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The Effects of Teacher Candidates' Physical Activity Levels on Health-Related Quality of Life

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Abstract

The aim of this research was to determine the effects of physical activity levels of teacher candidates on the sub-dimensions of health-related quality of life. In the research among the quantitative research methods, relational survey model was used. A total of 90 teacher candidates participated in this research. The International Physical Activity Questionnaire-Short Form (IPAQ-SF) and the 36-Item Short Form Health Survey (SF-36) were used in this study. In the data analysis, "percentage, frequencies, standard deviation, mean, Product-Moment Correlation coefficients and Multiple regression" were used. According to the results, role functioning/emotional, pain and general health sub-dimensions are important predictors on physical activity levels. However, physical functioning, emotional well-being, vitality, social functioning, role functioning/physical, sub-dimensions have not an important impact on physical activity levels statistically. As a conclusion, participation in physical activity can be said to have a negative effect on emotional problems and pain, and a positive effect on general health status.

Keywords: physical activity, health related quality of life, teacher candidates, regression

1. Introduction

Inactive lifestyle increases the risk of developing many health conditions particularly cardiovascular and coronary heart diseases, diabetes mellitus, risks of certain cancers as colon and breast cancers, hypertension, osteoporosis, poor musculoskeletal and cardiorespiratory fitness, high blood pressure and elevated cholesterol levels, overweight or obesity, anxiety and depression (Cummings et al., 1985; Berlin & Colditz, 1990; Lee et al., 1991; Arroll & Beaglehole, 1992; Wannamethee & Shaper, 1992; Martinez et al., 1997; Uçkun & Çalıkoğlu, 2003; Bize et al., 2007; Lahti et al., 2010; Li et al. 2016).

Regular moderate intensity physical activity decreases the risk of various chronic diseases as hypertension, coronary heart disease, cardiovascular disease, diabetes, cancer, all-cause mortality and preserves both physical and intellectual health and functions (Saxena et al., 2005; Acree et al., 2006; Blair & Morris, 2009).

Health-related quality of life (HRQL) can be described as how well his/her perceived wellbeing in intellectual, physical and social domains of health (Brown et al., 2004). The health benefits from physical activity are well-known and research on HRQL in the physical activity domain has predominately been focused on elder populations and among patients with chronic diseases (Elavsky et al., 2005; Acree et al., 2006; Bize et al., 2007; Burke et al., 2017; Pati et al., 2018; Groessl et al., 2019).

While little is known regarding HRQL and its relationship with physical activity level (Bize et al., 2007), it is stated that younger people propose that physical activity level is positively effect to HRQL (Maher et al., 2016).

However, it is not clear whether physical activity increase specific sub-dimensions of HRQL (Acree et al., 2006). The aim of this study was to reveal the effects of teacher candidates' physical activity levels on the sub-dimensions of HRQL.

2. Methods

2.1 Research Model

In the research among the quantitative research methods, relational survey model was used. The relational survey model is a research design that aims to determine the existence and degree of change between two and more variables together (Karasar, 2007).

2.2 Participants

A total of 110 questionnaires were distributed to teacher candidates from Department of Physical Education and Sports Teacher Training in Eskişehir Technical University and 90 of them were completed and returned, giving an overall response rate of 81.82 percent. The data were gathered during 2018-2019 Academic Year. 42.2% of the teacher candidates are women and 57.8% of the teacher candidates are male in this research. The ages differences of the participants are as follow: 42.2% of them are in 18-20 years old, 43.3% of them are in 21-23 years old and 14.4% of these teacher candidates are in 24 years old and above.

2.3 Data Collection Tools

2.3.1 The International Physical Activity Questionnaire–Short Form (IPAQ-SF)

There are various questionnaires to determine the physical activity levels (Lee et al., 2011). It was indicated that IPAQ-SF version is one of the most appropriate and widely used self-report form to assess physical activity levels (Tierney et al., 2015; Lavelle et al., 2019). IPAQ is designed to evaluate the young people/middle-aged adults and special groups' physical activity levels (Craig et al., 2003). The validity and reliability study of the scale, in Turkey in 2005 by Ozturk (2005).

