





The difference in well-being between handball players and ones not physically active

 **Marina Lujic**  . Faculty of Teacher Education. University of Zagreb. Croatia.

 **Ivan Prskalo**. Faculty of Teacher Education. University of Zagreb. Croatia.

 **Denis Bratko**. Department of Psychology. Faculty of Social Sciences and Humanities. University of Zagreb. Croatia.

ABSTRACT

Subjective well-being is a good indicator of the individual's psychological health. High levels of subjective well-being have been found in adolescents who are regularly physically active, less prone to negative emotions, more easily able to cope with life's problems and challenges, have a lower body mass index, and exhibit higher levels of life satisfaction. The participants in this research were adolescents from the Republic of Croatia, N = 756, of which 407 (53.8%) were handball players and 349 (46.2%) were adolescents from the control group not physically active. The research was conducted in elementary schools and handball clubs with adolescents in 2006 and 2007. Instruments used in this research are Life Satisfaction Scale and PANAS. Adolescent handball players are more satisfied with life, they express higher levels of positive affect and lower levels of negative affect compared to adolescents who are not involved in some form of kinesiology activities.

Keywords: Physical activity psychology, Sport psychology, Adolescents, Life satisfaction, Negative affect, PANAS, Positive affect.

Cite this article as:

Lujic, M., Prskalo, I., & Bratko, D. (2023). The difference in well-being between handball players and ones not physically active. *Scientific Journal of Sport and Performance*, 2(2), 144-150. <https://doi.org/10.55860/FHSL7752>

 **Corresponding author.** Faculty of Teacher Education, University of Zagreb, Savska cesta 77, Zagreb, Croatia.

E-mail: marina.lujic@yahoo.com

Submitted for publication November 30, 2022.

Accepted for publication January 16, 2023.

Published January 28, 2023.

[Scientific Journal of Sport and Performance](#). ISSN 2794-0586.

©Asociación Española de Análisis del Rendimiento Deportivo. Alicante. Spain.

doi: <https://doi.org/10.55860/FHSL7752>

INTRODUCTION

The concept of subjective well-being includes evaluations of one's life in the present moment and the future through emotional reactions and evaluations of satisfaction both with a particular segment of life and life as a whole. The evaluation criteria are exclusively personal and subjective. Certain life situations and conditions can be considered positive and successful, such as a rich social life, a high-ranking job, completing prestigious faculties, and similar circumstances. Although these are all positive factors that certainly help in achieving subjective well-being, they cannot be evaluated individually. Individuals may have a different understanding of what is important in life and what gives them satisfaction. It is also possible that dissatisfaction in one aspect of life threatens positive affect from all other aspects. Life circumstances, opportunities, and events are evaluated through affective states and cognitive processes.

The affective component of subjective well-being refers to the frequency and change of affective states, positive and negative moods, i.e., experiencing positive emotions more often with reduced experiencing or even the absence of negative emotions. It differs from the cognitive component, primarily because emotions are reactions to either internal or external stimuli and are mostly of shorter duration. The cognitive component of subjective well-being is self-assessment of life circumstances, satisfaction with life as a whole, and satisfaction with its segments (Diener, Oishi, and Lucas 2003). A conscious assessment of one's own life can reflect an individual's far-reaching point of view. It can also provide insight into attitudes, values, tendencies, and even goals, while, for example, an affective assessment can provide insight into some subconscious aspects. Although the components of subjective well-being are related, they are considered as relatively independent concepts.

Research on slightly more than 2,000 adolescents in Spain showed that among physically active adolescents, more individuals satisfied with life were found to have higher levels of self-efficacy (Reigal Garrido et al., 2014). The aforementioned researchers also established that adolescents who choose sports activities to spend their free time show higher levels of subjective well-being than those who are not involved in any form of sports activity. In this research, a statistically significant difference was found between the observed groups in terms of life satisfaction and negative and positive affect. Some researchers emphasize that both the type of physical activity and its intensity contribute to different levels of subjective well-being. Differences in subjective well-being and levels of life satisfaction depend on different intensities and durations of physical activity (Smedegaard, Christiansen, Lund-Cramer, Bredahl, and Skovgaard 2016; Groffik, Mitáš, Jakubec, Svozil, and Frömel 2020; Chmelik et al., 2021). It should be emphasized that causality may go in both directions, that is, people with higher levels of subjective well-being choose sports activities more often. Higher levels of life satisfaction are recorded by those who prefer physical activity compared to those who are more inclined to activities that do not require physical engagement (Brown et al. 2015) However, a systematic search of the relevant databases of scientific papers (Google Scholar, Eric and Scopus) shows that there is not much research on the relationship between handball and subjective well-being. Therefore, in this paper, we started from the null hypothesis, i.e., that there is no difference in the mean level of subjective well-being between handball players and the control group.

