is estimated to be 150-300 euro per citizen per year for the European region [2]. Nowadays, physical inactivity is seen as a major global public health problem [3].

All body movements of the skeletal muscles resulting in energy expenditure are defined as physical activity [4]. WHO also defines physical activity as any bodily movement that includes all activities done at work, housework, travel or entertainment and requires energy expenditure [1]. The accurate determination of the amount and severity of physical activity is considered to be very important because the physical activity level which is classified in many ways in daily life has a close relationship with health, disability and mortality [5,6]. Because it is a rather complex behavior pattern, different methods with variable sensitivity are used in order to evaluate the physical activity and energy expenditure. More than 30 different methods have been developed in order to measure the physical activity level as accurate and reliable [7-9].

Physical activity (PA) is one of the most important health indicators related to lifestyle [10]. Due to technological advancements and successful public health applications; the factors such as inadequate nutrition, personal and environmental hygiene, lack of access to clean water and poor living conditions which are located in first place among the causes of disease and death in the past have been replaced today by cardiovascular diseases, tobacco use, some types of cancer, obesity and physical inactivity [11].

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Specially planned and designed physical activity programs can make significant differences in children's and young people's healthy growth. Development and socialization; in protecting adults from various chronic diseases, in the prevention of complications associated with diseases, in preventing that disease processes leave permanent damages to the body; and in providing that the elderly spend an active old age period; in other words, in increasing life quality through the whole life [12,13].

Different organizations in many countries, especially WHO develop recommendations and action plans for active lifestyles for physical inactivity, which is described as a global public health problem. "Global Strategy on Physical Activity, Diet and Health" developed by WHO [14] and "European Union Platform for Action on Diet, Physical Activity and Health" [15] are examples of studies in this field. American College of Sports Medicine suggests that moderate physical activity is done at least 30 minutes every day for both weight control and good health [16].

Quality of life (QOL) has different definitions according to many academic studies and usage areas [17]. While QOL defines a subjective assessment, expressing unexpressed complex aspects of life by using only measurable indicators, it includes objective indicators such as general health status and external life situation [18]. While subjective indicators include issues related to emotional well-being, life satisfaction, psychological effect, objective indicators include physiological issues containing perceptions related to ability to make physical activity, working status, functional impairment, disease symptoms, health status [19,20].

In the literature, the studies related to health care workers seem to be much more directed to motivation and job satisfaction and QOL effects [21-23]. When looked at studies performed for determining QOL, it is often reported that these studies revealed QOL of persons with chronic diseases [24-27]. In the literature, the number of studies for the determination of PA levels of health workers seems to be quite inadequate [28-30]. Although many scientific studies have been made in the recent years for the existence of the relationship between PA and QOL [31], the studies are rarely seen to reveal the effect of this relationship on the health care workers. Therefore, our study was performed with the aim of determining the possible effects of physical activity levels on quality of life in health care workers.

Materials and Methods

Study Group

The population of the study, which was planned as a descriptive study consists of physicians, allied health personnel (nurse, emergency medical technician, laboratorian, biologist, medical officer) and administrative personnel (medical secretary, data preparation and control operator, administrative officer) who is employed in Gulhane Military Medical Academy (GMMA). The study population has indoor (2000 m^2 around) and outdoor sports facilities contained so many branches (fitness, basketball, climbing wall, running track etc.) nearby with easy access. In this study, the effect of physical activity on quality of life has been investigated among health care workers; it was aimed to compare with respect to quality of life between health care personnel with high physical activity level and health care personnel with low physical activity level. International Physical Activity Questionnaire (IPAQ) -Short Form, was applied between 01 January 2014 and 31 March 2015, on 51 personnel who are known to go regularly to the gym or do the regular physical activity in order to determine physical activity levels and 30 personnel who had higher physical activity according to IPAQ and had no any chronic illness were selected as a high PA group (HPA). In order to eliminate possible confounding effects; personnel having similar socio-demographic characteristics, employed in the same unit in the hospital and having normal/low physical activity levels, according to the IPAQ results were selected versus each personnel with high physical activity level; in total 90 personnel, constituting the Low PA group (LPA); and the whole study was conducted on a total of 120 health care personnel.