It consists of seven questions to measure average daily time spent walking, sitting and participating in activity of moderate and high intensity and produces a physical activity score based on last seven days (Tierney et al., 2015; Sanda et al., 2017; Lavelle et al., 2019).

Physical activity data from the survey were converted to energy expenditure values predicated as MET scores. The total hours calculated in each physical activity levels were multiplied by the specific MET score for the activity to determine the weekly physical activity level (Hagstromer et al., 2006). Physical activity levels are determined by using MET scores as vigorous intensity physical activity level (8.0 MET), moderate intensity physical activity level (4.0 MET), walking (3.3 MET), sitting (1.5 MET) (Özüdoğru, 2013).

2.3.2 The 36-Item Short Form Health Survey (SF-36)

The 36-Item Short Form Health Survey (SF-36) is developed for assessing HRQL (Lins & Carvalho, 2016). The validity and reliability study of the scale, in Turkey (Koçyiğit et al., 1998).

The SF-36 consisting of 36 items assessing eight sub-dimensions: Physical Function (PF), Social Function (SF), Role Function – Physical (RFP), Role Function – Emotional (RFE), Emotional Well-being (EW), Vitality (VT), Bodily Pain (BP) and General Health Perception (GHP) (Khanna et al., 2010; Burholt & Nash, 2011; Lins & Carvalho, 2016; Matcham et al., 2016; İnci et al., 2017; Jacobsen et al., 2018).

SF-36 sub-dimensions are evaluated from 0 to 100, with a higher score which indicated better health living (Khanna et al., 2010; İnci et al., 2017). Item scores were transformed to 0-100 point scales (0=worst, 100=best) using the SF-36 algorithm (Jacobsen et al., 2018).

2.4 Data Analysis

Data obtained through IPAQ short form and HRQL short form-36 (SF-36), and the scores obtained from the assessment were coded and computed using the SPPS 24.0, which was also used to perform analyses. In the data analysis, "percentage, frequencies, standard deviation, mean, Product-Moment Correlation coefficients and Multiple regression" were calculated. To determine the relationship between quality of life behaviors and physical activity levels, correlation coefficients were used. Multiple regression analysis was performed to determine whether the scores are predictive of each other (β).

3. Results

Table 1. Teacher candidates' physical activity levels

	f	%
Low Intensity Level	10	11.1
Moderate Intensity Level	31	34.4
High Intensity Level	49	54.4

As shown in Table 1, it is find out that 54.4% of teacher candidates were in high physical activity level while 34.4% of them were in moderate physical activity level and 11.1% of them were in low physical activity level.

Table 2. Teacher candidates' quality of life behaviors

	N	*X*	SD
PF	72	89.94	14.17
RFP	72	71.67	37.70
RFE	72	57.78	42.63
VT	72	63.94	17.00
EW	72	70.22	15.19
SF	72	65.69	25.59
BP	72	73.69	19.37
GHP	72	69.00	15.65

The SF-36 consisting of 36 items assessing eight sub-dimensions: Physical Function (PF), Social Function (SF), Role Function – Physical (RFP), Role Function – Emotional (RFE), Emotional Well-being (EW), Vitality (VT), Bodily Pain (BP) and General Health Perception (GHP).

As shown in Table 2, it was examined that the highest score belong to in PF (M=89.94) and then BP (M=73.69) and RFP (M=71.67) sub-dimensions, the lowest score belong to EW (M=70.22), GHP (M=69.00), SF (M=65.69), VT (M=63.94) and RFE (M=57.78) sub-dimensions.

Table 3. Correlations between physical activity levels and quality of life sub-dimensions