METHOD

Participants and study design

The participants were recruited from the two cohorts which were born in 2006 and 2007 and were 13 and 14 years old at the time of the data collection. We used a quasi-experimental study design which included the comparison of the two groups that primarily differed in their level of physical activity.

1) The quasi-experimental¹ (E) group consisted of 407 participants engaged in the organized handball training program. Three criteria were used for including participants in the E group of handball players: i) they were engaged exclusively in the handball training program, ii) they had practice at least four times a week, and iii) they practice for at least a year in a handball club or handball school. Croatian handball clubs were contacted and responded in large numbers, 91%. Demographic data were collected, as well as on the length and intensity of training.

2) The control (C) group consisted of 349 participants that are not involved in any form of organized physical activity. The criteria for including participants in the control group of adolescents were that they were not engaged either in handball or in any other sport-training program or any kinesiological activity. Thus, the logic of the study design was to compare differences in the mean level of the well-being components between these two groups. Adolescents filled out the questionnaires personally using the pen-paper method. The research started in the city of Zagreb. Handball clubs reacted more promptly and got involved in research faster than primary schools. In agreement with coaches and heads of handball schools, tests were planned before or after training in the spaces they used. The research was approved by the Ethics Committee of the Faculty of Teacher Education, University of Zagreb. Adolescents had questions about what will be done with these answers, and how they will be used. The professional service was most often involved in communication and cooperation, given the limited access to institutions due to the measures imposed due to the SARS-CoV-2 virus pandemic.

The main goal of the research is to examine whether there is a connection between the level of subjective well-being (satisfaction with life, positive/negative affect) and personality traits between adolescents who play handball as a kinesiology activity and those who are not actively involved in kinesiology activities.

Measures

Two measures for the three components of the well-being concept were used: 1) Life satisfaction scale (Penezić, 1996) was used as a measure of the cognitive component of well-being. 2) The Croatian adaptation (Križanić, 2013) of the Positive and Negative Affective Schedule - PANAS (Watson, Clark, and Tellegen (1988) was used as a measure of positive and negative affect which are theoretically classified as affective components of well-being. Penezić (2006, p. 646) defines life satisfaction as "*the cognitive evaluation of the entire life, through which each individual evaluates his own life*". The Life Satisfaction Scale itself is constructed so that it consists of 20 items, where 17 items assess global satisfaction, while 3 items assess situational satisfaction. Life satisfaction is a measure of the cognitive component of subjective well-being with scores varying from 1 to a maximum of 5.

Concerning the construct of subjective well-being, which consists of a cognitive component (satisfaction with life) and an affective component, the PANAS scale was taken as a measure of the frequency of positive and negative emotions, i.e. affects in the adapted Croatian version (Križanić 2013). The scale consists of 16 items, 8 for measuring positive affect and 8 for measuring negative affect. The research participant rates each item to what extent they feel this way in the last week on a Likert scale from 1 (not at all) to 7 (extremely). The total score for a particular dimension is also a linear combination of responses. A higher score indicates a greater presence of affect, while the theoretical range of scores varied from a minimum of 1 to a maximum of 7.

¹The term "experimental" was used in this text although the engagement in sport activity was not experimentally manipulated but rather quasi-experimentally controlled via controlling the including criteria for the E and C groups.

RESULTS

Before the analyses aimed at testing the hypotheses, preliminary analyses were conducted in which the distribution of the results was examined. Although it was shown that the distribution of the results deviates from normality, this deviation was minimal as can be seen from the relatively low values of the skewness and kurtosis indicators.

For the Life satisfaction scale, the deviation is slightly higher, which is a typical result in the literature, but, in our opinion, does not invalidate the implementation of parametric statistical procedures.

In this study, Cronbach's alpha coefficient for positive affect was 0.84 for the total sample and 0.82 for the experimental group of handball players, and 0.84 for the control group. For the negative affect, the coefficient was 0.83 for the total, while for the experimental group it was 0.80, and for the control group 0.84. In this research, Cronbach's alpha coefficient ranges from 0.93 for the total sample, that is, 0.92 for the experimental group of handball players and 0.93 for the control group.

