QUALITY OF LIFE OF PROFESSIONAL ATHLETES AND PHYSICALLY ACTIVE PEERS: A COMPARATIVE STUDY

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SUMMARY

Quality of life (QoL) is defined as individuals’ perceptions of their position in life in the context of the culture and the value systems in which they live, and in relation to their goals, expectations, standards, and concerns. It is a multidimensional concept that represents an individual’s overall satisfaction with his or her life and general sense of well-being. Regular physical activity, i.e. sport offers numerous health benefits and research has demonstrated that individuals can benefit from it whether they participate in vigorous exercise or some type of moderate health-enhancing physical activity, and thus enhance their QoL. The main objective of this research was to examine and compare the QoL of 23 male professional soccer players and 26 male PE students, aged 17–35. Their baseline characteristics (age, body height and mass, and body mass index) were established, as well as their QoL (all of four domains: 1. physical health, 2. psychological health, 3. social relationships, and 4. environment) which was assessed by WHOQOL-BREF questionnaire. The data were analyzed (descriptive statistics, Kolmogorov-Smirnov test, independent samples t-test) using SPSS 21.0, and the obtained results showed the absence of statistically significant between-group differences (p>0.05). However, slightly higher QoL values (domain 1: 17.44 vs 16.9; domain 2: 16.98 vs 16.44; domain 4: 16.04 vs 15.56) were recorded in professional soccer players; only in the case of domain 3 (social relationships) PE students scored better (16.5 vs 16.17).

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Overall, both samples are satisfied with their QoL and general health (soccer players: 16.61, PE students: 16.46), which could indicate once more indisputable benefits of sport and physical activity in general.

**Keywords:** health status, well-being, soccer players, PE students, men

### INTRODUCTION

In recent decades there has been a growing acknowledgement of the significance of quality of life (QoL) as a fundamental measure for describing the subjective state of well-being in population studies. This concept has gained popularity from the perspectives of social, economic, and cultural development; nevertheless, it is important to note that there is currently no universally accepted definition suitable for multidisciplinary studies (Trzebiatowski, 2011). QoL is associated with a feeling of contentment and life satisfaction with one’s own progress, individual achievements, perspectives, and perception of one’s own potential and resources found in the social, cultural, or physical surroundings (Gałuszka, 2017). According to Cummins (1996), QoL is a psychological state that reflects an overall assessment of the following seven domains of life satisfaction: material well-being, emotional well-being, productivity, intimacy, safety, community, and health. Discovering methods to raise QoL has turned into a cultural challenge in countries with high or satisfactory economic standards (Abdel-Hadi, 2012).

Regular physical activity is regarded as one of the most effective means of enhancing QoL in any population (Peluso & de Andrade, 2005) since it is linked to a number of physical health benefits, such as a longer lifespan, a decrease in all-cause mortality, a reduced risk of diabetes, cardiovascular disease, cancer, obesity, bone and joint diseases (Warburton, Nicol, & Bredin, 2006; Khan, Thompson, Blair, Sallis, Powell, Bull, & Bauman, 2012). Studies indicate that physically active individuals, including professional athletes, experience higher QoL levels than non-training people (Pisinger, Toft, Aadahl, Glümer, & Jørgensen, 2009; Santos, 2013). This is reflected in many aspects of life such as physical functioning, overall health perception, social functioning, and mental health (Snyder, Martinez, Bay, Parsons, Saurers, & McLeod, 2010). Physical fitness was also shown to be strongly correlated with better QoL (Daimiel, Martínez-González, Corella, Salas-Salvado, Schröder, et al., 2020). This positive impact of physical activity on QoL is also confirmed by authors of physical exercise programs used to treat depression and anxiety states, not only because of the involved release of endorphins but also interactions with other people, which is particularly evident in team sports (Kotarska, Nowak, Szark-Eckardt, & Nowak, 2019). It has even been proven that the level of sports advancement considerably affects the QoL and is higher in
professionals, i.e. a higher frequency and volume of training, which is a prominent feature of professional sport, can have a substantial impact on one’s QoL (Modolo, Mello, Gimenez, Tufik, & Antunes, 2009).

