International Education Studies; Vol. 12, No. 4; 2019
ISSN 1913-9020 E-ISSN 1913-9039
Published by Canadian Center of Science and Education

Investigation of Relationship Between Physical Activity Levels and Quality of Life of University Students

Süleyman Gönülateş[1] & Mehmet Ali Öztürk[2]

[1] Faculty of Sport Sciences, Pamukkale University, Denizli, Turkey

[2] School of Physical Education and Sports, Karabük University, Karabük, Turkey

Correspondence: Süleyman Gönülateş, Faculty of Sport Sciences, Pamukkale University, Denizli, Turkey.

Received: November 16, 2018 Accepted: December 21, 2018 Online Published: March 20, 2019

doi:10.5539/ies.v12n4p110 URL: https://doi.org/10.5539/ies.v12n4p110

Abstract

The aim of this study is to investigate whether there is a positive or negative relationship between the quality of life of the students and their physical activity levels (PAL). A total of 469 students participated in the study (female = 209, male = 260). The physical activity levels of the participants were determined as "International Physical Activity Questionnaire Short Form (IPAQ-SF)" and their quality of life was determined by the World Health Organization (WHOQOL-BREF). In the statistical analysis, parametric tests were used because of the normal and homogeneous distribution of the data. The difference between PAL and quality of life scores was evaluated by MANOVA test. The relationship between PAL and quality of life of the participants was tested by Pearson Correlation test. The overall health status of the participants was 87% (n = 408) good-very good and the level of physical activity was 88.1% (n = 413) moderate-high active. There was no statistically significant difference between the PAL and quality of life scores of the participants. After Pearson Correlation test, there was no correlation between PAL and quality of life at r^2 at $p < 0.05$. In conclusion, PAL and quality of life of the participants were found to be high. In addition, it was concluded that PAL had no effect on the quality of life of the participants. According to the results of FAD and high quality of life; it was interpreted as a result of the research with young and healthy individuals.

Keywords: physical activity level, quality of life, students

1. Introduction

World Health Organization (WHO) quality of life; It defines the physical, mental and social well-being of a person (Eddols et al., 2018). Studies have been done to better explain and understand the state of well-being in the definition. The concept of quality of life (QOL), which emerged as a result of these researches, explains the abilities of individuals in doing their jobs and the perceived physical, psychological and social dimensions. (Göçgeldi et al., 2008; Selvi, Özdemir, Özdemir, Aydın, & Beşiroğlu, 2010). Studies have shown that some of the demographic variables as well as the concepts of depression and burnout negatively affect the quality of life (Günüşen & Üstün, 2010; S. Yıldız, & S. E. Yıldız, 2009). Especially in recent years, it is emphasized that the quality of life in adults is significantly reduced and interventions are needed to increase the quality of life that is specific to this population (Eddols et al., 2018; Cui & Zack, 2013).

Physical activity is the energy expenditure as a result of the movement of the body through the skeletal muscles in the body and can be defined as the amount of daily movement of the individual (Rowland & Freedson, 1994). Zorba (2010) defined physical activity as the energy expenditure as a result of the movement of the body through the skeletal muscles.

Regular physical activity allows healthy individuals to be prevented by catching various diseases throughout life. In addition, it is a fact that performance in business life, in-house activities, leisure time capacity and mental status increase. For a healthy society structure; It should be ensured that physical activity is an indispensable part of daily life and it has a great importance in terms of protecting individual health and minimizing the health threats to be encountered in the future (Zorba, 2010).

