

ORIGINAL SCIENTIFIC PAPER

Developing an Instrument to Measure the Social Capital in Young Tennis Players

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Abstract

Social capital consists of connections between individuals from which mutual trust and social networks arise. It is a term that encompasses resources that can be defined as social relations and social inclusion. It is an integral social factor that affects the social norms of an individual's behavior. Social components are an important factor for achieving better success in sport. The level of social capital can be assessed with different questionnaires. As there were no existing validated instruments for assessing social capital in young tennis players so far, a new questionnaire in relation to competitive tennis players was made. The goal of this research was to construct and validate a questionnaire for assessing the level of social capital in young tennis players. The social capital questionnaire was filled out by 90 participants (age=16.53±1.18; girls N=31, boys N=59), who were, at the time, participating in an ITF level (International tennis federation) tennis tournament. The reliability of the questionnaire was measured with the Cronbach Alpha coefficient. When analyzing the reliability of the selected 12 questions, the reliability was determined Cr. Alpha=0.714 and the questionnaire validity was determined using the Pearson correlation coefficient. It is understood that many factors impact young athletes during their growth and development, and that social components and social ties play an important role in young athletes' sporting careers. Through the creation of this questionnaire, future researchers will be able to further analyze and investigate social capital in tennis using it as a valid research tool.

Keywords: *competitive athletes, questionnaire, validation, sport, adolescents*

Introduction

Social components are an important factor in relation to sporting success. Therefore a more detailed insight into social capital and social support in the context of competitive youth sport and tennis is needed. Social capital consists of connections between individuals from which mutual trust and social networks arise (Putnam, 2001). It is a term that encompasses resources that imply social relations and social inclusion, and it is an integral social factor that affects the social norms of an individual's behavior (Novak, Doubova, & Kawachi, 2016). Social capital includes aspects such as moral support, cultural values, guidance, the possibility of playing sports, and logistical and financial support. In an athlete,

this can affect the level of self-confidence, motivation, sense of belonging, and the level of sports performance (Rosso & McGrath, 2012). Social capital is a resource available to individuals or groups through social relations and networks. It can be achieved on an individual or a collective level (Moore & Kawachi, 2017). Social capital is obtained from macro levels (state or regional levels) such as school, neighborhoods, work place and individual levels. Carrilo, Kawachi and Riera (2017) state the need for further social capital investigations. The concept of social capital has a cognitive component (perception of group credibility) as well as structural component (density and frequency of social participation) (Veenstra et al., 2005).



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Social support is a concept similar to social capital, it refers to the exchange of resources between two individuals with the aim of improving the well-being of the supported recipients (Shumaker & Brownell, 1984). Social support can be connected with a decline in sports performance, athlete burnout, competitive stress, and group cohesion (Rees & Hardy, 2000). The influence of coaches, parents and peers is significant for competitive athletes and their influence is characterized as an important resource for athletes. These are key relationships during athlete's growth and development (Sherida, Coffee, & Lavallee, 2014).

A coach has a big impact in giving social support, and their quality feedback and emotional support impact athletes and their performance (Sheridan et al., 2014). Social relationships also play a key role in sport and young adolescence (Villalonga-Olives & Kawachi, 2017).

Until now, researchers focused on studying social capital in recreational sports, sport participation and volunteering (Hayton, 2016; Forsell et al., 2019; Gemar, 2020), whereas fewer studies analyzed social capital in competitive athletes (Forsdike et al., 2017; Novak et al., 2020). Considering the important role social capital plays in sports, research needs to be broadened to include competitive athletes (Novak et al., 2020). Research of social capital in competitive tennis players emphasizes the important role it plays in the athletes' competitive success and why it needs to be further investigated. Athletes need a specific type of social support and help with specific sporting demands like taking care of physical fitness, and any problems they may face with practice or competition (Freeman et al., 2011). There are some claims that engagements and shared cooperative practices that sport consists of enable forming networks of norms, social trust, and social ties. Mutual respect in sport between competitors and the sense of team spirit within a team can also help improve athletic success (Lewandowski, 2018).

