

# Physical activity and quality of life in adolescents and orphans

Lucija Maglica<sup>1</sup> • Hrvoje Karninčić<sup>1</sup> • Ana Penjak<sup>1</sup> • Gordan Drašinac<sup>1</sup>✉

Received: 27<sup>th</sup> June, 2019

Accepted: 22<sup>nd</sup> December, 2019

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DOI: 10.31382/eqol.200604



## Abstract

The aim of this study was to determine the relationship between physical activity and the quality of life in secondary school pupils and in orphans. The second aim was to determine differences in physical activity habits among groups.

91 participants (age 15.4±1.2) divided in two subsamples: secondary school pupils (n=75) and orphans from Split region (n=16). The variable sample consisted of nine variables out of which four variables that questioned the quality of life by means of the *World Health Organization Quality of Life* questionnaire and five of them questioned subjective assessment of weekly physical activities by means of *The International Physical Activity Questionnaire*. Differences between groups were tested by Mann-Whitney U test. Correlation among the quality of life self-assessment variable and weekly physical activity habits in total sample and for both groups separately, were established by Spearman coefficient rank.

Differences between groups were found in the variable of light physical activity intensity level (U=376.5; Z=-2,3; p=0.02). Although housekeeping activity in orphan's institution is performed by employees, orphans participate more than peers. Intensive physical activity among orphans significantly correlates with social aspect (p=0.58)

and surroundings aspect of the quality of life (p=0.62).

Orphans share similar amount of physical activities with other pupils but sport has particular meaning for them. The more sports they do, the more satisfied regarding the social domain of quality of life they feel.

**Keywords** orphans • sport • socialization.

## Introduction

The term orphans refers to children without adequate parental care because of a death case of one or both parents or because of the abandonment (He & Ji, 2007). There are not many of studies in Croatia which address the issue. Orphans represent particularly vulnerable group of young people on whose lifestyle any bigger problem can leave major trace and cause bigger damage than on the group of children with parental care. The studies of quality of life in children without adequate parental care are mainly related to additional life problems. For instance, HIV positive orphans tend to suffer more from depression than children with parental care; they tend to have low self-esteem and poor quality of life (He & Ji, 2007). The quality of life in orphaned children depends on the number of environmental factors. Poor countries are reporting major financial problems to combat this problem, especially when it comes to countries that are undergoing or have gone through armed conflicts, so the number of orphans is much higher (Chitiyo, Changara, & Chitiyo, 2008; Watts et al., 2007). Areas affected by natural disasters (such as earthquakes) also have an increased number of orphans, as well as reduced quality of life caused by disaster itself (Kuntz, 2009).

✉ drasinac@oss.unist.hr

<sup>1</sup> University of Split, Faculty of Kinesiology, Split, Croatia

According to World Health Organization, the quality of life stands as an individual perception of own position within a society he/she lives in and its correlation with his/her own goals, expectations, standards and worries (WHO, 1998). Among numerous studies that have defined quality of life, the one given by Felce and Perry (1993) defines it as an overall state of well-being that includes objective factors and subjective determination of physical, material, social and emotional well-being taking into consideration, at the same time, personal development and meaningful activity all judged from an individual point of view (Felce & Perry, 1993).

Low quality of life can be traced among general population of less physically active children, obese children and among those who consume alcohol (Gordija, 2008).

However, the situation with sport and weak groups such as orphans is a little bit more complex. Elling, De Knop, and Knoppers (2001) emphasize that sport can contribute to an increase of socialization among weak groups but it can, at the same time, expose them to various forms of violence. Namely, the more the person is physically active, the more her/his quality of life is and vice-versa (Omorou, Langlois, Lecomte, Briancon, & Vuillemin, 2016). Sport has positive impact on the quality of life of children without proper parental care (Kuntz, 2009; Nashwa, & Nagla, 2011).