Physical activity includes many healthy activities for different age groups (Boreham & Riddoch, 2001). Regular physical activity also helps in weight loss, cardiovascular disorders and control of Type II diabetes, muscle and bone development, and psychological well-being. However, children and adults gaining regular physical activity

habits also contribute to mental health, quality sleep sleep, obesity risk and stress reduction, and coping with disorders such as depression and anxiety (Kohl & Murray, 2012; Veugelers & Fitzgerald, 2005; Brown & Summerbell, 2009). Regular physical activity helps children and adults to improve their health-related quality of life. It has been reported that health-related quality of life has improved significantly as a result of regular physical activity applied to 156 Malaysian children aged 9-11 years (Wafa et al., 2016). Also, overweight and obese children aged 8-12 years were reported to lose weight significantly as a result of their participation in regular physical activities (Shoup, Gattshall, Dandamudi & Estabrooks, 2008). Another longitudinal study; At the end of 5 years, 2553 children with a mean age of 12.7 years were reported to have statistically significant improvements in health-related quality of life parameters (Gopinath, Hardy, Baur, Burlutsky & Mitchell, 2012). Watching TV, spending a lot of time with smartphones, playing computer games, sedentary lifestyles can lead to various negative health problems. Even the advanced level of these habits can lead to serious disorders such as obesity and cardiovascular diseases (Haraldstad, Christophersen, Eide, Nativg & Helseth, 2011; Seid, Varni, Segall & Kurtin, 2004). All these habits affect the quality of life of individuals in a positive or negative way.

So that the aim of this study was to investigation the effects of physical activity levels (PAL) on quality of life of university students.

2. Material and Methods

2.1 Research Model

A descriptive screning method was conducted to investigate the relationship between physical activity and quality of life of university students. The screening method is a research approach that aims to describe a situation that exists in the past or the present. The subject, subject, or object, which is the subject of the research, is tried to be defined as it is and within its own conditions (Karasar, 2009).

2.2 Subjects

The population of the study consisted of students studying at Pamukkale University in the academic year of 2017-2018. The sample group consisted of 469 students (women = 209, men = 260) who wanted to take part in the study voluntarily.

2.3 Data Collection Tools

In order to determine the physical activity levels of the participants, International Physical Activity Questionnaire Short Form (IPAQ-SF) and World Health Organization Quality of Life Questinoire-Bref (WHOQOL-BREF) scales were used to determine the quality of life. The demographic information of the participants was obtained with the Personal Information Form..

2.3.1 IPAQ-SF

International Physical Activity Questionnaire (IPAQ-SF) was developed to determine the physical activity levels of the participants aged 15-65 years (Craig et al., 2003). IPAQ-SF has been developed to obtain valid and comparable information about physical activity level based on individual reports on physical activity carried out daily in the international arena.

Scoring of the Scale: IPAQ-SF consists of 7 questions that provide information about walking, moderate and violent activities and time spent sitting.

There are three levels of physical activity proposed to classify populations:

- Low
- Moderate
- High

Median values and interquartile ranges can be computed for walking (W), moderateintensity activities (M), vigorous-intensity activities (V) and a combined total physical activity score. All continuous scores are expressed in MET-minutes/week as defined below.

The selected MET values were derived from work undertaken during the IPAQ Reliability Study undertaken in 2000-20013. Using the Ainsworth et al. (2000) an average MET score was derived for each type of activity. For example; all types of walking were included and an average MET value for walking was created. The same procedure was undertaken for moderate-intensity activities and vigorous-intensity activities. The following values continue to be used for the analysis of IPAQ data: Walking = 3.3 METs, Moderate PA = 4.0 METs and Vigorous PA = 8.0 METs. Using these values, four continuous scores are defined:

Walking MET-minutes/week = 3.3 * walking minutes * walking days

Moderate MET-minutes/week = 4.0 * moderate-intensity activity minutes * moderate days

Vigorous MET-minutes/week = 8.0 * vigorous-intensity activity minutes * vigorous-intensity days

Total physical activity MET-minutes/week = sum of Walking + Moderate + Vigorous METminutes/week scores.

