

RELATIONSHIPS OF PHYSICAL ACTIVITY LEVELS AND QUALITY OF LIFE BEHAVIORS OF STUDENTS

Dilek Yalız Solmaz¹, Gülsün Aydın¹

¹Anadolu University, Faculty of Sport Sciences, Eskisehir/ Turkey

E-mail: dilekyaliz@anadolu.edu.tr , gaydin@anadolu.edu.tr

Abstract

The purpose of the study was to determine the relationships of physical activity levels and quality of life behaviors of students in Anadolu University at Faculty of Sport Science, Department of Coach Training in Sports. 114 students who were educated in Department of Coach Training in Sports participated in this study. Data were collected using a personal information form, short form SF-36 and IPAQ short form. According to our research results most of the students were attending high intensity physical activities and the highest means according to with SF-6 Health Survey are physical functioning and the lowest mean is vitality status. Highest vitality values belong to 21-23 years old students. The highest general health values belong to 1st class students. Nonsmoker students had the highest physical functioning scores. But there is no significant difference between students' scores in all dimensions according to alcohol use status. As a conclusion of this study, there is a positive relationship between general health status and physical activity.

Key Words: Quality of Life, University student, Physical activity, Behavior

1. INTRODUCTION

Regular physical activity remains an important behavior for promoting health, preventing prevalent musculoskeletal disorders such as mechanical low back pain and decreasing the risk of heart diseases, hypertension, diabetes, osteoporosis, obesity ... etc (Daskapan et. al., 2006). In addition, physical activity has favorable effects on blood pressure, lipid and lipoprotein profiles, weight control and body fat distribution, as well as on mental health and psychological well-being (Brown et. al., 2003). Adequate physical activity has also a critical bearing on wellbeing and quality of life (Lovell et.al. 2010).

Quality of life is defined as a conscious cognitive judgment of satisfaction with one's life (Rejeski and Mihalko, 2001). The World Health Organization defines quality of life as individuals' perception of their position in life in the context of culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. The health related quality of life (HRQL) is a relatively new term in literature, receiving more attention in recent year. The HRQL is developed as a narrower term than the comprehensive "quality of life" terms (Latas, 2014). Health-related quality of life has also evolved to include aspects of life that affect perceived physical or mental health (Brown et. al., 2003).

Quality of life is a new research field in the postmodern world (Edvy, 2013). Over the past decades, it was shown that health-related quality of life assessments are very important in educational settings (Pekmezovic et. al, 2011).

The purpose of the present study was to determine and examine the relationships of physical activity levels and quality of life behaviors of university students in Anadolu University at Faculty of Sport Science, Department of Coach Training in Sports.

2. METHODOLOGY

Participants: 114 students who were educated in Anadolu University, Faculty of Sport Sciences and Department of Coach Training in Sports participated in this study.

Data Collection Tools: Data were collected using a personal information form, HRQL from the Medical Outcomes Survey short form-36 (SF-36) and International Physical Activity Questionnaire (IPAQ) short form. The data were gathered during 2014-2015 Academic Year.

HRQL from the Medical Outcomes Survey short form-36 (SF-36): The SF-36 Health Survey is a generic questionnaire consisting of 36 items clustered to measure eight health concepts (Lim et. al., 2008). The SF-36 was first published in 1992, respectively, with the revised version of the questionnaire published in 2000. The revised version is very similar to its original form, with major differences involving changes in item wording, revision of the response scale to incorporate a greater number of response options, and norm-based scoring (Busija et. al., 2011).

It yields an eight-scale profile of scores as well as summary physical and mental measures (Busija et. al., 2011). The Turkish validated version of the SF-36 questionnaire was applied to students. This self-administered questionnaire contains 36 questions measuring eight domains of functioning: physical functioning (PF), role- functioning/physical (RP), pain (P), emotional wellbeing (EW), role-functioning/emotional (RE), social functioning (SF), vitality (VT), and general health (GH) status. PF covers limitations in daily life due to health problems. The RP scale measures role limitations due to physical health problems. The P scale assesses pain frequency and pain interference with usual roles. The GH scale measures individual perceptions of general health. The VT scale assesses energy levels and fatigue. The SF scale measures the extent to which ill health interferes with social activities. The RE scale assesses role limitations due to emotional problems, and the EW scale measures psychological distress (Busija et. al., 2011). Each of the SF-36 subscales is scored from 0 to 100, with a higher score representing better health. The eight SF-36 scales can be summarized into a physical component summary (PCS) and a mental component summary (MCS) scores (Khanna et. al., 2010).