Nevertheless, sport should have positive influence on orphans quality of life. Apart from the fact that sport has positive influence on an individual's physical state, it also builds self-esteem (Slutzky & Simpkins, 2009), self-perception and self-efficiency (Pastor, Balaguer, Pons, & Garcia-Merita, 2003). Sport and play have long been the tools that provide psychosocial assistance to children and young people who suffer from various problems (Henley, & Schweizer, 2007; Kunz, 2009). Being a member of sports collective, an individual develops a feeling of belonging to a group, so we often hear how sports community becomes their second family. This tends to be of importance primarily because of the fact that orphans lack family. The question that arises whether orphans perceive the benefits of exercising in the same way as other groups. The aim of this study is to establish weekly physical activity habits among adolescent children in secondary schools and in orphans and to determine the correlation between the quality of life and physical activity. Based on this research, better picture of the perception of sport in children without proper parental care should be

obtained. This study should further emphasize the importance of sport whose impact is mainly observed through physical health of the trainer. The impact of sport on psychosocial status is equally important. For sport professional and coaches who work with such groups, this information can be of great importance to on them properly and to be as efficient as possible in working with them.

## Method

The study included 91 participants (age 15,4±1,2) among which 27 men (29,7%) and 64 women (70,0%). The sample was divided in two subsamples: secondary school students (n=75, male 17 and female 58), and orphans from Split region (n=16, male 10 and female 6). All participants took part in the study voluntarily while the study was approved by both educational institutions.

The variable sample, consisting of 9 variables, was divided in two logical sets. The first set consisted of four domains that were measured by shorter version of the international World Health Organization Quality of Life (WHOQOL-BREF) questionnaire: life quality self-assessment–physical aspect, psychological aspect, social aspect and surrounding factors. The following five variables were a part of The International Physical Activity Questionnaire (IPAQ): weekly physical activities self-assessment–intensive physical activities, moderate physical activities, light physical activities, overall, of intensive, moderate and light physical activities and sedentary habits self-assessment.

Descriptive statistical parameters (mean, standard deviation and mode) have been calculated for all variables. Differences between groups were tested by Mann-Whitney U Test. Correlation among the quality of life self-assessment variable and weekly physical activity habits on total sample and for both groups separately were established by Spearman coefficient rank.

All participants and their teachers have been informed about the aim of the study and were given the headmistress's approval. The questionnaire was anonymous and subjected to free will. All participants were given 10 minutes to fill in both questionnaires. All necessary clarifications were given when needed. Age and gender data were also collected. The study was based on two international questionnaires in their shorter versions.

Both shorter and longer versions of the international questionnaire World Health Organization Quality of Life (WHOQOL-BREF) are valid and reliable whether for the adult or adolescent population (Whoqol Group, 1998; Skevington, Lotfy, & O'Connell, 2004; Varni et al., 2019; Yang, Kuo, Su, Wang, & Lin, 2006). The reliability parameters of the questionnaire were checked and for the sample of high school students are: Cronbach alpha 0,79 and Average Inter-Item Correlation: 0,14 but for orphans are: Cronbach alpha 0,82 and Average Inter-Item Correlation: 0,17. The questionnaire that consisting of 24 variables measures four quality of life domains: physical health, psychological health, social relationships and surrounding factors. Question number 21 has been elicited from the questionnaire because it refers to sexual habits of the respondent the average age of the study participant was 15,4.

The International Physical Activity Questionnaire (IPAQ) is a valid and reliable tool in measuring physical activities (Craig et al., 2003; Hagstromer, Oja, & Sjostrom, 2006). The reliability parameters of the questionnaire were checked and for the sample of high school students are: Cronbach alpha 0,69 and

Average Inter-Item Correlation: 0,14 but for orphans are: Cronbach alpha 0,70 and Average Inter-Item Correlation: 0,47. The reliability parameters of this questionnaire are low but still acceptable (Taber, 2018; Gliem & Gliem, 2003). For the purpose of this study, the shorter version of the IPAQ questionnaire was used that, nevertheless, fulfilled all needed metric characteristics for both age groups (Papathanasiou et al., 2009; Hagstromer et al., 2008). Three types of activities were measured by the questionnaire (intensive, moderate and light physical activities) together with the overall physical activities and sedentary habits. The results have been shown in minutes/week for every domain and for overall domains.