2.3.2 WHOQOL-BREF (World Health Organization Quality of Life Questinoire)

The WHOQOL-BREF scale, consisting of 26 questions of the WHOQOL-100 scale, was adapted into Turkish by Eser et al. (1999). The scale consists of 26 items and 4 sub-dimensions (physical health, psychological, social relationship and environment). The high score taken from the scale is considered to be an indicator of good quality of life. The Cronbach alpha internal consistency coefficients of the Turkish version of the scale were found to be 0.76 for the physical health dimension, 0.67 for the psychological health dimension, 0.56 for the social relations dimension and 0.74 for the environmental dimension (Bahadır & Kalender, 2017). In our study, Cronbach alpha level was found to be 0.86 for the whole scale and between 0.68-0.82 for the sub-dimensions.

2.4 Data Analysis

In order to determine the tests to be used to compare the PAL and quality of life scores of the participants, the normality distribution test was applied. The results of normality test were performed by examining the kurtosis and skewness values. As the result of the analysis performed, all of the kurtosis and skewness values were between -1.5 and +1.5 points. According to this result, normal distribution of data was determined and it was decided to use parametric tests in analysis.

It was measured by MANOVA test whether there was a significant difference between the participants' physical activity levels and quality of life. In addition to the normal distribution, a homogeneous distribution of variances is required for the MANOVA test. Because of the normal distribution and homogeneity of the data, MANOVA analysis can be performed. In addition, the Pearson Correlation test was used to determine whether there was a positive or negative relationship between the physical activity levels and the quality of life.

3. Results

Table 1. Demographic characteristics of the research group

	N	%
Age (Year)		
17-21	144	30.7
22-25	228	48.6
26 ve üzeri	97	20.7
Gender		
Female	209	44.6
Male	260	55.4
Marital Status		
Married	0	0
Single	469	100
Disease Status		
No Disease	418	89.1
Disease	51	10.9

Table 2. Evaluation of the general health status of the research group

Status	N	%
Very good	207	44.1
Good	201	42.9
Moderate	55	11.7
Bad	6	1.3
Very Bad	0	0.0
Total	469	100

Table 3. Distribution of physical activity levels (PAL) of the research group

PAL	N	%
Inactive	56	11.9
Moderate Active	357	76.2
Hight Active	56	11.9
Total	469	100

Table 1 shows the demographic characteristics of the participants. The highest age distribution average was 228 persons (48.6%) and 22-25 years old. Then, it is seen that 17-21 (n = 144, 30.7%) age group and 26 and over (n = 97, 20.7%) age group. Among the participants, 209 women and 260 men were male. The marital status of all participants (100%) was found to be single. It was also found that 51 people had disease and 418 people did not have any disease.

When Table 2 examined; Between 81-100 points 207 people, 61-80 points 201 people, 41-60 points 55 people, 21-40 points between 6 people and 0-20 points 0 people, 469 people respectively, very good, goog, moderate and bad were in general health condition.

Table 4. MANOVA test comparing the effect of physical activity levels on quality of life of participants

		N	Mean Square	df	F	p
PAL	Physical Health	469	63.776	2	0.789	0.488
	Psychological	469	77.752	2	0.083	0.920
	Social Relationships	469	59.460	2	0.384	0.681
	Enviroment	469	69.910	2	0.940	0.392

* $p<0.05$.