International Physical Activity Questionnaire (IPAQ) short form: The International Physical Activity Questionnaire (IPAQ) was developed in an attempt to standardize assessment of the prevalence of PA in different countries and cultures around the world (Ekelund et. al., 2006; Craig et. al., 2003). IPAQ is designed to assess the levels of habitual physical activity for individuals ranging from young to middle-aged adults. In addition, there are different forms of IPAQ depending on several variations which include length of questionnaire (short or long form), reference period (last 7 day or usual week) and mode of administration (self-report or interviewer-based) (Craig et. al., 2003) suggested that the last 7-day, short form of the International Physical Activity Questionnaire can be used for national and regional researches.

Analysis: In the data analysis, “frequencies, percentage, mean, standard deviation, t-test, ANOVA” were used. Moreover, Product-Moment Correlation coefficients were calculated in order to see the relationship between physical activity levels and quality of life behaviors. The significance level is accepted as .05 and .01 during the statistical analysis.

3. RESULTS

Tables which are showing about opinions of students participating on research’s findings are given below.

Table 1: Demographic characteristics of participants

Variable	f	%
Gender		
Male	100	87.7
Female	14	12.3
Grade Levels		
1 st class	38	33.3
2 nd class	22	19.3
3 rd class	36	31.6
4 th class	18	15.8
Ages		
18-20 age	31	27.2
21-23 age	65	57.0
24 and over age	18	15.8
Smoking status		
Smokers	34	29.8
Non-smokers	77	67.5
Quit smoking	3	2.6
Alcohol use status		
User	49	43.0
Non-user	61	53.5
Quit using alcohol	4	3.5

According to Table 1, 12.3% of the students in the study population were female, 87.7% are male. According to the grade levels, it is observed that students are 1st class of 33.3%, 2nd class of 19.3%, 3rd class of 31.6% and 4th class of 15.8%. According to the ages, it is observed that students are 18-20 age of 27.2%, 21-23 age of 57.0% and 24 and over age of 15.8%. According to the smoking and alcohol use status %29.8 of students are smokers, % 67.5 nonsmokers, % 43 alcohol users and % 53.5 of students are non-alcohol users.

Table 2: The level of the students' physical activity

	F	%
Low Intensity	9	7.9
Middle Intensity	36	31.6
High Intensity	69	60.5

According to Table 2, when we examined the frequency and percentage distribution of students' physical activity levels who are studying at Department of Coach Training in Sports, it is determined that %7.9 of students were attending low intensity physical activity while %31.6 of them were attending middle intensity physical activity and %60.5 of them were attending high intensity physical activity.

Table 3: The level of the students' quality of life behaviors

	N	Mean	Sd
Physical functioning	114	89.21	15.79
Role functioning/physical	114	81.80	31.60
Role functioning/emotional	114	69.88	39.90
Vitality	114	65.53	14.99
Emotional well-being	114	66.91	14.48
Social functioning	114	69.41	22.00
Pain	114	77.89	20.45
General health	114	71.27	17.25

According to Table 3, when we examined students' quality of life behaviors with SF-6 Health Survey in eight domains of functioning, the highest point means belong to in physical functioning (M=89.21), role functioning/physical (M=81.80) and pain (M=77.89). the lowest point means belong to general health (M=71.27), role functioning/emotional (M=69.88), social functioning (M=69.41), emotional well-being (M=66.91) and vitality (M=65.53).

Table 4. Gender- specific mean T scores of quality of life behaviors

	Male	Female	P value*
	Mean ± SD	Mean ± SD	
Physical functioning	88.4 ± 16.6	95.0 ± 5.88	0.01*
Role functioning/physical	82.5 ± 31.3	76.8 ± 34.6	0.53
Role functioning/emotional	70.3 ± 39.0	66.7 ± 47.1	0.75
Vitality	65.3 ± 14.8	67.1 ± 16.8	0.67
Emotional well-being	66.3 ± 14.4	71.1 ± 15.0	0.25
Social functioning	69.3 ± 21.8	70.5 ± 24.3	0.84
Pain	78.4 ± 19.5	74.6 ± 26.9	0.53
General health	71.3 ± 17.6	71.1 ± 15.2	0.96

*Significance of difference between male and female ($P < 0.05$)

According to Table 4, when male and female students evaluate quality of life behaviors scores, there is no significant difference between students' role functioning/physical ($p=0.53$), role functioning/emotional ($p=0.75$), vitality ($p=0.67$), emotional well-being ($p=0.25$),

social functioning ($p=0.84$), pain ($p=0.53$) and general health ($p=0.96$) according to gender. However, physical functioning mean of female students were found to have scored higher than the male ones ($M=95.0$ and $M=88.4$ respectively). Also, the difference between these scores was found to be statistically significant ($p=0.01$).

