

Quality of Life and Physical Activity among University Students

Güner Çiçek

Faculty of Sport Sciences, Hitit University, Turkey

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Abstract This study was to investigate the physical activity (PA) and quality of life (QoL) of sports department students (SDS) and other department students (ODS) attending university. A total of 300 university students participated in this study. 150 SDS (age; 20.67 ± 1.65 years) including 89 males and 61 females and 150 ODS (age; 19.45 ± 1.22 years) 56 males and 94 females. To determine the physical activity levels, International Physical Activity Questionnaire (IPAQ) short and Quality of Life questionnaire-short form (WHOQOL-BREF) were applied. The weekly physical activity scores of SDS and ODS were 5386.24 ± 3528.47 MET-min/week and 1616.85 ± 1249.12 MET-min/week respectively and statistically difference was found ($p < 0.001$). QoL levels and physical, psychological, social relations and environmental parameters of SDS were found to be higher than ODS and statistically significant ($p < 0.001$). In comparison with the genders, the total average PA score of men was found as 4938.86 ± 3919.33 MET-minute/week while that of women was found as 2592.44 ± 2276.82 MET-minute/week. In the QoL parameters, only the social relations of men were higher than women, and a statistically significant difference was found ($p < 0.001$). In university students, it was found that as the PA scores increased, QoL levels also increased and there was a positive relationship between them. Students should be encouraged to do sport in their spare time to improve their QoL levels.

Keywords Quality of Life, Physical Activity Level, University Students

1. Introduction

Physical activity (PA) improves general health and quality of life [1]. PA associated with several aspects of quality of life (QoL) [2] and PA is found to be an important means of increasing QoL [3] This relationship has been consistently reported in earlier studies [4, 5]. Which

showed that physically active individuals assessed some of their quality of life domains higher than their physically non-active counterparts [6, 7, 8].

In addition to PA is a good way for the person to improve his physical, psychological and emotional health [9] and positively influences the personal perception of QoL and well-being [10, 11]. QoL is a multidimensional construct, including psychological, physical, social and environmental domains [12]. There are four basic environments in which individuals can be physically active. These environments are workplace, transportation (walking, cycling etc.), households and leisure time activities (sports and recreational activities) [13]. Previous studies have reported positive relationships between PA and various QoL indicators [14, 15]. Some of published studies have investigated the relationship between PA and satisfaction with life among healthy, young adults and college students [16, 17, 18]. And they have found health education programs designed to promote regular PA and increase physical self-esteem may be effective in improving QoL in young adults [18]. In addition to high-frequency activity of mild intensity that produces high kcal utilization and is performed to improve health and fitness has the strongest influence on QoL reports [16].

The aim of this study was to investigate relationship between PA level and QoL of sports department students and the other department students and to search whether there is any difference between the PA level and QoL of these two departments' students.

2. Material and Methods

2.1. Study Group

A questionnaire has been applied to 150 sports department students (who students studying in physical education) (SDS) including 89 males and 61 females (ages: 20.67 ± 1.65 years, height: 174.10 ± 7.12 cm, body mass index: 23.02 ± 3.82 kg/m²) and 150 the other department students (ODS) including 56 males and 94 females (ages:

19.45±1.22 years, height: 168.52±8.53 cm, body mass index: 21.58±3.04 kg/m²) studying at the Corum Hitit University, in order to determine their PA level and QoL.

2.2. Data Collecting Tools

The questionnaire has been applied by way of face-to-face interview method. General Information form has been prepared by the researcher so as to be able to obtain information about the occupations, ages, genders, body weights heights and body mass index of the participants.

2.2.1. Physical Activity (PA)

Physical activity (PA) level was determined using the Turkish validated short-form version of the IPAQ. The validity and the credibility studies of the questionnaire in Turkey were conducted by Ozturk [19]. In our study, a self-administered short form with 7 questions covering the last 1 week in the assessment of PAL was used. The results allowed energy expenditure to be estimated in metabolic equivalent minutes per week (MET-min/week). For that, an average MET score is attributed for each type of activity: 3.3 METs for walking, 4.0 METs for moderate activity and 8.0 for vigorous activity. PA level have been classified into three groups as physically inactive (<600 MET- min/week), low-PA level (low active) (600-3000 MET- min/week) and adequate PA level (useful in terms of health) (>3000 MET-min/week).