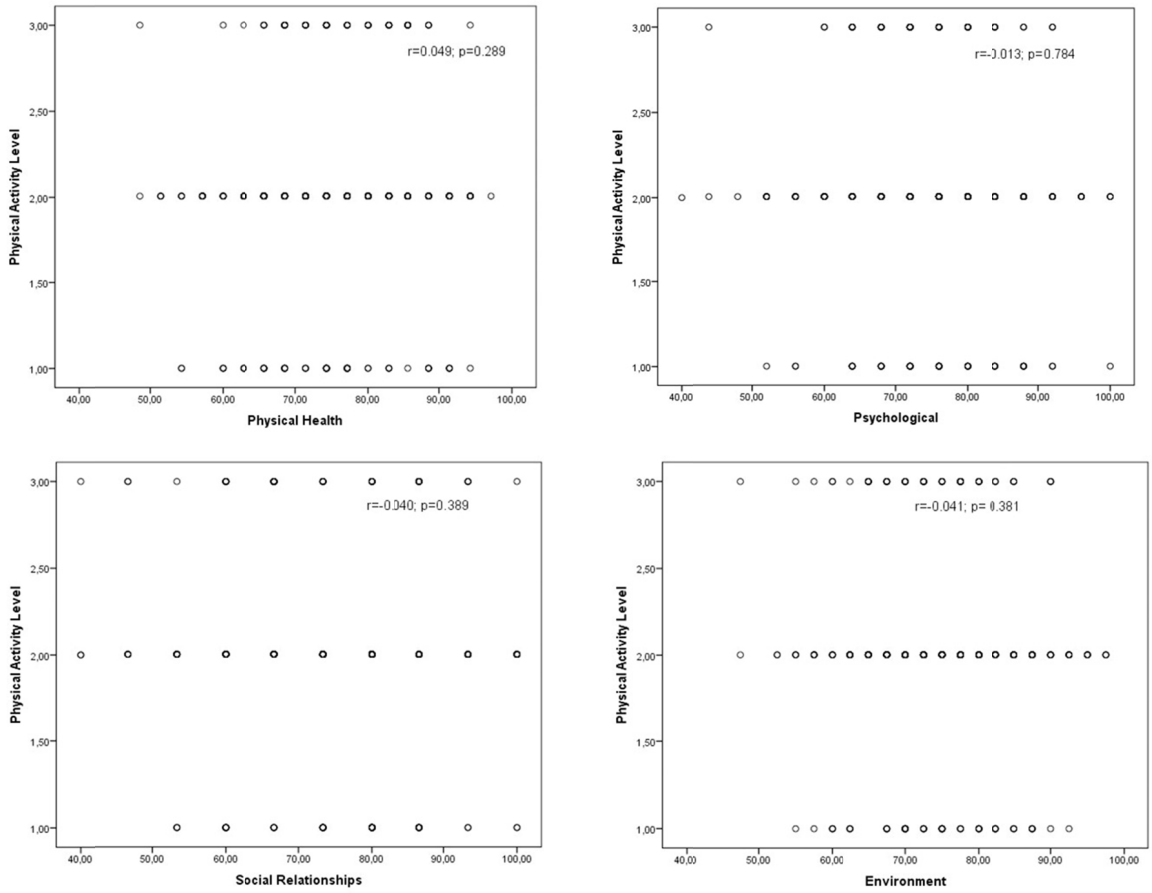

Figure 1. Relationship between the participants' physical activity levels and quality of life

According to Table 3 where the physical activity levels of the participants are examined, it is seen that the group with the highest level of physical activity has sufficient active group with 76.2%. Inactive and high active groups were found to have the same percentage of 11.9%.

When Table 4 is examined, it was determined that the physical activity levels of the participants did not affect the quality of life in any sub-dimension significantly.

In Figure 1, it was investigated whether there was a significant relationship between physical activity levels and quality of life of the participants. While a very low positive relationship was observed in Physical Health subscale (r = 0.049), a very low negative relationship was observed in the other sub-dimensions, including environmental r = -0.041, social relations r = -0.040 and psychological r = -0.013, respectively. These relationships were not statistically significant.

4. Discussion

This study was conducted to investigate whether there is a positive or negative relationship between the physical activity levels and quality of life of university students.

The quality of life of the participants was found to be high. 408 students (87%) with very good and good quality of life, 55 (11.7%) students with moderate quality of life and 6 (1.3%) students with poor quality of life took part in the research. Students with poor quality of life were not detected in the study. The physical activity levels of the participants were as good as their quality of life. The majority of the students (n = 357, 76.2%) were found to be active and the inactive group was 11.9% (n = 56). According to these results, the physical activity levels and quality of life of the participants in the study can be interpreted as having a good level.