The level of social capital is currently assessed with different types of questionnaires. A further review of the literature established that there are validated questionnaires for the general school population (Paiva et al., 2014; Carrillo-Alvarez et al., 2019). However, there are no validated instruments for assessing social capital specifically in young tennis players. Therefore, for this research, a new questionnaire for competitive tennis players was developed. The goal of the research was to construct and validate a questionnaire for assessing the level of social capital in young competitive tennis players.

Methods

Participants

The questionnaire was filled out by 90 participants who were participating at a tennis tournament being held in Čakovec, Croatia. The participants were all aged between 16-18 years old (age=16.53±1.18; girls N=31, boys N=59), and all signed a written consent form prior to participating in the study.

Procedures

The study was conducted at a junior international tennis tournament held by the ITF. Athletes who compete at this level represent quality tennis competitors, all of who are aged under the age of 18. The ITF junior tournament held in Čakovec that was graded J100, which is a mid-level competition for international junior tennis players. To be able to compete at this level, players usually need to start learning

to play the sport at an early age. Participants in the study reported that they started playing tennis at the average age of 6.26±1.84 years old. Players filled out the questionnaire voluntarily after they signed in at the tournament. They filled out the questionnaire on their own and the researchers provided help if necessary. The research was approved by the ethics committee (26/2023, in Zagreb April 3rd 2023) of the Faculty of Kinesiology, University of Zagreb.

The validation of the newly developed questionnaire was conducted in two phases: 1) questionnaire development and 2) the evaluation of psychometric characteristics of the questionnaire. The database search was conducted on PubMed, Scopus and Web of Science databases using information developed within the last twenty years, and the key words were: social capital, tennis, social support, validation, and questionnaire. The database search showed existing questionnaires for social capital assessments within the general adolescent and child population (Paiva et al., 2014; Carrillo-Alvarez et al., 2019). However, to the author's knowledge, there are no validated questionnaires for social capital assessment in competitive tennis players.

Measurements

Items in the social capital questionnaire that was created were defined and adjusted from existing items used in already validated questionnaires (Paiva et al., 2014; Novak et al., 2015; Carrillo-Alvarez et al., 2019). The questionnaire content was subject to conceptual evaluation and following this, key questions were selected. All questions were in English, and the final version was evaluated by a kinesiologist.

The questionnaire consisted of two parts, the first part consisted of general descriptive questions including: gender, age, current ITF ranking, and a general health self-assessment on a Likert scale: 1= very bad, 2= bad, 3= good, 4= very good, 5= excellent (Fylkesnes, 1993).

The second part of the questionnaire consisted of questions for the assessment of social capital. Questions included topics such as family, sports teams, and school. The first version consisted of 25 questions which are listed below 1) I feel my family understands and gives attention to my tennis career.; 2) I feel my family members work well together.; 3) I feel my family supports me.; 4) I feel my family members criticize me.; 5) I often speak/talk to my family members.; 6) I know when something important happens in my wider family (wedding, birth, illness...); 7) I spend my free time with my family members.; 8) My family members watch me play matches at tournaments. 9) I feel my parents and coaches trust each other.; 10) I feel members of my team collaborate with each other.; 11) I trust my coaches.; 12) I listen and understand when my coach explains something to me.; 13) My coach encourages me to play better.; 14) My coach criticizes me.; 15) I feel I can ask my coach for help if I need it.; 16) My coach watches me play matches at tournaments.; 17) My tennis coach and my strength and conditioning coach trust each other. 18) I feel teachers and students trust each other in my high school.; 19) I feel students trust each other in my high school.; 20) I like attending activities at my school other than regular classes. (school, sport sections, choir, geography...); 21) Classmates send me homework when I am not at school.; 22) I spend time with my school friends outside of school.; 23) Teachers

encourage us to speak to them if we have any problems.; 24) Teachers understand and give attention to my tennis career.; 25) I always know when I have an exam at school.