2.2.2. Quality of Life (QoL)

Quality of life (QoL) was assessed using the validated Turkish version of the the WHOQOL-BREF was translated and adapted into Turkish by Fidaner et al. [20]. The brief version of the WHOQOL-BREF contains 26 items, with

each item representing one facet. The four main domains have the following facets: (1) physical health domain: to be free of any pain, sleep and rest, mobility, having energy, mobility, activities of daily living, to be free of dependence on medication and treatments, and work capacity; (2) psychological health domain: happiness and enjoyment of life, to be able to concentrate, feeling positive about yourself, bodily image and appearance, to be free of negative feelings, and religion/spirituality/personal beliefs; (3) social relationships: sexual activity, personal relationships, and social support; (4) environment: feeling physical safety and security, home environment, financial resources, to be able to adequate health care, changes of getting new information and knowledge, participation in recreation/leisure, adequate transport and physical environment. All items on the WHOQOL-BREF are scored on a 5-point Likert Scale with total scores ranging from 25 to 125 points and higher scores representing a greater quality of life [20].

2.3. Statistical Analysis

In this study, SPSS 20 statistical program was used for the data measured. The Kolmogorov-Smirnow test was used when determining whether the variables had normal distributions or not, and the Mann Whitney-U test was used to compare the difference in physical activity and WHOQOL levels between the two departments and the genders since they were not normally distributed. The Chi-square test was used to determine physical activity scores among departments and genders, and the Spearman correlation test was used to determine the relationship between the physical activity and WHQOOL.

3. Results

Table 1. Comparison of physical activity and WHOQOL levels among departments.

Physical Activity Level	Departments	n	Median (min, max)	Mean	SD	p
Severe Activity	Sports	150	2880.0 (0-14400)	3068.87	2517.70	0.00**
	Other	150	0.00(0-3840)	272.53	582.508	
Moderate Activity	Sports	150	480.0 (0-6000)	942.40	1123.47	0.00**
	Other	150	0.00 (0-2880)	221.20	456.34	
Low Activity	Sports	150	1386.0 (0-8316)	1844.49	1416.10	0.00**
	Other	150	792.0 (99-4158)	1125.66	864.16	
Total Activity	Sports	150	4879.0 (960-17424)	5386.24	3528.47	0.00**
	Other	150	1386.0 (0-6330)	1616.85	1249.12	
Sitting time	Sports	150	300.0 (0-840)	316.00	149.52	0.00**
	Other	150	420.0 (60-960)	418.40	188.58	
WHOQOL level						
Physical Health	Sports	150	27.0(13.0-35.0)	26.98	4.26	0.00**
	Other	150	25.50 (13.0-22.0)	25.07	4.27	
Psychological health	Sports	150	23.0 (9.0-30.0)	22.92	4.00	0.006**
	Other	150	22.0 (13.0-66.0)	22.14	5.14	
Social relationships	Sports	150	23.57 (9.0-30.0)	22.92	3.99	0.00**
	Other	150	11.0 (5.0-15.0)	10.77	2.31	
Environment	Sports	150	29.0 (9.0-40.0)	28.74	4.72	0.034*
	Other	150	28.0 (16.0-55.0)	27.90	4.93	

P<0.001** and p<0.05* Mann Whitney - U test

In Table 1, when we look at the levels of physical activity among the departments, there is a significant difference among high, medium, low, total activities and sitting times (p<0.001). It was found that high, medium, low and total activity scores of the students studying in the sports department were higher than those of the students studying in the other department. The sitting times were found higher in the students studying in other departments. In the WHOQOL parameters, there is a significant difference at a level of p<0.001 in physical health, psychological and social relations, and p<0.05 in the environmental parameter. Physical, psychological, social relations and environmental parameters of the students studying in sports department were found higher.

Table 2. Comparison of gender-specific physical activity and WHOQOL levels

Physical Activity Level	Gender	n	Median (min, max)	Mean	SD	p
Severe Activity	Male	145	1440.0 (0-14400)	2500.07	2743.46	0.00**
	Female	155	0.00 (0-7680)	894.84	1406.46	
Moderate Activity	Male	145	480.0 (0-6000)	741.79	1078.99	0.001**
	Female	155	120.0 (0-4800)	432.13	735.34	
Low Activity	Male	145	1386.0 (66-8316)	1702.41	1450.68	0.044
	Female	155	1188.0 (0-5544)	1281.77	927.65	
Total Activity	Male	145	3900.0 (0-17424)	4938.86	3919.33	0.00**
	Female	155	1670.0 (264-15252)	2592.44	2276.82	
Sitting time	Male	145	300.0 (60-960)	368.28	178.41	0.908
	Female	155	300.0 (0-900)	366.19	177.14	
WHQOOL level						
Physical Health	Male	145	27.0 (13.0 -35.0)	26.26	4.54	0.281
	Female	155	26.0 (13.0-35.0)	25.80	4.20	
Psychological health	Male	145	23.0 (13.0-30.0)	22.66	3.81	0.313
	Female	155	23.0 (9.0-66.0)	22.40	5.25	
Social relationships	Male	145	20.0 (5.0-30.0)	18.28	7.08	0.001**
	Female	155	13.0 (6.0-29.0)	15.50	6.46	
Environment	Male	145	28.0 (17.0-55.0)	28.60	5.11	0.521
	Female	155	28.0 (9.0-40.0)	28.06	4.58	