As a result of the study, a very low negative relationship was found in environmental, social relations and psychological sub-dimensions and a very low positive relationship was found in physical health sub-dimension. However, these relationship levels were not significant at $p < 0.05$ level. This result shows that there is no change in the quality of life as the physical activity levels of the participants increase or decrease. In the emergence of this

result, it may be that the research sample consists of young and healthy individuals and the same university. Namely; the mean age of the majority of the participants was between 17-25 (n = 372) and the subjects without any disease (n = 418). In this case, it is normal for participants to have both physical activity levels and quality of life at the highest level and therefore there is no significant relationship between these two variables. When the literature about our research is examined, it is seen that many studies have conflicting results (Omorou, Langlois, Lecomte, BriancEon, & Vuilemin, 2016; Gopinath et al., 2014; Vella, Cliff, Magee, & Okely, 2014) with our research findings. Finne et al. (2013) reported that the participants with high PAL had high quality of life and a strong relationship between the 11-17 years old children and adults. The results of the study conducted on 3040 Australian adults revealed that individuals with high PAL had a high quality of life and a strong positive relationship between them (Lacy et al., 2012). In some studies that contradict with the results of our study, results were found to have a significant relationship between PAL and quality of life (Fine et al., 2013; Galân et al., 2013). In a study consistent with the results of our study, there was no relationship between FAD and quality of life of the participants (Borras, Vidal, Ponseti, Cntallops, & Palou, 2011). In many studies among healthy adult individuals, there is a positive relationship between physical activity level and quality of life. According to the results of our study, although the relationship between the participants' physical activity levels and quality of life is not found to be statistically meaningful; Particularly environmental, social relations and psychological sub-dimensions of negative relationship is very interesting. Thus, it can be said that as the physical activity levels of the participants increased, the quality of life decreased very little.

No statistical significance was found between the participants' physical activity levels and quality of life scores. Since there was no significant relationship between physical activity levels and quality of life It was expected that there was no significant difference between the scores. However, when the studies related to our study are examined, it is seen that there are many researches that have differentiated between physical activity levels and quality of life scores of the participants (Perry, Moore, Redwine, Robbins, & Weber, 2011; Lacy et al., 2012; Boyle, Jones, & Walters, 2010). In another study performed on 1094 adults; In comparison with the participants with high levels of physical activity and low levels of physical activity, differences in quality of life between groups were determined (Gopinath et al., 2012).

According to the results, physical activity levels and quality of life of the participants were found to be high. In addition, it was concluded that PAL (inactive, moderate active and high active) did not have any effect on the quality of life of the participants and there was no relationship between them. Factors such as conducting research with university students, as well as being limited to a single university, may have led to this conclusion. Conducting such studies together with more participants may provide better interpretation of research results. As a result, it was found that there was no difference between physical activity levels and quality of life of young individuals and the physical activity levels had no effect on the quality of life of healthy young individuals.

References

Ainsworth, B. E., Haskell, W. L., Whitt, M. C., Irwin, M. L., Swartz, A. M., Strath, S. J., … Leon, A. S. (2000). Compendium of physical activities: an update of activity codes and MET intensities. *Med Sci Sports Exerc, 32*(9), 498-504. https://doi.org/10.1097/00005768-200009001-00009

Bahadır, E., & Kalender, B. (2017). Sağlık çalışanlarında depresyon tükenmişlik ve yaşam kalitesi düzeylerinin incelenmesi. *Akademik Sosyal Araştırmalar Dergisi, 40*, 454-465.