Participants needed to circle a number next to the question that represents level of agreement: 1= strongly disagree, 2= disagree, 3= neither agree nor disagree, 4= agree, 5= strongly agree.

Statistics

Parameters that were calculated for quantitative variables consist of: arithmetic mean (AS), and standard deviation (SD). The reliability was determined using the Cronbach Alpha coefficient for all questions individually as well as together, and the validity was determined using the Pearson

correlation coefficient. The obtained data were processed in Statistica 13 for the Windows operating system and in Microsoft Excel 2013 (Palo Alto, CA, USA). All conclusions are drawn at the level of statistical error of 5%.

Results

The reliability of the questionnaire was measured with the Cronbach Alpha coefficient. When analyzing the reliability of the selected 12 questions, the reliability was determined to be Cr Alpha=0.714 as shown in table 1 below. Selected variables have satisfying sensitivity, range, standard deviation, skewness, and kurtosis within +/-1.

Descriptive statistics of the analyzed items are shown be-

Table 1. Questionnaire reliability represented by Cronbach's Alpha coefficient

Reliability statistics		
Cronbach's Alpha	N of items	N Valid cases (Excluded)
.71	12	90 (0)

low in table 2 where variables mean and standard deviation can be seen.

To determine the questionnaire's validity, Pearson's cor-

relation was used for the sum of each item, and subsequently their intercorrelation was determined. The correlation was found to be statistically significant for all 12 items.

Table 2. Item descriptive statistics

	Mean	Std. Deviation	N
1. I feel my family understands and gives attention to my tennis career.	4.66	0.58	90
2. I feel my family members work well together.	4.51	0.75	90
3. I feel my family supports me.	4.77	0.56	90
4. I often speak/talk to my family members.	4.42	0.86	90
5. I feel members of my team collaborate with each other.	4.48	0.71	90
6. I listen and understand when my coach explains something to me.	4.71	0.50	90
7. I feel I can ask my coach for help if I need it.	4.76	0.50	90
8. My tennis coach and my strength and conditioning coach trust each other.	4.39	0.91	90
9. I feel teachers and students trust each other in my high school.	3.63	0.94	90
10. I feel students trust each other in my high school.	3.91	0.87	90
11. I spend time with my school friends outside of school.	3.88	1.07	90
12. Teachers understand and give attention to my tennis career.	3.42	1.13	90

Table 3. Questionnaire validity using Pearson correlation coefficient

	Pearson Correlation
1. I feel my family understands and gives attention to my tennis career.	0.52**
2. I feel my family members work well together.	0.58**
3. I feel my family supports me.	0.46**
4. I often speak/talk to my family members.	0.50**
5. I feel members of my team collaborate with each other.	0.55**
6. I listen and understand when my coach explains something to me.	0.38**
7. I feel I can ask my coach for help if I need it.	0.42**
8. My tennis coach and my strength and conditioning coach trust each other.	0.48**
9. I feel teachers and students trust each other in my high school.	0.62**
10. I feel students trust each other in my high school.	0.57**
11. I spend time with my school friends outside of school.	0.45**
12. Teachers understand and give attention to my tennis career.	0.49**

** . Correlation is significant at the 0.01 level (2-tailed); * . Correlation is significant at the 0.05 level (2-tailed)

Discussion

The specificity of the environment that sport and tennis creates requires the construction and validation of a new questionnaire that has the ability to assess the level of social capital in junior tennis players. Adolescents spend most of their time involved in school activities, in their neighborhood, and with their families. However, in comparison athletes spend a lot of their time practicing in their sports clubs with their sports team and coaches. This is one of the reasons why this questionnaire contains specific questions relating to sports teams. The questionnaire was constructed based on social connections related to school, family, and sports teams (Virtanen et al., 2013). As mentioned, to the knowledge of the author this is the first validated questionnaire which looks to assess social capital in young tennis players. In the process of developing the questionnaire, several changes were made before the final version. Originally the number of questions to be asked was 25, but eventually only 12 were selected as appropriate for the research question. This significant reduction is due to the elimination of unreliable questions. The validity scale refers to the level of which the measuring instrument measures the construct it was constructed for (Boyton & Greenhalgh, 2004). The level of Cr Alpha coefficient is satisfactory 0.71. The results presented in this study suggest that the presented questionnaire is valid and reliable for the assessment of social capital in young competitive tennis players.