To test the hypotheses, three t-tests were made and the results are shown in Table 1.

Table 1. t-test and Cohen's D, variables satisfaction with life, positive and negative affect with regard to kinesiological activity handball.

Variable	Group	M	SD	t-test	Significance	Cohens' d
Life satisfaction scale	E	82.54	11.79			0.55
	C	75.02	14.29			
	Total	79.07	13.52	7.93	.00	
Positive affect	E	4.71	1.06			0.42
	C	4.24	1.10			
	Total	4.49	1.11	6.07	.00	
Negative affect	E	2.82	1.03			0.48
	C	3.37	1.17			
	Total	3.08	1.14	-6.95	.00	

Note. E – experimental group, C – control group.

Statistically, significant differences are shown in Table 3. Adolescent handball players differ in all measured variables from adolescents who do not train (control groups). Adolescent handball players have higher results on the life satisfaction scale, positive affect, and lower scores on negative affect.

DISCUSSION

The physical activity of adolescents is the subject of numerous studies because regular physical activity is associated with changes in the mental and physical condition of the organism, social actions, and interactions. Research among adolescents often highlights the importance of physical activity and subjective well-being. General findings of many studies indicate the positive effect of physical activity on many segments of life and the organism. E.g., a study of just over 2,000 adolescents in Spain found that more life-satisfied individuals with higher levels of self-efficacy were found among physically active adolescents and a positive correlation was demonstrated among these constructs (Reigal Garrido et al., 2014).

These researchers also found that adolescents who choose sports activities as a form of leisure show higher levels of subjective well-being than those who are not involved in any form of sports activities (Guddal Hjelle et al., 2019; Hung Chen, 2013). In this study, a statistically significant difference was found between the observed groups in terms of life satisfaction and negative and positive effects. Adolescent handball players are more satisfied with life globally and show higher levels of subjective well-being than adolescents who are not involved in any form of sports activity. The levels of affect they demonstrate also differ significantly from those expressed by adolescents who are not involved in any form of regular physical activity. Differences in subjective well-being and levels of life satisfaction depend on different intensities and durations of physical activity (Smedegaard, Christiansen, Lund-Cramer, Bredahl & Skovgaard 2016; Groffik, Mitáš, Jakubec, Svozil & Frömel 2020; Chmelik et al., 2021). Handball is considered an intense physical activity because it is a sport with frequent intense contact, and frequent changes in speed, direction, and rhythm of movement. Numerous muscle groups are activated with a high intensity of load during a very intense and dynamic kinesiological activity. Costigan et al., (2019) in their study of the relationship between physical activity intensity and subjective well-being of adolescents found that moderate and mild physical activity does not contribute to positive affect levels, while intense physical activity found this relationship.

The dimension of social interaction with teammates and the coach can be viewed as another explanation of the relationship between positive influences on subjective well-being such as socializing and supporting teammates. It is also hypothesized that due to changes in well-being associated with physical activity, improvements in self-regulation, sleep quality, and coping skills can be indirectly expected (Morgan, Young, Smith, & Lubans 2016). Handball training, as well as matches, are activities with a longer duration and high levels of workload, and due to this fact, it can be concluded that involvement in handball can contribute to strengthening subjective well-being.

By testing the difference in subjective well-being between adolescent handball players and the control group, statistically, significant differences were found. In all three measured dimensions of subjective well-being, adolescent handball players differ significantly from those who are not physically active. Although adolescents are on average satisfied with life, this study confirmed significant differences between those who train in handball and those who do not engage in any kinesiological activity. The obtained data are interesting and confirm the knowledge that physical activity, in this case, handball has a positive effect on the levels of positive and negative emotions and life satisfaction, that is on subjective well-being that has a significant effect on future mental and physical health (Diener, Pressman, Hunter & Delgado-Chase 2017).

CONCLUSIONS

This research confirmed the knowledge about the importance of including adolescents in regular kinesiological activity. Significant differences were found in favour of handball players in every construct of subjective well-being. The data oblige us to think about ways of implementing and increasing the availability of the organized physical activity.

AUTHOR CONTRIBUTIONS

M. L. contributed to the study design and its implementation, formulation of the hypothesis, and data collection. D. B. contributed to the study design and data analysis. Both authors M. L. and D. B. contributed to the final version of the manuscript. I. P. contributed to the study design and supervised the project.