Boreham, C., & Riddoch, C. (2001). The physical activity, fitness and health of children. *Journal of Sports Sciences, 19*, 915-929. https://doi.org/10.1080/026404101317108426

Borras, P. A., Vidal, J., Ponseti, X., Cantallops, J., Palou, P. (2011). Predictors of quality of life in children. *J Hum Sport Exerc, 6*(4), 649-656. https://doi.org/10.4100/jhse.2011.64.08

Boyle, S. E., Jones, G. L., Walters, S. J. (2010). Physical activity, quality of life, weight status and diet in adolescents. *Qual Life Res, 19*, 943-954. https://doi.org/10.1007/s11136-010-9659-8

Brown, T., & Summerbell, C. (2009). Systematic review of school-based interventions that focus on changing dietary intake and physical activity levels to prevent childhood obesity: an update to the obesity guidance produced by the National Institute for Health and Clinical Excellence. *Obes Rev, 10*(1), 110-141. https://doi.org/10.1111/j.1467-789X.2008.00515.x

Craig, C. L., Marshall, A. L., Sjöström, M., Bauman, A. E., Booth, M. L., Ainsworth, B. E., … Oja, P. (2003). International physical activity questionnaire: 12-country reliability and validity. *Med Sci Sports Exerc, 35*(8), 1381-1395. https://doi.org/10.1249/01.MSS.0000078924.61453.FB

Cui, W., & Zack, M. M. (2013). Trends in health-related quality of life among adolescents in the United States,

2001–2010. *Preventing Chronic Disease, 10*, E111. https://doi.org/10.5888/pcd10.120334

Eddols, W. T. B., McNarry, M. A., Lester, L., Winn, C. O. N., Stratton, G., & Mackintosh, K. A. (2018). The association between physical activity, fitness and body mass index on mental well-being and quality of life in adolescents. *Quality of Life Research, 27*, 2313-2320. https://doi.org/10.1007/s11136-018-1915-3

Eser, E., Fidaner, H., Fidaner, C., Eser, S. Y., Elbi, H., & Göker, E., (1999). WHOQOL-100 ve WHOQOL-BREEF'in Psikometrik Özellikleri. *3P Dergisi, 7*(2), 23-40.

Finne, E., Bucksch, J., Lampert, T., & Kolip, P. (2013). Physical activity and screen-based media use: cross-sectional associations with health-related quality of life and the role of body satisfaction in a representative sample of German adolescents. *Health Psychol Behav Med, 1*(1), 15-30. https://doi.org/10.1080/21642850.2013.809313

Galân, I., Boix, R., Medrano, M. J., Ramos, P., Rivera, F., Pastor-Barriuso, R., … Moreno, C. (2013). Physical activity and self-reported health status among adolescents: A cross-sectional population-based study. *BMJ Open, 3*, 1-10. https://doi.org/10.1136/bmjopen-2013-002644

Gopinath, B., Hardy, L. L., Baur, L. A., Burlutsky, G., & Mitchell, P. (2012). Physical activity and sedentary behaviors and healthrelated quality of life in adolescents. *Pediatrics, 130*, 167-174. https://doi.org/10.1542/peds.2011-3637

Gopinath, B., Louie, J. C., Flood, V. M., Burlutsky, G., Hardy, L. L., Baur, L. A., … Mitchell, P. (2014). Influence of obesogenic behaviors on health-related quality of life in adolescents. *Asia Pac J Clin Nutr, 23*(1), 121-127.

Göçgeldi, E., Babayiğit, A. M., Hassoy, H., Açıkel, C. H., Taşçı, İ., & Ceylan, S. (2008). Hipertansiyon tanısı almış hastaların algıladıkları yaşam kalitesi düzeyinin ve etki eden faktörlerin değerlendirilmesi. *Gülhane Tıp Dergisi, 50*, 172-179.

Günüşen, G. P. & Üstün, B. (2010). Türkiye'de ikinci basamak sağlık hizmetlerinde çalışan hemşire ve hekimlerde tükenmişlik literatür incelemesi. *Dokuz Eylül Üniversitesi Hemşirelik Yüksek Okulu Elektronik Dergisi, 3*(1), 40-51.