## Results

In Table 1 can be noticed that there is a statistical difference between groups in terms of weekly physical activities only in the variable 'light physical activities' ( $U=376.5$ ;  $Z=-2.3$ ;  $p= 0.02$ ).

**Table 1.** Descriptive statistical parameters (mean, mode and frequency of mode) for all variables referring to physical activities and the quality of life together with differences between groups (Mann-Whitney U Test) in all the analyzed variables.

Quality	All groups			Secondary school			Maestral		
	Median	Mode	f mode	Median	Mode	f mode	Median	Mode	f mode
Physical	112.0	116.0	13.0	112.0	116.0	12.0	112.0	116.0	3.0
Psychological	92.0	88.0	12.0	92.0	88.0	12.0	92.0	88.0	3.0
Social	36.0	36.0	28.0	36.0	36.0	25.0	36.0	36.0	6.0
Surrounding	124.0	116.0	10.0	128.0	116.0	10.0	124.0	116.0	3.0
Physical activity									
Intesive	0.0	0.0	50.0	0.0	0.0	41.0	0.0	0.0	9.0
Moderate	34.3	0.0	31.0	42.9	0.0	23.0	0.0	13.3	8.0
Light	13.2	69.3	18.0	<b>13.2*</b>	<b>0.0*</b>	<b>15.0</b>	<b>69.3*</b>	<b>46.2*</b>	<b>6.0*</b>
Total	92.4	69.3	6.0	89.9	69.3	4.0	Multiple	121.2	2.0
Sitting	300.0	0.0	33.0	240.0	0.0	30.0	Multiple	360.0	3.0

\*statistically significant difference among groups( $p<0.05$ )

**Table 2.** Correlation among weekly physical activities and the quality of life (Spearman coefficient rank) in secondary school children and orphans

Quality of life	Group	Physical activities				Sitting
		Intensive	Moderate	Light	Total	
Physical aspect	All groups (n=90)	-0.04	-0.10	-0.19	-0.12	-0.12
Psychological aspect		0.27*	0.21*	-0.02	0.25*	-0.17
Social aspect		0.24*	0.15	-0.11	0.17	-0.18
Surrounding factors		0.23*	0.34*	-0.03	0.32*	-0.26*
Physical aspect	Secondary school (n=75)	-0.09	-0.08	-0.27*	-0.14	-0.04
Psychological aspect		0.29*	0.17	-0.09	0.24*	-0.24*
Social aspect		0.13	0.09	-0.17	0.10	-0.26*
Surrounding factors		0.16	0.29*	-0.05	0.28*	-0.39*
Physical aspect	Maestral (n=16)	0.10	-0.17	-0.03	-0.06	-0.58*
Psychological aspect		0.23	0.32	0.23	0.25	0.09
Social aspect		0.64*	0.46	0.05	0.58*	0.12
Surrounding factors		0.52*	0.55*	0.24	0.62*	0.34

\*statistically significant correlation ( $p < 0.05$ )

From Table 2 it is evident that there is a significant correlation between intensive physical activity and psychological, social and surrounding factors that influence the quality of life. The correlation in secondary school children has been spotted only in correlation to psychological aspect, while in orphans it highly correlates with social and surrounding factors.

Moderate physical activity correlates psychological and surrounding factors of the quality of life. Surrounding factors that influence the quality of life of the secondary school children correlate only with moderate physical activity. The same situation can be noticed in orphans with only one slight difference—correlation coefficient is much higher (secondary school children  $r=29$ , orphans  $r=55$ ). Light physical activity does not correlate with a subjective assessment of one's own quality of life apart in secondary school children where it correlates with physical aspect of the quality of life ( $r=-27$ ). Total physical activity correlates with psychological and surrounding aspect of the quality of life in the total sample and in secondary school children; in orphans it highly correlates with social aspect ( $r=0.58$ ) and with surrounding aspect of the quality of life ( $r=0.62$ ).