This study achieved similar results in internal consistency of the instrument as shown through the research by Paiva et al. (2014). The questionnaire in the Paiva et al. (2014) study was primarily constructed for the assessment of social capital within the general youth population. Similarly, it consisted of 12 questions, and some of the statements used were: "I feel I belong in my school," "I believe my friends from school," "My parents get along with my teachers." Subscales identified in the Paiva et al. (2014) questionnaire were: school social cohesion, school friendships, neighborhood cohesion, and trust. These subscales are not appropriate for the assessment of social capital in sport because of the specific nature of an athletes' environment.

Another research questionnaire on the assessment of family social capital in adolescents was constructed by Carillo-Alvarez et al. (2019) which had 26 items assessing two dimensions. The questionnaire from that research focuses on communication in the family, food preparation, spending free time, and family cohesion and conflicts. The social network that surrounds tennis players has a significant influence on the development of the players and their tennis careers. The social network is formed by parents, wider family, coaches, friends, school, and sporting surroundings (Wolfenden and Holt, 2005), which is another reason why the newly constructed instrument used to assess social capital needs to focus on those key roles in an athletes' life.

This above mentioned research shows that some of the important characteristics for success within ten American Olympic champions to be: ability to control and endure anxiety, high self-esteem, resilience to psychological stress, sports intelligence, and work ethics (Gould et al., 2002). Those athletes also concluded that individuals and institutions such as community, family, school, sports staff and sport process, had significant influence on their development and growth. Social aspects of an athletes' sporting career need to be investigated in greater detail to have a better understanding of what makes

young athletes successful.

The beginning of a career in sport is an important period in which social capital can impact an athlete positively or negatively. Financial, logistic, and social support is pointed out to be important in young athletes (Rosso & McGrath, 2012). Social capital in young athletes is not yet well researched, and one of the reasons may be the lack of available and appropriate questionnaires.

According to Gould et al. (2006) coaches think that parents are important factors for success in junior tennis. Results show that most parents (59%) positively influence their child as an athlete. However, 36% of the parents were considered to negatively impact their children's sporting development. Positive influence implies financial, logistic, and social emotional support, with negative parental behavior being unrealistic expectations, criticism, and emphasis on winning. According to Neljak (1998) athletes must have a certain level of everyday life activity, such as school load, training and competition motivation, and quality family relationships that provide social support.

Novak et al. (2020) analyzed the connection of social capital with competitive success in tennis. They concluded that social capital successfully predicts sporting success in junior tennis. A higher level of social capital in family and sports teams helps young tennis players achieve better junior rankings. Quality training supplemented with an adequate level of social support will allow tennis players additional resources that could positively impact their sporting performance. The authors in the aforementioned study analyzed social capital in three different domains: family, school, and sports team social capital. The questionnaire used in the study consisted of seven questions (Furuta et al., 2012; Novak et al., 2015), and the determined CronbachAlpha coefficient was 0.71 and 0.81 respectively for school and sports team social capital scales, with this being similar to the newly constructed social capital questionnaire for young tennis players 0.71.

Social capital attracts attention as a potential influence on young people in different areas. Research in the field of education focused on the role of social capital in academic success (Coleman, 1987). However, research was expanded on health outcomes and behaviors. Research on social capital shows its impact on physical and psychological development in young people (Kawachi et al., 2010), and that social capital also relates to health and well-being (Engstrom et al., 2008).