In general, professional athletes are often perceived as healthy individuals, and it is commonly assumed that their level of mental well-being is high (Nowak, Kuśnierz, & Bajkowski, 2021). However, playing a professional sport has a lot of drawbacks specific to professional work, which may endanger the sustaining of a high QoL (Filbay, Pandya, Thomas, McKay, Adams, & Arden, 2019). In other words, professional athletes are obliged to function in a highly stressful environment—extreme training loads that frequently cause mental fatigue, elevated professional stress (Gouttebarge, Backx, Aoki, & Kerkhoffs, 2015) and an inherent risk of injury, subsequent osteoarthritis and psychological challenges that can have a detrimental effect on QoL (Filbay et al., 2019). Despite all of the mentioned, sports participants report better QoL than the general population (Omorou, Erpelding, Escalon, & Vuillemín, 2013; Houston, Hoch, & Hoch, 2016) and the psychosocial and health-related QoL benefits associated with sport participation are greater than those associated with physical activity participation alone (Eime, Young, Harvey, Charity, & Payne, 2013; Koolhaas, Dhana, Van Rooij, Schoufour, Hofman, & Franco, 2018). Thus, in order to test this we compared QoL of professional soccer players and their aged-matched physically active university students.

**METHODS**

**Study participants**

A convenient sample of 49 men, i.e. 23 first-league professional soccer players from Bosnia and Herzegovina and 26 university students of the Faculty of Sport and Physical Education (i.e. PE students) from Serbia, aged 17–35, participated in the study. Among PE students there were former athletes, i.e. non-athletes (n=11), basketball players (n=6), martial art athletes (n=5), handball players (n=3), and one track and field athlete. Subjects were not excluded from participation on the basis of physical or emotional conditions at the time of data collection in an attempt to capture a heterogeneous sample. Before participating in the study, all subjects signed an informed consent document and were given an opportunity to ask the researcher questions regarding this study.

**Study design, measures and procedures**

A cross-sectional study design was used to compare QoL between professional athletes and PE students. The WHOQOL-BREF is an abbreviated 26-item version of the WHOQOL-100 containing items that were extracted from the WHOQOL-100 field trial data; it is a generic health-related questionnaire developed by the
WHOQOL group (WHO, 1996), which has been validated and has demonstrated good content validity, discriminate validity, test-retest reliability, and internal consistency (Harper & Power, 1998), was selected to quantify the health-related QoL of study participants. This questionnaire contains a total of 26 questions: two items pertain to the overall perception of QoL (question no. 1) and general health (question no. 2). The remaining 24 questions are designed to assess four QoL domains: physical health (questions no. 3, 4, 10, 15–18), psychological health (questions no. 5–7, 11, 19, 26), social relationships (questions no. 20–22), and the environment (questions no. 8, 9, 12–14, 23–25). All questions utilize a 5-point Likert interval scale, with scores scaled in a positive direction (higher scores denote higher QoL), except for questions no. 3, 4, and 26. The raw scores were converted to transformed scores within a range of 4–20.

The anthropometric testing was performed in accordance with the ethical standards of the Helsinki Declaration (WMA, 2013). All the measurements were taken by the authors in optimal climatic conditions, with the participants in their underwear, and according to the methods proposed by the International Biological Program (Weiner & Lourie, 1969). By interviewing the participants, we collected data on their age (date of birth), whereas their body height (in 0.1 cm) was determined by Martin’s anthropometer. Their body mass (Weight, in 0.1 kg) and body mass index (BMI, in 0.1 kg/m²) were assessed with a tetrapolar bioimpedance device–Omron BF511 (Kyoto, Japan), after entering the data on participants’ age, gender and body height.

**Statistical analyses**

The descriptive statistics [average value (Mean), Standard Deviation (SD), Minimum (Min), Maximum (Max)] were summarized for all variables and for each of two subsamples, as well as for the entirety of the sample. Normality was tested using the one-sample Kolmogorov-Smirnov test (K-S). In order to examine whether QoL is higher, or lower, in professional soccer players in comparison to PE students, a t-test for independent samples was applied. The level of significance was set at p<0.05, and the data were analyzed using the Statistical Package for the Social Sciences, version 21.0 (IBM SPSS 21.0, SPSS Inc, Chicago, USA).

