

Psychosocial development and mental health in youth Brazilian club athletes: examining the effects of age, sport type, and training experience

Desenvolvimento psicossocial e saúde mental em jovens atletas: examinando os efeitos da idade, tipo de esporte e nível de experiência

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Abstract – Physical activity occurring through organized sport has been positioned as an engaging manner not only to prevent chronic-degenerative diseases but also to promote healthier societies. However, there is a lack of evidence linking competitive sport participation in the club environment in promoting youth athletes' psychosocial development and mental health. Thus, this study aimed to analyze the effects of age, sport type, and training experience on the psychosocial development and mental health of youth Brazilian club athletes. Participants were 220 male adolescent athletes (Mean =14.09 years; SD = 2.21) from individual and team sports. Instruments included the Portuguese Youth Experience Survey for Sport (P-YES-S) and the Portuguese Mental Health Continuum – Short Form (P-MHC-SF). Correlation and multilevel linear regression analyses were performed. The results indicated a moderated correlation between both questionnaires. For the P-YES-S, model effect estimations showed variation for age in the Personal and Social Skills dimension and variations for training experience in the Cognitive Skills and Negative Experiences dimensions. For the P-MHC-SF, model effect estimations showed variation for age in the Emotional Well Being dimension and variation for sport type in Social Well Being and Psychological Well Being dimensions. More research is needed to continue examining how characteristics of sport participation are related to psychosocial development and mental health.

Key words: Youth sport; Well being; Sports club; Adolescents; Performance.

Resumo – A atividade física por meio do esporte organizado tem sido posicionada como uma ferramenta potencial não apenas para prevenir o acometimento de doenças crônicas degenerativas, mas também para promover uma sociedade mais saudável. Contudo, ainda existe uma lacuna científica acerca da relação entre a participação no esporte competitivo no contexto de clubes e a promoção do desenvolvimento psicossocial e a saúde mental de jovens atletas. Assim, este estudo buscou analisar os efeitos da idade, tipo de esporte e nível de experiência no desenvolvimento psicossocial e na saúde mental de jovens atletas de um clube brasileiro. Os participantes foram 220 atletas adolescentes do sexo masculino (Média = 14,09 anos; DP = 2,21) de esportes individuais e coletivos. Os instrumentos incluíram o Questionário de Experiência Esportiva em Jovens – Português (P-YES-S) e o Contínuo de Saúde Mental – Short Form – Português (P-MHC-SF). Análises de correlação e regressão linear multinível foram realizadas. Os resultados indicaram uma correlação moderada entre os dois questionários. Para o P-YES-S, as estimativas do efeito do modelo mostraram variação para a idade na dimensão Habilidades Pessoais e Sociais e variações para o nível de experiência nas dimensões Habilidades Cognitivas e Experiências Negativas. Para o P-MHC-SF, as estimativas do efeito do modelo mostraram variação para a idade na dimensão Bem-estar Emocional e variação para o tipo de esporte nas dimensões Bem-Estar Social e Bem-Estar Psicológico. Mais pesquisas são necessárias para continuar examinando como as características da participação no esporte estão relacionadas ao desenvolvimento psicossocial e à saúde mental.

Palavras-chave: Esporte juvenil; Bem estar; Clube esportivo; Adolescentes; Desempenho.

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INTRODUCTION

Urbanization, technological advances, and the use of the internet in daily activities are positioned as important social factors responsible for increased physical inactivity in youth over the past decades¹. According to recent epidemiological studies, 75% of the adolescents do not reach the minimum recommendation for daily physical activity². The evidence is alarming as the economic impact and the number of disorders resulting from sedentary lifestyles are constantly growing. Further, the increasing number of cases of depression and mental illness among youth has drawn much attention³. In response, there has been a growth in the development of youth programs promoting physical activity and sport, led by the World Health Organization (WHO) and several countries, not only to prevent chronic-degenerative diseases but also to promote healthier societies¹. Youth sport is a broad concept inclusive of different forms of physical activity that can vary by level of physical, cognitive, social, and emotional involvement⁴. The characteristics of youth sport contexts and the quality of the experiences provided have been shown to largely determine participation outcomes for youth^{5,6}.