P<0.05* and P<0.001** Mann Whitney - U test

When we look at the gender-specific physical activity levels in Table 2, there is a significant difference among high, medium, total activities ($p < 0.001$) and in the low activity level at a level of $p < 0.05$. There is no significant difference in sitting time variable. Also, in WHQOL parameters, there was no significant difference found between genders in physical health, psychological and environmental variables. The social relations of men are higher than those of women, and there is a statistically significant difference ($p < 0.001$).

Table 3. Comparison of physical activity scores according to department and gender

		Physical Activity Level								p
		Inactive		Low active		Adequate		Total		
		n	%	n	%	n	%	n	%	
Department	Sports	9	6.0	26	17.3	115	76.7	150	100.0	0.00**
	Other	26	17.3	105	70.0	19	12.7	150	100.0	
	Total	35	11.7	131	43.7	134	44.7	300	100.0	
Gender	Men	12	8.3	46	31.7	87	60.0	145	100.0	0.00**
	Female	23	14.8	85	54.8	47	30.3	155	100.0	
	Total	35	11.7	131	43.7	134	44.7	300	100.0	

P<0.001** Chi-square test

When we compare the physical activity scores according to departments in Table 3, there is a statistically significant difference between the two groups ($p < 0.001$). The physical activity scores of the students studying in the sports department are at a level of 76.7% being sufficient, 17.3% low, and 6.0% non-active. Of the other department, 12.7% are sufficiently active, 70.0% are low active, and 17.3% are non-active. Physical activity scores of students who study in the sports department were found higher. There is a statistically significant difference when we compared physical activity scores according to genders ($p < 0.001$). Of the male students, 60.0% are at sufficient level, 31.7% are at low level, and 8.3% are at non-active level. Of the women 30.3% are at sufficient level, 54.8% are at low level, and 14.8% are at non-active level. Physical activity scores of men were found to be higher than those of women.

Table 4. Relationship between physical activity and WHOQOL

		Physical Health	Psychological Health	Social Relationships	Environment
Severe Activity	Correlation Coefficient	,201**	,141*	,638**	,123*
	P value	,000	,015	,000	,033
	N	300	300	300	300
Moderate Activity	Correlation Coefficient	,031	,033	,404**	,013
	P value	,594	,574	,000	,828
	N	300	300	300	300
Low Activity	Correlation Coefficient	,130*	,102	,293**	,044
	P value	,025	,079	,000	,445
	N	300	300	300	300
Total Activity	Correlation Coefficient	,196**	,134*	,632**	,093
	P value	,001	,020	,000	,107
	N	300	300	300	300
Sitting Time	Correlation Coefficient	-,075	-,076	-,237**	-,007
	P value	,193	,189	,000	,907
	N	300	300	300	300

P<0.005* and p<0.001**Spearman correlation test

When we look at the correlation relation between physical activity and WHOQOL in Table 4, there is a significant relationship between severity activity and total activity with physical health, psychological, social relations and environment (p<0.005 and p<0.001). It was determined that low activity had a significant relation with physical and social relation, and also, moderate activity and sitting time had a significant difference in the social relation (p<0.005 and p<0.001).

4. Discussion

Physical activity and exercise help people to have better mental health and physical, improve the quality of life, which enables them to live longer [21]. However, PA domains have a positive impact on QoL remain largely unknown, some of studies [22, 23] have investigated the association between specific domains of PA and QoL [8]. This study was conducted with the aim of comparing the physical activity and quality of life of students studying at the faculty of sports sciences and other faculties and determining whether the physical activity had a positive effect on the quality of life.