**RESULTS AND DISCUSSION**

Table 1 provides a summary of the descriptive statistics for the baseline characteristics of the study participants, for each sample separately as well as for the sample in total. Upon reviewing the table and considering the BMI cut-off points for adults (as per WHO, 1998), it is evident that the majority of soccer
players (95%) fall within the normal weight range, with only one classified as pre-obese (BMI=25 kg/m²). On average, the body height, body mass, and BMI of these soccer players are in accordance with previously reported values (Bloomfield, Polman, Buttery, & O’Donoghue, 2005; Nikolaidis, 2012). In the sample of PE students, BMI values are mostly in the normal range (65.39%), but 34.61% of them are classified as pre-obese, which is similar to the results of previous research (Stojanović, Nešić, Purenović-Ivanović, & Antić, 2021). It is important to note that PE students, unlike their counterparts in other fields, undergo a distinctive blend of theoretical and practical classes. This type of teaching "does not allow" students to be physically inactive, and the selection process itself is designed to ensure that only candidates with a sufficient level of motor, functional, and other abilities can enroll in sport studies (Stojanović et al., 2021). Thus, PE students are mostly athletes or former athletes, but there are also non-athletes among them, which explains the obtained results.

Table 1. Baseline characteristics of the study's participants

<table>
<thead>
<tr>
<th>Samples</th>
<th>Variables</th>
<th>Age (yrs)</th>
<th>Height (cm)</th>
<th>Weight (kg)</th>
<th>BMI (kg/m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soccer players</td>
<td>Mean±SD</td>
<td>20.79±3.66</td>
<td>186.16±4.23</td>
<td>78.23±4.81</td>
<td>22.75±1.43</td>
</tr>
<tr>
<td></td>
<td>Min – Max</td>
<td>17.09 – 33.76</td>
<td>176.0 – 192.3</td>
<td>68.9 – 86.7</td>
<td>19.9 – 26.8</td>
</tr>
<tr>
<td>PE students</td>
<td>Mean±SD</td>
<td>23.76±3.57</td>
<td>186.46±10.04</td>
<td>84.7±10.48</td>
<td>24.37±2.25</td>
</tr>
<tr>
<td></td>
<td>Min – Max</td>
<td>19.02 – 35</td>
<td>173.0 – 212.0</td>
<td>66.0 – 112.0</td>
<td>19.36 – 28.6</td>
</tr>
<tr>
<td>Total sample</td>
<td>Mean±SD</td>
<td>22.37±3.88</td>
<td>186.31±7.68</td>
<td>81.53±8.76</td>
<td>23.58±2.05</td>
</tr>
<tr>
<td></td>
<td>Min – Max</td>
<td>17.09 – 35</td>
<td>173.0 – 212.0</td>
<td>66.0 – 112.0</td>
<td>19.36 – 28.6</td>
</tr>
</tbody>
</table>

Legend: n, N – number of study participants, PE – physical education, Mean – average value, SD – standard deviation, Min – minimum, Max – maximum, BMI – body mass index, yrs – years.

The obtained results on assessed QoL of soccer players and PE students are presented in Table 2 and it can be stated that in both samples the highest values are reported for physical health (17.44 and 16.9, respectively) and the lowest for the environment (16.04 and 15.56, respectively). In the case of professional soccer players scores are better for psychological health (16.98), while PE students had better scores for Domain 3 (16.5). This study’s results point to better QoL, i.e. higher values for each domain than the one recorded in other countries on huge samples (Skevington, Lotfy, & O’Connell, 2004; Jaracz, Kalfoss, Górna, & Bączyk, 2006; Cruz, Polanczyk, Camey, Hoffmann, & Fleck, 2011; Zhang, Qu, Lun, Wang, Guo, & Liu, 2012). However, those prior studies were conducted on the general population, and their physical activity level was not taken into consideration.
Therefore, it can only be assumed that among their participants, there were no athletes, whether professional or recreational. On the other hand, soccer players in our study are first-league professional players who undergo rigorous training, with five sessions per week, each lasting one hour and 45 minutes, while the PE students include both former or current athletes and non-athletes (11 out of 26, i.e., 42.31%).