Globally, national reports published in the last five years demonstrate that sport is one of the most popular forms of physical activity among youth. For example, the percentage of youth participating in organized sport sits at 74% in Australia⁷, 70% in Canada⁸, and 58% in Brazil⁹. Although there is evidence linking sport participation to positive psychosocial outcomes, there are also studies demonstrating negative outcomes such as stress, anxiety, dissatisfaction, negative self-perceptions, and overuse injuries that can impact youth mental health⁴. Past research has shown that the negative outcomes associated with sport participation can be influenced by individuals on (i.e., coaches, teammates) and off (i.e., parents) the field who display intimidating behaviors, encourage excessive training, and provide excessive negative and corrective feedback⁴. Mental health refers to a state of well-being that allows individuals to realize their potentials, deal with everyday life situations, work productively, and contribute to their community¹.

Despite the negatives, sport remains highly popular and offers some attractive features from a psychosocial development and mental health point of view⁵. Specifically, sport's social, competitive, and skill-building nature may allow youth participants, when they are appropriately supervised by competent and caring adults, to live experiences conducive to desired psychosocial and mental health outcomes that include enhanced self-esteem, positive social relationships, and positive identity construction^{4,10}. However, in systematic reviews on the benefits of organized youth sport^{5,11}, it has been shown how the evidence linking sport participation to psychosocial development and mental health remains limited. From this limited evidence, team sport athletes have reported more positive outcomes than individual sport athletes due to greater social interactions with teammates¹². Team sport athletes have also been shown to experience less anxiety and less depression symptoms¹³ than individual sport athletes. Sabiston et al.¹⁴ followed high school individual and team sport athletes for five years and reported that those who consistently participated in team sports demonstrated lower depression scores in early adulthood compared to those who consistently

participated in individual sports. Regarding the age of involvement in sport, Guddal et al.¹⁵ found that senior high school athletes (*Mean* 17.6) showed higher scores in different dimensions of mental health compared to junior high school athletes. As most of the studies showing the influences of sport on psychosocial development and mental health were carried out in the high school context⁵, there is a need to address the scarcity of information about youth athletes involved in community sport clubs.

Conducting mental health research in community sport clubs is a critical next step given that sport clubs may work as flourishing environments to promote mental health when close relationships with athletes are promoted and close bonds with the club are established¹⁰. The present study attempts to contribute to the discussion on the influence of sport clubs on the psychosocial development and mental health of youth athletes. Taking into consideration that organized youth sport participation primarily occurs in clubs in Brazil¹⁶, we selected a renowned club to conduct this preliminary study. Thus, our purpose was to examine the effects of age, sport type, and training experience on the psychosocial development and mental health of youth Brazilian club athletes.

METHODS

This study characterized as a cross-sectional correlational study with convenience sampling. The study was approved by the national ethical board through the number CAAE 25511719.1.0000.0121. The multisport club where the participants were recruited was purposely selected, given that it is one of the foremost clubs for talent development in Brazil. In 2019, during data collection, the club had approximately 1,000 athletes (i.e., 5-19 years of age) and 46 coaches involved in team and individual sports. All the coaches work full-time at the club and hold a bachelor's degree in physical education, which is required to coach in Brazil. Promoting quality sport experiences is stated in club documents as a core principle. Additionally, the club continually provides training to its coaches in the areas of positive youth development through sport and life skills.

Participants were 220 male youth athletes ranging from 10 to 18 years of age (*M* = 14.09; *SD* = 2.21) involved in tennis (*n* = 55); basketball (*n* = 54); swimming (*n* = 54); volleyball (*n* = 50), and judo (*n* = 7). Inclusion criteria were: participants enrolled in formal competitions from regional to international levels; weekly training commitments at the club range from three to five practices, amounting from eight to 20 hours.

After receiving ethical approval from the first author's university ethics committee, the research team contacted the head of the board of directors at the club to inquire about the club's interest in the study. Upon confirming their interest and approval, data collection was initiated. The rate of participation was 80% for the population targeted. Participants and their parents completed written assent forms (i.e., for participants under the age of 18 years) and parent consent forms. Following the consent process, participants completed the questionnaire electronically through the Google Forms platform on club premises, without the presence of coaches. The questionnaire included demographic questions, the Portuguese Youth Experience Survey for Sport⁶ and the Portuguese Mental Health Continuum – Short Form¹⁷.