Haraldstad, K., Christophersen, K. A., Eide, H., Nativg, G. K., & Helseth, S. (2011). Predictors of health-related quality of life in a sample of children and adolescents: A school survey. *Journal of Clinical Nursing, 20*, 3048-3056. https://doi.org/10.1111/j.1365-2702.2010.03693.x

Karasar, N. (2009). *Bilimsel Araştırma Yöntemi*. Ankara: Nobel Yayıncılık.

Kohl, H. W. R., & Murray, T. (2012). *Foundations of physical activity and public health*. Champaign: Human Kinetics.

Lacy, K. E,. Allender, S. E., Kremer, P. J., de Silva-Sanigorski, A. M, Millar, L. M., Moodie, M. L., … Swimburn, B. A. (2012). Screen time and physical activity behaviours are associated with health-related quality of life in Australian adolescents. *Qual Life Res, 21*(6), 1085-1099. https://doi.org/10.1007/s11136-011-0014-5

Omorou, A. Y., Langlois, J., Lecomte, E., BriancËon, S., & Vuillemin, A. (2016). Cumulative and bidirectional association of physical activity and sedentary behaviour with health-related quality of life in adolescents. *Qual Life Res, 25*(5), 1169-1178. https://doi.org/10.1007/s11136-015-1172-7

Perry, T. T., Moore, P. C., Redwine, K. M., Robbins, J. M., & Weber, J. L. (2012). Physical activity, screen time and pediatric health related quality of life in the Mississippi Delta. *J of Prev Med, 2*(1), 1-7. https://doi.org/10.4236/ojpm.2012.21015

Rowland, P. W., & Freedson, P. (1994). Physical activity, fitness and health in children: A close look. *Pediatrics, 93*(4), 669-672.

Seid, M., Varni, J. W., Segall, D., & Kurtin, P. S. (2004). Healthrelated quality of life as a predictor of pediatric healthcare costs: A two-year prospective cohort analysis. *Health and Quality of Life Outcomes, 2*, 48. https://doi.org/10.1186/1477-7525-2-48

Selvi, Y., Özdemir, P. G., Özdemir, O., Aydın, A., & Beşiroğlu, L. (2010). Sağlık çalışanlarında vardiyalı çalışma sisteminin sebep olduğu genel ruhsal belirtiler ve yaşam kalitesi üzerine etkisi. *Düşünen Adam Psikiyatri Ve Nörolojik Bilimler Dergisi, 23*(4), 238-243. https://doi.org/10.5350/DAJPN2010230403

Shoup, J. A., Gattshall, M., Dandamudi, P., & Estabrooks, P. (2008). Physical activity, quality of life, and weight status in overweight children. *Quality of Life Research, 17*, 407-412.

Vella, S. A., Cliff, D. P., Magee, C. A., & Okely, A. D. (2014). Sports participation and parent-reported health-related quality of life in children: longitudinal associations. *J Pediatr, 164*(6), 1469-1474. https://doi.org/10.1016/j.jpeds.2014.01.071

Veugelers, P. J., & Fitzgerald, A. L. (2005). Effectiveness of school programs in preventing childhood obesity: a multilevel comparison. *Am J Public Health, 95*(3), 432-435. https://doi.org/10.2105/AJPH.2004.045898

Wafa, S., Rhahril, M., Ahmad, A., Zainuddin, L., Simail, K., Aung, M., et al. (2016). Association between physical activity and health-related quality of life in children: A cross-sectional study. *Health and Quality of Life Outcomes, 14*, 71. https://doi.org/10.1186/s12955-016-0474-y

Yıldız, S., & Yıldız, S. E. (2009). Bullying ve depresyon arasındaki ilişki: kars ilindeki sağlık çalışanlarının bir araştırma. *İstanbul Ticaret Üniversitesi Sosyal Bilimler Dergisi, 15*, 133-150.

Zorba, E. (2010). Yaşam kalitesi ve fiziksel aktivite. *Proceedings of 10. International Sports Sciences Congress* (pp. 82-85), Turkey.