When we compared the PA levels of the sections in our study, the PA levels of SDS were found to be significantly higher (p <0.001). The mean total activity score of the SDS was 5386.24 ± 3528.47 MET-minute/week while that of ODS was found to be 1616.85 ± 1249.12 MET-minute/week. In the sitting times, while SDS was 316.00 ± 149.52 in average, ODS was found to be 418.40 ±

188.58 and SDS was found to be lower than ODS. In addition, high, moderate and low PA levels of SDS were statistically higher than ODS (p <0.001). Taşmektebliğil et al. [21] stated that they found in a similar study they have done that the sports department students' total physical activity score (5681.32 ± 238.237 MET-minute/week) was higher than that of students studying in other departments (1612.46 ± 80.727 MET-minute/week), and that sitting times was lower.

When we look at QoL levels, the physical, psychological, social relations and environmental parameters of SDS are higher than those of ODS and are statistically significant (p <0.001). It was determined that the students in the sports department were more active than the other departments' students and that they improved their QoL parameters positively. It can be said that the high levels of PA in SDS are because of the lifestyles, lessons taken, active participation in any sports branch of the students studying in this department. Kim et al. (2010) showed that PA related to sport and recreation, rather than to work, was positively related to QoL [24]. The results of our study confirm that as the level of physical activity increases, the QoL levels increase and that there is a positive relationship between them, as noted in previous studies [14, 15].

When we compare the physical activity scores according to departments in Table 3, there is a statistically significant difference between the two groups (p <0.001). PA scores of SDS are at a level of 76.7% being adequately 17.3% low, and 6.0% inactive. Of ODS, 12.7% are adequate active, 70.0% are low active, and 17.3% are inactive. The PA scores of the SDS were found to be higher. There is a

statistically significant difference when we compared physical activity scores according to genders ($p < 0.001$). Of the male students, 60.0% are at adequately level, 31.7% are at low level, and 8.3% are at inactive level. Of the women 30.3% are at adequate level, 54.8% are at low level, and 14.8% are at inactive level. Physical activity scores of men were found to be higher than those of women. In the study of Vural and his friends [25] done for the PALs of White collar workers, they have revealed that 29.1 percent of females are inactive, 51.7 percent are low active and 19.2 are adequately active, and 20.6 percent of males are inactive, 45.4 percent are low active and 34.0 are adequately active. Previous studies showed that young males are more active than young females in relation to the differences dependent on gender [26, 27].

In a comparison of PA and QoL levels with the genders, the total average PA score of men was found as 4938.86 ± 3919.33 MET-minute/week while that of women was found as 2592.44 ± 2276.82 MET-minute/week. Total and moderate PA levels of men were statistically higher than those of women ($p < 0.001$). In another similar research, the total physical activity score of female university students was found to be 1812.30 ± 1569.40 MET-minute/week while that of males was 2237.74 ± 1589.45 MET-minute/week [28]. In a physical activity survey applied to the adolescents and young adults in Poland, males were found to have higher level of physical activity than females [29]. Previous studies and our results show similar; the PA level of men is higher than that of women. [21].

There was no statistically significant difference in physical, psychological and environmental variables in QoL scores between genders ($p > 0.001$). The social relations of men are higher than those of women, and there is a statistically significant difference ($p < 0.001$). Although the physical activity level of males was higher than those of females, no significant relation was found among physical, psychological and environmental QoL scores.

Evidence from clinical trials is lesser among adults cross-sectional studies show that the relationship between PA and QoL domains does not seem to be linear [11]. Fox et al. [30] reported positive effects of a 12-month program of moderate PA on psychological, physical and environmental domains among senior women; yet, there was no similar effect in the social relations domain. Vagetti et al. [11] PA is associated in different ways for women and men and also for the different QoL domains. The previous literature results are similar to the results we have found.

When we looked at the correlation relation between physical activity and QoL, it was found that there was a significant relation of high activity and total activity with physical health, psychological, social relations and environment ($p < 0.001$). It was determined that low activity had a significant relation with physical and social relation, and also, moderate activity and sitting time had a significant difference with social relation ($p < 0.001$). Some

authors suggest that the psychological quality of life is only positively affected by moderate- and high-intensity exercises [31, 8]. PA has positive effects on psychological, [32], physical [33], and emotional [34] and well-being [11]. Most studies show a positive effect of sport activity on subjective well-being in terms of happiness and life satisfaction [35, 36, 37]. Our study results showed that they developed PA and QoL levels and that there was a positive correlation between them [38, 39].

5. Conclusions

In university students, it was found that as the PA scores increased, QoL levels also increased, and there was a positive relationship between them. This relationship varied according to the gender and PA level. It was found that the students in the sports faculty had a higher level of PA and QoL scores. Students studying at other faculties should be encouraged to do any sport during their spare time to increase their levels of physical activity.

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