Data Collection Methods

The data collection form used in this study consists of three parts. The first part consists of six questions and questions on socio-demographic characteristics. The second part consists of "International Physical Activity Questionnaire (IPAQ) -Short Form" which aims to measure the level of physical activity of the participants, the last part consists of "Quality of Life Scale Short Form (Short Form -36)" which provides data on the quality of life variable.

IPAQ was developed in order to ensure standardization in international comparison of physical inactivity, which has become a global problem and determine levels of physical activity of participants in the 15-69 age range [32,33].

Turkish validity and reliability study of IPAQ questionnaire used in the study was made by Ozturk in 2005 [34].

SF-36 Quality of Life Scale designed to evaluate quality of life, was used in clinical practice and studies, health policy evaluations and general population surveys [35]. This scale is under the main heading of physical and mental health. Each sub-dimension of this scale is assessed on a score of 0-100. High scores indicate a better quality of life. The reliability and validity of Turkish version is made by Kocyigit, et al. [36].

SF-36 which includes mainly physical and mental health components, is divided into a total of 36 questions and eight subscales: while the mean score of Physical functioning (PF), Role Limitations Due To Physical Health (RLDPH), Pain (P) and General Health (GH) subscales constitutes Total Physical Score (TPS), the mean score of Emotional Well-Being (EWB), Social Functioning (SF), Role Limitations Due To Emotional Problems (RLDEP), Energy/Fatigue (EF) subscales constitutes Total Mental Score (TMS) [37].

The data of the study were collected by face to face interviews with those who agreed to participate in the study on a voluntary basis. The permissions which are required to perform the study on personnel in GATF Training and Research Hospital were taken from GATA Military Medical Faculty Ethics Committee and GATA Assessment Commission for Survey with Research Purpose.

Statistical Analysis

In descriptive statistics, discrete data (sex, occupation, body mass index, group, education level, marital status, physical activity) were shown as number and percent, continuous data (age, PF, RLDPH, P, GH, EWB, SF, RLDEP, EF) were shown as mean and standard deviation. The univariate analyses to identify variables associated with physical activity (HPA/LPA) was investigated using an

independent samples t test. In the multivariate analysis, the possible factors identified with univariate analyses were further entered into the logistic regression analysis (backward LR method) to determine independent predictors of physical activity. Statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS) software version 15. A 5% type-I error level was used to infer statistical significance.

Results

Sample demographic characteristics are presented in Table 1. The mean age of the participants in LPA group was 36.31 ± 4.96 and HPA group 35.43 ± 4.68 years. The majority of the participants were male (33.3%), married (73.4%) and allied health care personnel (36.7%).

Table 1: Socio-demographic characteristics of personnel between PA groups.

		LPA Group (n=90)		HPAGroup (n=30)		TOTAL (n=120)		*p**
Sex (n / %)	Male	57	63.3**	19	63.3**	76	63.3**	1.0*
	Female	33	36.7**	11	36.7**	44	36.7**	
Age (Mean±SS)		36.31	4.96	35.43	4.68	36.09	4.89	0.397***
Occupation (n/%)	Physician	27	30.0**	9	30.0**	36	30.0**	1.0*
	Allied Health Care Personnel	33	36.7**	11	36.7**	44	36.7**	
	Administrative Personnel	30	33.3**	10	33.3**	40	33.3**	
Marital status (n/%)	Married	66	73.4**	15	50.0**	81	67.5**	0.027*
	Single	22	24.4**	15	50.0**	37	30.8**	
	Other	2	2.2**	0	0**	2	1.7**	
BMI (n/%)	Weak	3	3.3**	1	3.3**	4	3.3	0.393*
	Normal	47	52.2**	20	66.7**	67	55.8	
	Overweight	35	38.9**	9	30.0**	44	36.7	
	Obese	5	5.6**	0	0**	5	4.2	