## Discussion

It is very interesting to notice how orphans perceive their quality of life in the same way as secondary school children who have been raised in normal

family surroundings emphasizing no significant difference in any of the variables. The same situation can also be found when referring to the amount of physical activities. The only significant difference can be traced in light physical activities between groups ( $U=376.5$ ;  $Z=-2.3$ ;  $p=0.02$ ) in such a way that orphans have more amount of weekly light physical activities. These activities are mainly related to housekeeping activities such as cleaning. In the sample of orphans there are 37,5 % female, so it's strange that they have more light activities because they have professional staff (cleaning ladies ...) in their children's home taking care of everyday chores. Although the sample of school children is mostly female, they do less housework and according to research do less sport (Dufur & Linford 2010). Male have been reported in most countries to dominate in various forms of exercise (Van Tuyckom, Scheerder & Bracke, 2010). Female dominate only in certain sports (figure skating synchronized swimming ...) and as far as the age is concerned only in the older adult category ( $<55$ ), the percentage of women in sports is equal to men (Van Tuyckom, Scheerder & Bracke, 2010). It would be interesting to see what gender differences are involved in sport activities in orphans sample. Limited sample is one of the major limitations of this study.

Orphans have many reasons to get involved in sports. The results referring to intensive physical activities inform us that none of the children in both groups is involved in sports (median and mode=0). Less than half of the children in both groups do sports which eventually results in their doing sports less than

half an hour per week on average. This tends to be quite misleading since it includes a small number of those who exercise regularly and larger number of those who do not exercise at all. There are too many children reporting lack of activity in both groups that fits in with global trends and actions taken in this direction do not produce the expected results (Vandermeerschen, Vos & Scheerder, 2016).

The correlation between physical activity and the quality of life self-assessment offers the best insight into the issue. One of the most common hypotheses that connects sports to orphans is the fact that, while being involved in sports, orphans find their second family. While in secondary school children can be seen significant connection between intensive physical activity and satisfaction with social aspect of the quality of life. In the total number of participants can be significant connection but low correlation. There is a significant statistical correlation between intensive physical activities and orphans perception of social quality of life. The correlation between physical activity and various forms of social variables has been established in different sample groups (Ćorić & Ljubotina, 2014; Vuletić & Mujkić, 2002). This correlation is even more significant if we take into consideration the fact that the majority of children in both group samples do not exercise. We may assume that we would gain more subjective feelings regarding the quality of life if larger number of orphans was involved in sports. When orphans were exposed to the treatment in which they played social games, their perception of their quality of life significantly increased (Hanrahan, 2005). Playing social games just like doing sports significantly contributes, in general, to orphans quality of life. Society is the one that should ensure that all children have all necessary conditions needed for doing and being involved in sports.

The study proves that satisfaction with surrounding factors that determine one's quality of life, is connected with intensive physical activities. It comes as no surprise since, in order for a child to be involved in sports, all surrounding factors like adequate equipment, gym, transport and other things are needed. Data also suggest that the sedentary habits negatively determine the quality of life (Berčić & Đonlić, 2009; Bungić & Barić, 2009). Physical activity reduces anxiety and increases confidence in orphans (Kolayış, Sarı, Soyer, & Gürhan, 2011). Orphans quality of life is mostly connected with intensive physical activities, i.e. the more they get involved in sports, the higher level of social ( $r=0.64$ ) and surrounding aspect ( $r=0.52$ ) they report.

## Conclusion

Orphans have similar amount of physical activities as other children with parental care. This study showed low physical activity in both groups but physical activity has particular significance for orphans. The more sports they do, the more pleased they are with their quality of social life. Therefore, we may agree with the idea that, for children, sport has a role of the second family. Obtained results suggest that the surrounding conditions are important and, as such, connected to physical activities. This means that we should enable orphans all necessary conditions so that they can be involved in sports.