		1	2	3	4	5	6	7	8	9
PF	r	1								
	p									
	N	90								
RFP	r	.391**	1							
	p	.000								
	N	90	90							
RFE	r	.163	.488**	1						
	p	.124	.000							
	N	90	90	90						
VT	r	.118	.095	-.083	1					
	p	.270	.372	.438						
	N	90	90	90	90					
EW	r	.179	.141	-.189	.648**	1				
	p	.091	.186	.402	.000					
	N	90	90	90	90	90				
SF	r	.206	.397**	.455**	.126	.057	1			
	p	.052	.000	.000	.238	.596				
	N	90	90	90	90	90	90			
BP	r	.272**	.402**	.198	.222*	.196	.364**	1		
	p	.009	.000	.062	.035	.064	.000			
	N	90	90	90	90	90	90	90		
GHP	r	.253*	.223*	-.039	.143	.179	.097	.275**	1	
	p	.016	.035	.717	.180	.092	.361	.009		
	N	90	90	90	90	90	90	90	90	
Physical Activity Level	r	.043	-.160	-.276**	.073	.100	-.175	-.214*	.140	1
	p	.688	.131	.008	.493	.347	.098	.042	.189	
	N	90	90	90	90	90	90	90	90	90

*p<.05; **p<.01.

The SF-36 consisting of 36 items assessing eight sub-dimensions: Physical Function (PF), Social Function (SF), Role Function – Physical (RFP), Role Function – Emotional (RFE), Emotional Well-being (EW), Vitality (VT), Bodily Pain (BP) and General Health Perception (GHP).

The analysis of Table 3 demonstrates that there was a significant negative relationship between the physical

activity and RFE (r=-.276, p=.008), BP (r=-.214, p=.042) whereas the study found no significant relationship with other sub-dimensions.

Multiple regression analysis (backward) was performed to determine the factors affecting the physical activity levels of teacher candidates. Purpose of this analysis is to determine the independent variables that explain the highest dependent variable by adding all independent variable which acting on the dependent variable to the model. Firstly, all the independent variables are included in the model and then statistically insignificant variables and variables which decrease the explaining rate are removed from the model one by one. This statistical process continues until getting the highest corrected R^2 value. In accordance with these explanations, model of physical activity was stated as dependent variable in Table 4.

Table 4. Regression table for teacher candidates' physical activity to predict their quality of life behaviors

	Model		*β*	t	p	*R*	*Adjusted* R^2	F	p
Physical Activity	1	(Constant)	2.076	3.592	.001	.395	.072	1.868	.076
		PF	.005	.936	.352				
		RFP	-.001	-.373	.710				
		RFE	-.003	-1.506	.136				
		VT	.002	.308	.759				
		EW	.003	.460	.647				
		SF	-.001	-.211	.834				
		BP	-.009	-2.038	.045				
		GHP	.007	1.529	.130				
	2	(Constant)	2.066	3.608	.001	.394	.083	2.153	.047
		PF	.005	.934	.353				
		RFP	-.001	-.400	.690				
		RFE	-.003	-1.687	.095				
		VT	.002	.286	.775				
		EW	.003	.476	.635				
		BP	-.009	-2.152	.034				
		GHP	.007	1.536	.128				
	3	(Constant)	2.081	3.672	.000	.393	.093	2.527	.027
		PF	.005	.934	.353				
		RFP	-.001	-.407	.685				
		RFE	-.003	-1.711	.091				
		EW	.004	.837	.405				
		BP	-.009	-2.145	.035				
		GHP	.007	1.546	.126				
	4	(Constant)	2.145	3.959	.000	.391	.102	3.029	.015
		PF	.005	.862	.391				
		RFE	-.004	-2.158	.034				
		EW	.004	.806	.423				
		BP	-.009	-2.326	.022				
		GHP	.007	1.513	.134				
	5	(Constant)	2.316	4.652	.000	.382	.106	3.639	.009
		PF	.005	.977	.331				
		RFE	-.004	-2.297	.024				
		BP	-.009	-2.234	.028				
		GHP	.008	1.597	.114				
	6	(Constant)	2.642	7.168	.000	.370	.106	4.536	.005
		RFE	-.004	-2.184	.032				
		BP	-.008	-2.089	.040				
		GHP	.008	2.001	.049				

The SF-36 consisting of 36 items assessing eight sub-dimensions: Physical Function (PF), Social Function (SF), Role Function – Physical (RFP), Role Function – Emotional (RFE), Emotional Well-being (EW), Vitality (VT),

Bodily Pain (BP) and General Health Perception (GHP).