* chi-square test ** percent of column *** independent samples t test

Physical and mental health scores between groups are presented in Table 2. Total mean physical health score of the HPA group was 89.0 ± 5.7, the total mean physical health score of LPA group was 75.7 ± 13.3 (p<0.001). From subscales forming the total physical score, the mean PF score was 97.8 ± 3.6 in HPA group and 85.1 ± 14.5 in LPA group, the mean RLDPH score was 100.0 ± 0.0 in HPA group and 86.9 ± 17.2 in LPA group and the mean GH score was 83.3 ± 12.0 in HPA group and 61.9 ± 16.1 in LPA group. The mean pain score was 75.0 ± 15.0 in HPA group and 68.9 ± 21.8 in LPA group. The HPA group had statistically significant higher scores compared to LPA for the physical subscale scores except pain (p<0.001).

Total mean mental health score was 66.1 ± 8.8 for HPA group and 54.7 ± 15.4 for LPA group (p<0.001). From subscales forming the total mental score, the mean RLDEP score was 88.8 ± 25.2 in HPA group and 61.1 ± 43.0 in LPA group, the mean SF score was 83.33 ± 17.7 in HPA group and 66.6 ± 20.3 in LPA group. The HPA group had statistically significant higher scores (p<0.001). The mean EWB score was 44.2 ± 8.9 in HPA group and 41.4 ± 8.4 in LPA group and the mean EF score was 48.0 ± 10.9 in HPA group and 47.1 ± 11.6 in LPA group but there was no significant statistical difference between the groups (p>0.05).

Because of the e high correlation between physical and mental health subscales, possible factors identified with univariate analyses were further entered into the logistic regression analysis to determine independent predictors of physical activity. After multivariate analyses, general health, social functioning and energy/fatigue subscales were found as independent predictors associated with physical activity (Table 3).

Table 2: Distrubiton of physical and mental health scores between PA groups.

		LPA Group (n=90)		HPAGroup (n=30)		TOTAL (n=120)		*p**
		Mean	ss	Mean	ss	Mean	ss	
Physical Health	TPS	75.7	13.3	89	5.7	79	13.2	*<0.001*
	PF	85.1	14.5	97.8	3.6	88.3	13.8	*<0.001*
	RLDPF	86.9	17.2	100	0	90.2	15.9	*<0.001*
	BP	68.9	21.8	75	15	70.4	20.4	0.093
	GH	61.9	16.1	83.3	12	67.3	17.8	*<0.001*
Mental Health	TMS	54.7	15.4	66.1	8.8	57.6	14.8	*<0.001*
	MH	41.4	8.4	44.2	8.9	43.5	8.8	0.13
	RLDEF	61.1	43	88.8	25.2	68	41	*<0.001*
	SF	66.6	20.3	83.3	17.7	70.8	20.9	*<0.001*
	VE	47.1	11.6	51	8.2	48	10.9	0.093

* Independent samples t test

Table 3: Factors associated with physical activity based on logistic regression in study groups.

		Odds Ratio	95% Confidence Interval	*p**
Physical Health	GH	1.092	1.044 – 1.141	<0.001
Mental Health	SF	1.044	1.044 – 1.015	0.003
	EF	1.044	1.019 – 1.152	0.01

* Logistic regression

Discussion

The first objective of all national and international health policies is to a society consisting of healthy individuals. Physical activity has decreased because technology and lifestyle have changed over the years and diseases related to this have become an important problem for communities. This problem is not only related to physical health, but also affects people's quality of life and therefore this has become a separate load for the country economies with a rising poor performance and costs.

In the literature, discussions about whether the physical activity level has an effect on quality of life are thought to result from different demographic and socio-cultural characteristics of the different sample groups. Our study was made on health care workers who had a role model for healthy life in the community. They have no any chronic illness and to determine the possible effects of physical activity levels on quality of life by comparing LPA and HPA groups that had similar socio-demographic characteristics and work places in order to eliminate the possible confounding effects in the evaluation of variable data, this makes this study different from other studies.