Achieving sporting and academic success is a hard task, even when the person is extremely academically talented (Carodine et al. 2001). Romar (2012) concluded that 73% of young elite skiers think that sport negatively impacts their academic success. According to Clopton (2012) student athletes are better at setting long term goals than their nonathletic peers. Athletes show higher levels of social involvement and higher level of self-esteem.

Parents play a key role in the early phase of their child's involvement in sport, as they are the ones who enroll their children in sports programs and provide significant logistical, financial, and emotional support. Parental involvement and their support is of crucial importance in the development of young tennis players and their careers. Simultaneously, excessive parental involvement may have a negative impact on young athletes. Furthermore, parental involvement and support are related to self-esteem, quality of sport performance, and sport enjoyment (Gould et al., 2006).

One of the limitations of this study is that social capital assessed by the newly developed questionnaire measures only one dimension. However, it does include sport and tennis specific items that can deepen the understanding of social capital in young tennis competitors. This study can be seen as significant because previously validated questionnaires focus primarily on the general population, with no focus on sport and individuals who compete in tennis. In order to gain even more specific and beneficial results for this research topic, future studies should focus determining the differences in the level of social capital in tennis players of differing levels of suc-

cess and the relationship between social capital and competitive success.

Conclusion

Many factors impact young athletes during their development, with one key aspect being social components. To adequately assess certain social constructs, such as social capital, a validated measuring instrument is needed. By validating the social capital questionnaire created through this research, researchers will be able to further analyze and investigate the relationship between an individual's social capital and their competitive tennis.

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Conflict of Interest

The author declares that there is no conflict of interest.