As shown in Table 4, SF sub-dimension was removed firstly and then VT, RFP, EW and PF sub-dimensions were removed from the model. Priority of removing the sub-dimension from the model was determined according to low explanation effect on dependent variable. RFE, BP and GHP sub-dimensions explained a large part (11 %) of the total variance in model 6 which has the highest corrected R^2 value and also explaining the highest dependent variable (R^2=.106, p<.05). According to analysis it was found that F=4.536, p=.005. According to the results of the analysis on the significance of regression coefficients, RFE, BP and GHP sub-dimensions were found to be significant predictors of physical activity (p<.05).

4. Discussion and Conclusions

Among the teacher candidates, the highest percentage (54.4%) was students with a high physical activity level, followed by 34.4% with a moderate physical activity level and 11.1% with a low physical activity level. According to this finding, it can be said that most of the teacher candidates are physically active people. The main reason for this is that the teacher candidates are students of the Department of Physical Education and Sports Teaching and that practical courses are included in the curriculum. Another reason for the high level of physical activity levels of teacher candidates is that they have opportunities to do physical activities. It is known that the physical activity areas have a significant effect on the participation of people (Honca & Çetinkaya, 2017; Gümüş & Özgül, 2017). However, when the literature is examined, it contradicts the findings of this study. Yahia, Wang, Rapley, and Dey (2016) reported that physical activity levels and lifestyle score stated that most of the students were not in a active lifestyle. In this research, only 7% of students indicated having a very active lifestyle. Ölçücü et al. (2015) stated in their research on university students that 36% of the students were at a sufficient physical activity level, 43% were at a low physical activity level and 21% were not physically active. Savcı et al. (2006) were obtained similar results in their study.

As our research results indicated that the highest means according to HRQL Questionnaire belongs to PF, BP and RFP sub-dimensions and the lowest means belongs to VT and RFE sub-dimensions. Our research results are alike to the research results which examined by Pekmezovic et al. (2011). Pekmezovic et al. (2011) stated that the highest means of the SF-36 scales were obtained for PF sub-dimension and the lowest means for VT sub-dimension.

In the correlation analysis, Pearson correlation coefficients representing the relationship between physical activity levels and HRQL sub-dimensions were calculated. When correlation values between physical activity levels HRQL sub-dimensions are examined, it is observed that there is negatively a significant relationship between physical activity levels and RFE sub-dimension (r=.199; p<0.05). Also, it has been found out that there is negatively a significant relationship between physical activity levels and BP sub-dimension (r=-.214; p<0.05). It has been determined that there is no significant relationship between physical activity levels and PF (r=.043; p>0.05), RFP (r=-.160; p>0.05), VT (r=.073; p>0.05), EW (r=.100; p>0.05), SF (r=.175; p>0.05) and GHP sub-dimensions (r=.140; p>0.05).

Besides, according to another result of the study, among sub-dimensions of quality of life, only RFE, BP and GHP sub-dimensions could explain 11% of total variance of physical activity level. This result shows that RFE, BP and GHP sub-dimensions are important predictors on physical activity levels. Other sub-dimensions as PF, VT, RFP, SF, EW sub-dimensions have not an important impact on physical activity level. According to this finding, participation in physical activity can be said to have a negative effect on emotional problems (stress, anxiety, and pain), and a positive effect on general health status.

Most researchers suggest that physical activity had a positive result on quality of life (Gümüş & Işık, 2018; Hawkins & Duncan, 1991; Stewart & King, 1991; Buckelew et al., 1995; Puciato, Borysiuk, & Rozpara, 2017). Some earlier studies also indicated that there is a positive relationship between physical activity and health (Krzepota, Biernat, & Florkiewicz, 2015; Quehenberger, Cichocki, & Krajic, 2014). They may have resulted as physically active people's health status is better than inactive people (Skrzek et al., 2015). Also, researchers have documented the positive effect of physical activity as a factor enhancing the prevention or treatment of anxiety, depression or other neurological disorders (Teychenne, Ball, & Salmon, 2008; Dziubek et al., 2016; Lancer, Motta, & Lancer, 2007). For this reason, improving all kinds of infrastructure activities affecting the quality of life of teachers who will train the new generations of the society is important for educating healthy generations.

5. Limitations

The current study focused on a limited number of teacher candidates (n=90) from Department of Physical Education and Sports Teacher Training in Eskişehir Technical University.

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