SUPPORTING AGENCIES

No funding agencies were reported by the authors.

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the authors.

REFERENCES

- Brown, J., MacDonald, R., & Mitchell, R. (2015). Are people who participate in cultural activities more satisfied with life? *Social Indicators Research*, 135-146. <https://doi.org/10.1007/s11205-014-0678-7>
- Chmelik, F., Frömel, K., Groffik, D., Šafář, M., & Mitáš, J. (2021). Does Vigorous Physical Activity Contribute to Adolescent Life Satisfaction? *International Journal of Environmental Research and Public Health*, 18(5), 2236. <https://doi.org/10.3390/ijerph18052236>
- Costigan, S., Lubans, D., Lonsdale, C., Sanders, T., & Del Pozo Cruz, B. (2019). Associations between physical activity intensity and well-being in adolescents. *Preventive Medicine*, 55-61. <https://doi.org/10.1016/j.ypmed.2019.05.009>
- Diener, E., Oishi, S., & Lucas, R. (2003). Personality, culture and subjective well-being: Emotional and Cognitive Evaluations of Life. *Annual Review of Psychology*, 54, 403-425. <https://doi.org/10.1146/annurev.psych.54.101601.145056>
- Diener, E., Pressman, S., Hunter, J., & Delgado-Chase, D. (2017). If, Why, and When Subjective Well-Being Influences Health, and Future Needed Research. *Applied Psychology: Health and Well-Being*, 2, 133-167. <https://doi.org/10.1111/aphw.12090>
- Groffik, D., Mitáš, J., Jakubec, L., Svozil, Z., & Frömel, K. (2020). Adolescents' physical activity in education systems varies in the number of weekly physical education lessons. *Research Quarterly for Exercise and Sport*, 91, 551-561. <https://doi.org/10.1080/02701367.2019.1688754>
- Guddal Hjelte, M., Øien Stensland, S., Cvancarova Småstuen, M., Bakke Johnsen, M., Zwart, J., & Storheim, K. (2019). Physical activity and sport participation among adolescents: associations with mental health in different age groups. Results from the Young- HUNT study: a cross-sectional survey. *BMJ Open*, 1-10. <https://doi.org/10.1136/bmjopen-2018-028555>
- Hung Chen, L. (2013). Gratitude and Adolescent Athletes' Well-Being: The Multiple Mediating Roles of Perceived Social Support from Coaches and Teammates. *Social Indicators Research*, 273-285. <https://doi.org/10.1007/s11205-012-0145-2>
- Križanić, V. (2013). Temperament i odnos pozitivnih i negativnih temeljnih afekata u kontekstu dinamičkog modela afekta. Neobjavljena doktorska disertacija. Zagreb: Filozofski fakultet Sveučilišta u Zagrebu.
- Morgan, P., Young, M., Smith, J., & Lubans, D. (2016). Targeted health behavior interventions promoting physical activity: a conceptual model. *Exercise and Sport Sciences Reviews*, 44(2), 71-80. <https://doi.org/10.1249/JES.0000000000000075>
- Penezić, Z. (1996). Zadovoljstvo životom-provjera konstrukta. Zadar: Filozofski fakultet u Zadru.
- Penezić, Z. (2006). Zadovoljstvo životom u adolescentnoj i odrasloj dobi. *Društvena istraživanja*, 4-5(84-85), 643-669.
- Reigal Garrido, R., Videra, A., & Gil, J. (2014). Physical exercise, general self-efficacy and life satisfaction in adolescence. *Revista Internacional de Medicina y Ciencias de la Actividad Física y del Deporte*, 14(55), 5611-576.

- Smedegaard, S., Christiansen, L., Lund-Cramer, P., Bredahl, T., & Skovgaard, T. (2016). Improving the well-being of children and youths: A randomized multicomponent, school-based, physical activity intervention. *BMC Public Health*, 16, 1127. <https://doi.org/10.1186/s12889-016-3794-2>
- Watson, D., Clark, L., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology*, 54(6), 1063-1970. <https://doi.org/10.1037/0022-3514.54.6.1063>



This work is licensed under a [Attribution-NonCommercial-ShareAlike 4.0 International](https://creativecommons.org/licenses/by-nc-sa/4.0/) (CC BY-NC-SA 4.0).