Table 5. Ages- ANOVA scores of quality of life behaviors

	18-20 ages	21-23 ages	24 and over age	
	Mean \pm SD	Mean \pm SD	Mean \pm SD	<i>P</i> value*
Physical functioning	93.5 \pm 9.9	87.5 \pm 17.5	87.8 \pm 16.7	0.20
Role functioning/physical	91.9 \pm 26.1	79.2 \pm 30.8	73.6 \pm 39.7	0.08
Role functioning/emotional	67.7 \pm 41.7	67.7 \pm 40.4	81.5 \pm 34.7	0.41
Vitality	64.7 \pm 14.4	68.4 \pm 15.2	56.7 \pm 11.8	0.01*
Emotional well-being	70.3 \pm 15.8	66.9 \pm 14.2	61.1 \pm 11.5	0.09
Social functioning	73.8 \pm 26.1	67.1 \pm 19.3	70.1 \pm 23.5	0.38
Pain	75.4 \pm 25.3	78.4 \pm 18.5	80.3 \pm 18.3	0.69
General health	75.5 \pm 18.6	69.8 \pm 16.9	69.4 \pm 15.7	0.28

*Significance of difference between male and female ($P<0.05$)

According to Table 5, there is no significant difference between students' physical functioning ($p=0.20$), role functioning/physical ($p=0.08$), role functioning/emotional ($p=0.41$), emotional well-being ($p=0.09$), social functioning ($p=0.38$), pain ($p=0.69$) and general health ($p=0.28$) according to ages. However, there is a statistically significant difference in vitality of students according to ages ($p=0.01$).

Table 6. Grade Levels- ANOVA scores of quality of life behaviors

	1 st class	2 nd class	3 rd class	4 th class	
	Mean \pm SD	Mean \pm SD	Mean \pm SD	Mean \pm SD	<i>P</i> value*
Physical functioning	94.1 \pm 10.3	84.1 \pm 21.7	87.2 \pm 17.5	89.2 \pm 10.7	0.08
Role functioning/physical	88.8 \pm 29.5	71.6 \pm 37.2	82.6 \pm 29.8	77.8 \pm 30.8	0.21
Role functioning/emotional	71.9 \pm 39.9	68.2 \pm 40.5	74.1 \pm 39.9	59.2 \pm 40.5	0.61
Vitality	66.1 \pm 14.2	62.5 \pm 11.4	64.7 \pm 18.2	69.7 \pm 13.3	0.49
Emotional well-being	70.7 \pm 14.8	63.6 \pm 12.6	65.1 \pm 15.3	66.4 \pm 13.6	0.22
Social functioning	73.0 \pm 24.6	61.4 \pm 12.1	70.5 \pm 23.6	79.4 \pm 21.5	0.25
Pain	76.0 \pm 24.1	75.9 \pm 18.3	81.0 \pm 17.8	78.1 \pm 20.2	0.71
General health	75.7 \pm 18.5	63.2 \pm 16.4	71.9 \pm 16.7	70.6 \pm 14.0	0.05*

*Significance of difference between male and female ($P<0.05$)

According to Table 6, there is no significant difference between students' physical functioning ($p=0.08$), role functioning/physical ($p=0.21$), role functioning/emotional ($p=0.61$), vitality ($p=0.49$), emotional well-being ($p=0.22$), social functioning ($p=0.25$) and pain ($p=0.71$) according to grade levels. However, there is a statistically significant difference in and general health of students according to grade levels ($p=0.05$).

Table 7. Smoking use status- ANOVA scores of quality of life behaviors

	Smoker	Non-smoker	Quit Smoking	
	Mean \pm SD	Mean \pm SD	Mean \pm SD	<i>P</i> value*

Physical functioning	82.1 ± 18.3	92.5 ± 13.3	86.7 ± 23.1	0.00*
Role functioning/physical	78.7 ± 35.4	82.8 ± 30.4	91.7 ± 14.4	0.70
Role functioning/emotional	64.7 ± 38.4	72.3 ± 40.2	66.7 ± 57.7	0.65
Vitality	62.9 ± 15.7	66.4 ± 14.9	73.3 ± 5.8	0.36
Emotional well-being	62.5 ± 14.2	68.6 ± 14.4	74.7 ± 12.2	0.07
Social functioning	64.7 ± 22.5	71.8 ± 21.8	62.5 ± 12.5	0.25
Pain	76.4 ± 20.7	78.8 ± 20.4	71.7 ± 23.6	0.74
General health	62.6 ± 15.1	74.5 ± 16.8	85.0 ± 17.3	0.00*

*Significance of difference between male and female ($P < 0.05$)

According to Table 7, there is no significant difference between students' role functioning/physical ($p = 0.70$), role functioning/emotional ($p = 0.65$), vitality ($p = 0.36$), emotional well-being ($p = 0.07$), social functioning ($p = 0.25$) and pain ($p = 0.74$) according to smoking use status. However, there is a statistically significant difference in physical functioning ($p = 0.00$) and general health ($p = 0.00$) of students according to smoking use status.