Table 2. Quality of life of the study’s participants

<table>
<thead>
<tr>
<th>Samples</th>
<th>QoL domains</th>
<th>Domain 1: Physical health</th>
<th>Domain 2: Psychological health</th>
<th>Domain 3: Social relationships</th>
<th>Domain 4: Environment</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soccer players (n=23)</td>
<td>Mean±SD</td>
<td>17.44±1.58</td>
<td>16.98±2.17</td>
<td>16.17±1.46</td>
<td>16.04±1.44</td>
<td>16.61±2.04</td>
</tr>
<tr>
<td></td>
<td>K-S (Sig.)</td>
<td>.473</td>
<td>.614</td>
<td>.217</td>
<td>.927</td>
<td>.191</td>
</tr>
<tr>
<td>PE students (n=26)</td>
<td>Mean±SD</td>
<td>16.9±1.99</td>
<td>16.44±2.06</td>
<td>16.5±2.6</td>
<td>15.56±2.2</td>
<td>16.46±1.98</td>
</tr>
<tr>
<td></td>
<td>Min – Max</td>
<td>12.0 – 20.0</td>
<td>12.0 – 20.0</td>
<td>12.0 – 20.0</td>
<td>11.0 – 19.5</td>
<td>12.0 – 20.0</td>
</tr>
<tr>
<td></td>
<td>K-S (Sig.)</td>
<td>.493</td>
<td>.627</td>
<td>.656</td>
<td>.987</td>
<td>.069</td>
</tr>
<tr>
<td>Total sample (N=49)</td>
<td>Mean±SD</td>
<td>17.15±1.81</td>
<td>16.69±2.11</td>
<td>16.35±2.13</td>
<td>15.79±1.88</td>
<td>16.53±1.99</td>
</tr>
<tr>
<td></td>
<td>Min – Max</td>
<td>12.0 – 20.0</td>
<td>11.33 – 20.0</td>
<td>12.0 – 20.0</td>
<td>11.0 – 19.5</td>
<td>12.0 – 20.0</td>
</tr>
<tr>
<td></td>
<td>K-S (Sig.)</td>
<td>.222</td>
<td>.620</td>
<td>.368</td>
<td>.745</td>
<td>.010*</td>
</tr>
</tbody>
</table>

Legend: n, N – number of study participants, PE – physical education, Mean – average value, SD – standard deviation, Min – minimum, Max – maximum, K-S – Kolmogorov-Smirnov test, Sig. – significance.

* Absence of normal distribution (p<0.05)

When comparing these two samples, i.e. professional soccer players and PE students, differences are noticeable (See Figure 1), but they are not statistically significant (Domain 1: p=0.301; Domain 2: p=0.370; Domain 3: p=0.598; Domain 4: p=0.372; Overall: p=0.799). This absence of differences confirms the existence of a significant relationship between physical activity and satisfaction with life (Maher, Pincus, Ram, & Conroy, 2015) and that physically active young adults, whether with moderate or high-intensity physical activity, have greater life satisfaction and a better perception of health (Pengpid & Peltzer, 2019). Among individuals of all ages, both men and women, who are physically inactive tend to report lower or poorer self-rated health scores (Herman, Hopman, Vandenkerkhof, & Rosenberg, 2012).
CONCLUSION

The aim of this study was to compare the level of QoL in professional soccer players and PE students. The main finding of this study is that there were no statistically significant differences in the domains of QoL (physical health, psychological health, social relationships, environment, and overall QoL and general health). However, looking at the mean values of the results, it is noted that, in most domains, professional soccer players recorded higher values, which indicates a trend of increasing the level of QoL and it is accompanied by an increased level of physical activity. The absence of differences confirms the existence of a significant relationship between physical activity of any type and satisfaction with life. Considering the results shown and the absence of statistically significant differences, it is evident that the QoL was at a noteworthy level, among both professional soccer players and PE students.

REFERENCES