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References

- Boynton, P. M., & Greenhalgh, T. (2004). Selecting, designing, and developing your questionnaire. *BMJ* 328(7451), 1312-1315.
- Carodine, K., Almond, K. F., & Gratto, K. K. (2001). College student athlete success both in and out of the classroom. *New Directions for Student Services*, 93, 19-33.
- Carrillo-Álvarez, E., Villalonga-Olives, E., Riera-Romani, J., & Kawachi, I. (2019). Development and validation of a questionnaire to measure family social capital. *SSM - Population Health*, 8, 100453.
- Carrillo, E., Kawachi, I., & Riera, J. (2017). Family social capital and health: A systematic review and redirection. *Sociology of Health & Illness*, 39(1), 5-29.
- Clopton, A. W. (2012). Social capital, gender, and the student athlete. *Group Dynamics: Theory, Research, and Practice*, 16(4), 272-88.
- Coleman, J. S. (1987). Social capital and the development of youth. *Momentum*, 18(4), 6-8.
- Engström, K., Mattsson, F., Jařrleborg, A., & Hallqvist, J. (2008). Contextual social capital as a risk factor for poor self-rated health: A multilevel analysis. *Social Science & Medicine*, 66(11), 2268-2280.
- Forsdike, K., Marjoribanks, T., & Sawyer, A.-M. (2017). "Hockey becomes like a family in itself": Re-examining social capital through women's experiences of a sport club undergoing quasi-professionalisation. *International Review for the Sociology of Sport*, 54(4), 479-494.
- Freeman, P., Coffee, P., & Rees, T. (2011). The PASS-Q: The Perceived Available Support in Sport Questionnaire. *Journal of Sport and Exercise Psychology*, 33(1), 54-74.
- Furuta, M., Ekuni, D., Takao, S., Suzuki, E., Morita, M., & Kawachi, I. (2012). Social capital and self-rated oral health among young people. *Community Dentistry and Oral Epidemiology*, 40(2), 97-104.
- Fylkesnes, K. (1993). Determinants of health care utilization—Visits and referrals. *Scandinavian Journal of Sociology and Medicine*, 21(1), 40-50.
- Gemar, A. (2020). Social capital networks in sports spectatorship and participation. *International Review for the Sociology of Sport*, 56(4), 514-536.
- Gould, D., Dieffenbach, K., & Moffett, A. (2002). Psychological characteristics and their development in olympic champions. *Journal of Applied Sport Psychology*, 14(3), 172-204.
- Gould, D., Lauer, L., Rolo, C., Jannes, C., & Pennisi, N. (2006). Understanding the role parents play in tennis success: a national survey of junior tennis coaches. *British Journal of Sports Medicine*, 40(7), 632-636.
- Hayton, J. (2015). Sports Volunteering on University-Led Outreach Projects. *Journal of Sport and Social Issues*, 40(1), 38-61.
- Kawachi, I., Subramanian, S.V., & Kim, D. (2010). Social capital and health. *New York: Springer Science*, 215-28.
- Lewandowski, J. D. (2018). *Sport, Trust, and Social Capital. Comparative Sociology*, 17(3-4), 386-405.
- Moore, S., & Kawachi, I. (2017). Twenty years of social capital and health research: A glossary. *Journal of Epidemiology & Community Health*, 71(5), 513-517.
- Neljak, B. (1998). *Osnove planiranja, programiranja i kontrole treninga tenisača (Fundamentals of planning, programming, and control of tennis players' training)*. Zagreb: Kineziološki fakultet.
- Novak, D., Svalina, F., & Delale, E. A. (2020). Connection between Social Capital and Sport Success of Young Tennis Players. *Social Sciences*, 9(11), 206.
- Novak, D., & Kawachi, I. (2015). Influence of different domains of social capital on psychological distress among Croatian high school students. *International Journal of Mental Health Systems*, 9, 18.
- Novak, D., Doubova, S. V., & Kawachi, I. (2016). Social capital and physical activity among Croatian high school students. *Public Health*, 135, 48-55.
- Paiva, P. C. P., Paiva, H. N., Oliveira Filho, P. M., Ferreira, E. F., Ferreira, R. C., & Zarzar, P. M. (2014). Development and Validation of a social capital questionnaire for adolescent students (SCQ-AS). *Plos One*, 9(8), e103785.
- Putnam, R. (2001). Social capital: Measurement and consequences. *Canadian Journal of Policy Research*, 2(1), 41-51.
- Romar, J. E. (2012). An analysis of Finnish skiing school student's academic education and athletic success. *Acta Gymnica*, 42(1), 35-41.
- Rees, T., & Hardy, L. (2000). An investigation of the social support experiences of high-level sports performers. *The Sport Psychologist*, 14(4), 327-347.
- Rosso, E. G., & McGrath, R. (2012). Beyond recreation: personal social networks and social capital in the transition of young players from recreational football to formal football clubs. *International Review for the Sociology of Sport*, 48(4), 453-470.
- Sheridan, D., Coffee, P., & Lavalley, D. (2014). A systematic review of social support in youth sport. *International Review of Sport and Exercise Psychology*, 7(1), 198-228.
- Shumaker, S. A., & Brownell, A. (1984). Toward a theory of social support: Closing conceptual gaps. *Journal of Social Issues*, 40, 11-36.
- Veenstra, G., Luginaah, I., Wakefield, S., Birch S., & Eyles, J. (2005). Who you know, where you live: social capital, neighbourhood and health. *Social Science & Medicine*, 60(12), 2799-2818.
- Villalonga-Olives, E., & Kawachi, I. (2017). The dark side of social capital: A systematic review of the negative health effects of social capital. *Social Science & Medicine*, 194, 105-127.
- Virtanen, M., Ervasti, J., Oksanen, T., Kivimäki, M., & Vahtera, J. (2013). Social Capital in Schools. In: B. S. Kawachi I, et al. *Global Perspectives on Social Capital and Health*. Springer Science, Business Media New York. Pp.65285.
- Wolfenden, L. E., & Holt, N. L. (2005). Talent development in elite junior tennis: Perceptions of players, parents, and coaches. *Journal of Applied Sport Psychology*, 17(2), 108-126.