Table 8. Alcohol use status- ANOVA scores of quality of life behaviors

	User	Non-user	Quit using alcohol	P value*
	Mean ± SD	Mean ± SD	Mean ± SD	
Physical functioning	88.2 ± 15.5	90.6 ± 14.9	80.0 ± 30.3	0.35
Role functioning/physical	86.2 ± 30.6	78.7 ± 32.2	75.0 ± 35.4	0.42
Role functioning/emotional	71.4 ± 41.4	69.4 ± 38.6	58.3 ± 50.0	0.81
Vitality	63.5 ± 15.7	66.8 ± 14.8	71.3 ± 4.8	0.38
Emotional well-being	66.2 ± 15.6	67.5 ± 13.9	67.0 ± 10.0	0.90
Social functioning	74.2 ± 18.5	65.2 ± 23.6	75.0 ± 28.9	0.08
Pain	78.9 ± 17.2	77.2 ± 22.8	76.3 ± 24.3	0.90
General health	67.7 ± 15.4	74.7 ± 17.5	63.6 ± 22.9	0.07

*Significance of difference between male and female ($P < 0.05$)

According to Table 8, there is no significant difference between students' physical functioning ($p = 0.35$), role functioning/physical ($p = 0.42$), role functioning/emotional ($p = 0.81$), vitality ($p = 0.38$), emotional well-being ($p = 0.90$), social functioning ($p = 0.08$), pain ($p = 0.90$) and general health ($p = 0.07$) according to alcohol use status.

Table 9: Correlations between sub-dimensions of quality of life behaviors and physical activity

	r^*	P value
Physical functioning	0.133	0.158
Role functioning/physical	0.073	0.440
Role functioning/emotional	-0.009	0.923
Vitality	-0.029	0.759
Emotional well-being	0.043	0.648
Social functioning	0.093	0.326
Pain	0.045	0.636
General health	0.199*	0.034*

*Pearson correlation coefficient

Correlation is significant at the 0.01 level.

Correlation is significant at the 0.05 level.

According to Pearson Correlation analysis, it is observed that the highest correlation is between general health perceptions ($r=.199$; $p<0.05$) and physical activity. Moreover, it has been found out that there is a positive and significant relationship between general health status ($r=.199$; $p<0.05$) and physical activity. It has also been found out that there is a positive yet no significant relationship between physical activity and physical functioning ($r=.133$, $p>.01$), role functioning/physical ($r=.073$, $p>.01$), emotional well-being ($r=.043$, $p>.01$), social functioning ($r=.093$, $p>.01$) and pain ($r=.045$, $p>.01$). It has also been found out that there is a negative yet no significant relationship between physical activity and role functioning/emotional ($r=-.009$, $p>.01$) and energy/fatigue ($r=-.029$, $p>.01$).

4. DISCUSSION AND CONCLUSION

In a summary, when we examined the physical activity levels most of the students were attending high intensity physical activities and then middle and low intensity physical activities.

According to our research results the highest means according to with SF-6 Health Survey are physical functioning and role functioning/physical status and the lowest mean is vitality status. These results are similar with the research results determined by Pekmezovic et. al (2011).

Physical functioning values of female students were found higher than the male ones. In contrast to our research results, Pekmezovic et. al (2011) mentioned that male students scored better compared to female students, in any of the eight dimensions except for the role functioning physical status and Paro et. al. (2010) determined that female students had lower physical functioning, pain, vitality, social functioning, and role emotional values than male students. According to age differences highest vitality value belongs to 21-23 years old students and then 28-20 years old, the lowest vitality value belongs to 24 years and more. The highest to lowest general health values in turn belong to 1st, 3rd, 4th and 2nd class students. According to smoking status nonsmoker students had the highest physical functioning scores. But there is no significant difference between students' scores in all dimensions of SF-6 Health Survey according to alcohol use status.