## References

- Berčić, B., & Đonlić, V. (2009). Tjelesno vježbanje u suvremenim uvjetima života. *Filozofska istraživanja*, 115(29), 449-460.
- Bungić, M., & Barić, R. (2009). Tjelesno vježbanje i neki aspekti psihološkog zdravlja. *Hrvatski športskomedicinski vjesnik*, 24(2), 65-75.
- Chitiyo, M., Changara, D. M., & Chitiyo, G. (2008). Providing psychosocial support to special needs children: A case of orphans and vulnerable children in Zimbabwe. *International journal of educational development*, 28(4), 384-392.
- Ćorić, O., & Ljubotina, D. (2014). Kvaliteta života ratnih veterana s tjelesnim invaliditetom koji igraju sjedeću odbojku. *Ljetopis socijalnog rada*, 20(3), 387-414.
- Craig, C. L., Marshall, A. L., Sjostrom, M., Bauman, A. E., Booth, M. L., Ainsworth, B. E., . . . Oja, P. (2003). International physical activity questionnaire: 12-country reliability and validity. *Medicine and Science in Sports and Exercise*, 35(8), 1381-1395. doi:10.1249/01.mss.0000078924.61453.fb
- Dufur, M. J., & Linford, M. K. (2010). Title IX: consequences for gender relations in sport. *Sociology Compass*, 4(9), 732-748.
- Elling, A., De Knop, P., & Knoppers, A. (2001). The social integrative meaning of sport: A critical and comparative analysis of policy and practice in the Netherlands. *Sociology of Sport Journal*, 18(4), 414-434. doi:10.1123/ssj.18.4.414
- Felce, D., & Perry, J. (1993). Quality of life: A contribution to its definition and measurement. *Cardiff: Mental handicap in Wales applied research unit*.
- Gliem, J. A., & Gliem, R. R. (2003). *Calculating, interpreting, and reporting Cronbach's alpha reliability coefficient for Likert-type scales*.
- Gordia, A. P. (2008). Association of physical activity, alcohol consumption and body mass index with the quality of life of adolescents. *Brazilian Journal of*