In our study, physical and mental health quality of life scores has been observed to be statistically significantly higher in HPA group compared to LPA group. In the study, which was performed to investigate the relationship between physical activity and health-related quality of life on 351 adults selected randomly by Blacklock,

et al. [38], a positive relationship was determined between physical activity level such as walking and quality of life. In the study performed by Elavsky, et al. [39], they investigated the effects regulating psychological variables of the relationship between quality of life and physical activity for adults for more than four years, the measurements were made in the first and fifth year of 174 people who were taken to exercise as randomized controlled for 6 months. As a result of analyzes, it was observed for a 4-year period that changes in physical activity were associated with activity, self-efficacy and positive mood and quality of life increased in parallel with an increase in positive mood. As a result of the study, physical activity has been found to have a positive impact on quality of life in the long-term. This finding seems to support our study.

In the survey study, which was performed by focusing on the ideas of the participants by Diane, et al. [40], they concluded that physical activity increases quality of life and should keep more space in our lives in parallel with the result of our study.

In a systematic review, Bize, et al. [31] examined a total of 1426 studies from four different indexes (MEDLINE, EMBASE, CINAHL, PsycINFO) in order to investigate the relationship between physical activity level and quality of life in adults, it was stated that 13 different physical activity assessment methods were used and most of the studies were associated with the SF-36 quality of life questionnaire. Cross-sectional studies have shown a consistently positive relationship between physical activity and quality of life and a positive relationship was found in the cohort and randomized controlled studies in similar, these also support our study.

When looked at the studies on mental health; Raglin [41] found that physical activity is effective in protecting and improving the mental health of people, Fox [42] revealed that making regular physical activity improves anxiety and depression and general mental health. In a study that investigated the effects of making regular physical activity on anxiety, depression and mood, Guszkowska [43] demonstrated that physical activity has positive effects in healthy and clinical populations. In our study, according to RLDEP subscale, the HPA group has been founded to experience fewer problems compared to the LPA group in their job or daily activities due to emotional reasons. This situation can be occurred because physical activity has the positive effects not only on physical health, but also on emotional function and people can find opportunity to understand more accurately their feelings by recognizing their own inner world with physical activity.

According to social functioning subscale of SF-36, HPA group was detected to be less affected compared to LPA group in social relations with family, friends and neighbors due to physical and emotional problems; this situation suggests that physical activity makes quality social relationships of persons better quality. RLDPH subscale, the HPA group has been found not to live any role limitation in their daily lives and physical activity. The lack of any limitation in the HPA group can result from regular and intense physical activity. GH subscale, it may be suggested that the HPA group's considering them as being healthier, having good health, their health status getting better when compared with other people, having intense and regular physical activity, and recognizing their abilities and bodies are influential in the general health perception.

Limitations

Some limitations are present in this study. The small sample size, collection of data based on self-report, and descriptive study design are major limitations of this study. Furthermore, the possible effects of availability, shortage, and/or access to sports facilities on quality of life were not estimated in this study content. These results should be supported by other studies and follow-up studies should be performed. Therefore, the results of this study cannot be generalized. However, as there are few studies on this subject, we believe that our study will illuminate further studies to be performed in the future.

Conclusion

Although epidemiological studies have determined, persuasive results about the health benefits of being active enough, the effects of physical inactivity related to the development of a number of chronic diseases to public health should not only be discussed by the scientific and academic circles, the development of a comprehensive political consciousness about it should be provided [10].

The HPA group had a higher mean score in total mean mental health scores and total physical health scores and overall SF-36 subscales, it is evident that physical and social behavior changes gained through physical activity have a positive impact on general lives of people. Because physical activity affects the quality of life in health care workers and health care workers with high physical activity have been determined to have a high quality of life, the existence of physically inactive and obese employees in the determination of the physical activity levels of health care workers is interpreted as an indicator that knowledge does not turn into actions every time and it reveals the need for the implementation of different policies for action for physical activity.

Health care workers are not only persons who provide health service for community, health workers with sufficient physical activity will also provide a positive impact across the community because they are a group of role model in society about healthy living and continuity in health. Therefore, health care workers who do not use sports facilities regularly should be encouraged to increase physical activity levels for better quality of life.

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