According to our research results, scores of students for all SF-36 subscales are with a higher score representing better health (Khanna et. al., 2010). In contrast to our study Henning et. al. (2012) determined that all student groups examined in their study appeared to be experiencing lower levels of quality of life when compared to the general population. The same results were found in another research too. In this research the medical students showed poor HRQOL, mainly because of the mental component. Lower HRQOL was associated with FIES support, females, sleepiness, headaches and lack of regular physical activity (Lins et. al., 2015). Regular physical activity improves physical and mental health in students and regular physical activity as a part of strategies to improve the quality of life in students (Pekmezovic et. al., 2011). As a conclusion of this study, there is a positive relationship between general health status and physical activity but no significant relationship between physical activity and the other status.

5. LIMITATIONS AND FUTURE RESEARCH

The sample population of this study limited to University students in Department of Coach Training in Sports. A bigger sample that is able to represent the other universities, faculties and departments would enable the research to reach yield even more meaningful clearer and more generalized results about university students' health related quality of life (HRQL) and physical activity levels which is one of the factor effecting HRQL.

6. REFERENCES

- Brown, D.W., Balluz, L.S., Heath, G.W., Moriarty, D.G., Ford, E.S., Giles, W.H., Mokdada, A.H. (2003). Associations between recommended levels of physical activity and health-related quality of life: Findings from the 2001 Behavioral Risk Factor Surveillance System (BRFSS) survey. *Preventive Medicine*, 37, 520-528.
- Busija, L., Pausenberger, E., Haines, T.P., Haymes, S., Buchbinder, R., Osborne, R.H. (2011). Adult measures of general health and health-related quality of life. *Arthritis Care & Research*, 63(11), 383-3412.
- Craig, C.L., Marshall, A.L., Sjoström, M., Bauman, A.E., Booth, M.L., Ainsworth, B.E., Pratt, M., Ekelund, U., Yngve, A., Sallis, J.F., Oja, P. (2003). International physical activity questionnaire: 12-country reliability and validity. *Medicine and Science in Sports and Exercise*, 35, 1381-95.
- Daskapan, A., Tuzun, E.H., Eker, L. (2006). Perceived barriers to physical activity in university students. *Journal of Sports Science and Medicine*, 5, 615-620.
- Edvy, L. (2013). Quality of life indicators of university students in Hungary. *Physical Culture and Sport Studies and Research*, 58(1), 53-60.
- Ekelund U., Sepp, H., Brage, S., Becker, W., Jakes, R., Hennings, M., Wareham, N.J. (2006). Criterion-related validity of the last 7-day, short form of the international physical activity questionnaire in Swedish adults. *Public Health Nutrition*, 9(2), 258-265.

- Henning MA, Krägeloh CU, Hawken SJ, Zhao Y, Doherty I. (2012). The quality of life of medical students studying in New Zealand: a comparison with nonmedical students and a general population reference group. *Teach Learn Med.*, 24(4), 334-40.
- Khanna, P.P., Perez-Ruiz, F., Maranian, P., Khanna, D. (2010). Long-term therapy for chronic gout results in clinically important improvements in the health-related quality of life: short form-36 is responsive to change in chronic gout. *Rheumatology*, 50(4), 740-745.
- Latas, M., Stojkoviü, T., Raliü, T., Jovanoviü, S., Špiriü, Z., Milovanoviü, S. (2014). Medical students' health-related quality of life – A comparative study. *Vojnosanit Pregl*, 71(8), 751-56.
- Lim, L-Y, Seubsman, S., Sleigh, A. (2008). Thai SF-36 health survey: tests of data quality, scaling assumptions, reliability and validity in healthy men and women. *Health and Quality of Life Outcomes*, 6(52)1-9.
- Lins, L., Carvalho, F.M., Menezes, M.S., Silva, L.P. Damasceno, H. (2015). Health-related quality of life of students from a private medical school in Brazil. *Int J Med Educ.*, 6,149-154.
- Lovell, G.P., Ansari, W.E., Parker, J.K. (2010). Perceived exercise benefits and barriers of non-exercising female university students in the United Kingdom. *Int. J. Environ. Res. Public Health*, 7(3), 784-798.
- Paro, H.B.M.S., Morales, N.M.O., Silva, C.H.M., Rezende, C.H.A., Pinto, R.M.C., Morales, R.R., et al. (2010). Health-related quality of life of medical students. *Medical Education*, 44, 227-235.
- Pekmezovic, T., Popovic, A., Tepavcevic, D.K., Gazibara, T., Paunic, M. (2011). Factors associated with health-related quality of life among Belgrade University students. *Qual Life Res.*, 20, 391-397.
- Rejeski, W.J., Mihalko, S.L. (2001). Physical activity and quality of life in older adults. *Journals of Gerontology*, 56A (Special Issue II), 23-3523.