- Kinanthropometry and Human Performance*, 10(3), 313.
- Group, T. W. (1998). The World Health Organization quality of life assessment (WHOQOL): development and general psychometric properties. *Social science & medicine*, 46(12), 1569-1585.
- Hagstromer, M., Bergman, P., De Bourdeaudhuij, I., Ortega, F. B., Ruiz, J. R., Manios, Y., . . . Grp, H. S. (2008). Concurrent validity of a modified version of the International Physical Activity Questionnaire (IPAQ-A) in European adolescents: The HELENA Study. *International Journal of Obesity*, 32, S42-S48. doi:10.1038/ijo.2008.182
- Hagstromer, M., Oja, P., & Sjostrom, M. (2006). The International Physical Activity Questionnaire (IPAQ): a study of concurrent and construct validity. *Public Health Nutrition*, 9(6), 755-762. doi:10.1079/phn2005898
- Hanrahan, S. J. (2005). Using psychological skills training from sport psychology to enhance the life satisfaction of adolescent Mexican Orphans. *Journal of Sports Psychology*, 7(3), 1-7.
- He, Z. H., & Ji, C. Y. (2007). Nutritional status, psychological well-being and the quality of life of AIDS orphans in rural Henan Province, China. *Tropical Medicine & International Health*, 12(10), 1180-1190. doi:10.1111/j.1365-3156.2007.01900.x
- Henley, R., & Schweizer, I. (2007). How Psychosocial Sport & Play Programs Help Youth Manage Adversity: A Review of What We Know & What We Should Research. *International Journal of Psychosocial Rehabilitation*, 12(1), 51-58.
- Kolayış, H., Sarı, İ., Soyer, F., & Gürhan, L. (2011). Effect of the Physical Activities on Orphans' Anxiety and Self Esteem. *Anxiety*, 2, 0.019.
- Kunz, V. (2009). Sport as a post-disaster psychosocial intervention in Bam, Iran. *Sport in Society*, 12(9), 1147-1157.
- Nashwa, N., & Nagla, E. (2011). Effect of cardio karate on some of tension and psychological security indications and its relationship with the aspiration level to the orphans. *Ovidius University Annals, Series Physical Education & Sport/Science, Movement & Health*, 11(1).
- Omorou, A. Y., Langlois, J., Lecomte, E., Briancon, S., & Vuillemin, A. (2016). Cumulative and bidirectional association of physical activity and sedentary behaviour with health-related quality of life in adolescents. *Quality of Life Research*, 25(5), 1169-1178. doi:10.1007/s11136-015-1172-7
- Organization, W. H. (1998). *Programme on mental health: WHOQOL user manual*. Retrieved from
- Papathanasiou, G., Georgoudis, G., Papandreou, M., Spyropoulos, P., Georgakopoulos, D., Kalfakakou, V., & Evangelou, A. (2009). Reliability measures of the short International Physical Activity Questionnaire (IPAQ) in Greek young adults. *Hellenic J Cardiol*, 50(4), 283-294.
- Pastor, Y., Balaguer, I., Pons, D., & Garcia-Merita, M. (2003). Testing direct and indirect effects of sports participation on perceived health in Spanish adolescents between 15 and 18 years of age. *Journal of Adolescence*, 26(6), 717-730. doi:10.1016/j.adolescence.2003.07.001
- Skevington, S. M., Lotfy, M., & O'Connell, K. (2004). The World Health Organization's WHOQOL-BREF quality of life assessment: psychometric properties and results of the international field trial. A report from the WHOQOL group. *Quality of Life Research*, 13(2), 299-310.
- Slutzky, C. B., & Simpkins, S. D. (2009). The link between children's sport participation and self-esteem: Exploring the mediating role of sport self-concept. *Psychology of Sport and Exercise*, 10(3), 381-389.
- Taber, K. S. (2018). The use of Cronbach's alpha when developing and reporting research instruments in science education. *Research in Science Education*, 48(6), 1273-1296.
- Van Tuyckom, C., Scheerder, J., & Bracke, P. (2010). Gender and age inequalities in regular sports participation: A cross-national study of 25 European countries. *Journal of sports sciences*, 28(10), 1077-1084.
- Vandermeerschen, H., Vos, S., & Scheerder, J. (2016). Towards level playing fields? A time trend analysis of young people's participation in club-organised sports. *International Review for the Sociology of Sport*, 51(4), 468-484.
- Varni, J. W., Delamater, A. M., Hood, K. K., Raymond, J. K., Chang, N. T., Driscoll, K. A., . . . Pediat Quality Life, I. (2019). Pediatric Quality of Life Inventory (PedsQL) 3.2 Diabetes Module for youth with Type 2 diabetes: reliability and validity. *Diabetic Medicine*, 36(4), 465-472. doi:10.1111/dme.13841
- Vuletić, G., & Mujkić, A. (2002). Što čini osobnu kvalitetu života: Studija na uzorku Hrvatske gradske populacije. *Liječnički vjesnik*, 124(2), 64-70.
- Watts, H., Gregson, S., Saito, S., Lopman, B., Beasley, M., & Monasch, R. (2007). Poorer health and nutritional outcomes in orphans and vulnerable young children not explained by greater exposure to extreme poverty in Zimbabwe. *Tropical Medicine & International Health*, 12(5), 584-593.
- Yang, S.-C., Kuo, P.-W., Su, S., Wang, J.-D., & Lin, M.-I. (2006). Development and psychometric properties of the dialysis module of the WHOQOL-BREF Taiwan version. *Journal of the Formosan Medical Association*, 105(4), 299-309.

How to cite this article:

- APA: Maglica, L., Karninčić, H., Penjak, A., & Drašinac, G. (2020). Physical activity and quality of life in adolescents and orphans. *Exercise and Quality of Life*, 12(1), 29-35. doi:10.31382/eqol.200604
- MLA: Maglica, Lucija, et al. "Physical activity and quality of life in adolescents and orphans." *Exercise and Quality of Life* 12.1 (2020): 29-35.
- Chicago: Maglica, Lucija, Hrvoje Karninčić, Ana Penjak, and Gordan Drašinac. "Physical activity and quality of life in adolescents and orphans." *Exercise and Quality of Life* 12, no. 1 (2020): 29-35.