Portuguese Youth Experience Survey for Sport (P-YES-S)

The YES-S assesses the developmental experiences of youth sport athletes. Created by MacDonald et al.¹⁸, the instrument has five dimensions (i.e., personal and social skills, cognitive skills, goal setting, initiative, and negative experiences) measured using 37 items. The cross-cultural adaptation to Brazilian Portuguese⁶ showed acceptable levels for content validity, internal consistency, temporal stability, concurrent validity, and construct validity. The adaptation process produced an instrument with 22 items across four dimensions (i.e., personal and social skills, cognitive skills, initiative experiences, and negative experiences). An example question is: “I learned to focus my attention”. Items are measured on a 4-point scale ranging from 1 (Not at all) to 4 (Yes, definitely).

Portuguese Mental Health Continuum – Short Form (P-MHC-SF)

The Mental Health Continuum was originally developed by Keyes¹⁹ for adults and adapted for youth seven years later¹⁹. The short version for youth considers mental health on a continuum (i.e., flourishing, moderately mentally healthy, and languishing) in three dimensions: emotional, social, and psychological. The Portuguese adaptation was established by Matos et al.¹⁷ with 905 Portuguese adolescents. The psychometric analysis explored the scale’s factorial structure, internal consistency, and convergent and divergent validity. The translated scale revealed good psychometric properties, maintaining the same structure as the English version, comprised of 14 items measured on a 6-point scale ranging from 1 (never) to 6 (always). Considering that Portuguese from Brazil is slightly different from Portuguese from Portugal, we adapted it to Brazilian Portuguese and tested in a small sample of athletes to qualitative analyze the clarity of language. Thus, the questionnaire was adequate to be applied in the larger sample. The instrument measures how often a mental health event occurs within the past month. An example of a question is: “In the past month, how often did you feel that you had something important to contribute to society?”

Because data did not present normal distribution, Spearman correlation was applied to examine the intercorrelations between questionnaires’ dimensions. Internal consistency of the questionnaires’ factors was applied. We adopted Cronbach Alpha higher than 0.7 as adequate ($p < 0.05$). Additionally, multilevel linear regressions were used to examine variations between the P-YES-S and the PMHC-SF concerning age (10-13 years of age or 14-18 years of age), sport type (individual or team), and training experience (1-3 years or 4-8 years). Age group was defined based on the club standards for age grouping. Training experience was defined by the participants’ median time involved in their sport. In classical regression (e.g., 1 Level data) researchers do not consider the hierarchy structure of the data (nested by groups). The characteristic that most distinguishes multilevel models from classical regression is in the modeling of the variation between groups²⁰, which provide a more flexible and robust analysis.

Intercept models²⁰ were used, allowing the intercept to vary in relation to athletes when grouped by age, sport type, and training experience. To conduct this analysis and extract model estimations, we used the package “lme4”²¹ available in the R statistical software (The R Foundation for Statistical Computing, Vienna,

Austria). We used z-score transformations (standardized scores) to analyze the data. The study was approved by the Ethics Committee on Human Research of the Federal University of Santa Catarina under protocol CEP 3822901.

RESULTS

The relationships (intercorrelations, means, standard deviations, and reliability estimates) between the P-YES-S and the P-MHC-SF are presented in Table 1. The two questionnaires presented a moderated correlation (0.41) and their dimensions showed a variety of low to high correlations. In terms of reliability estimates, only the Personal and Social Skills dimension demonstrated a low value. Thus, further analysis needs to consider the interpretation of the results from this dimension.

Table 1. Summary of intercorrelations, means, standard deviations and reliability estimates.

Variables	PSS	CS	IE	NE	P-YES-S	E-WB	S-WB	P-WB	MHC-SF
PSS		0.26**	0.45**	0.05	0.46**	0.04	0.24**	0.20**	0.20**
CS			0.22**	0.00	0.60**	0.26**	0.24**	0.26**	0.29**
IE				-0.05	0.54**	0.28**	0.32**	0.42**	0.38**
NE					-0.56**	0.28**	0.16**	0.17*	0.23**
P-YES-S						0.36**	0.33**	0.37**	0.41**
E-WB							0.61**	0.64**	0.83**
S-WB								0.60**	0.91**
P-WB									0.81**
MHC-SF									
M	3.60	2.67	3.70	1.39	3.46	50.9	4.50	5.07	4.87
SD	0.45	0.68	0.40	0.46	0.29	0.83	1.04	0.86	0.82
α	0.55	0.71	0.83	0.87	0.80	0.83	0.79	0.71	0.90

Note. PSS = Personal and Social Skills; CS = Cognitive Skills; IE = Initiative experiences; NE = Negative Experiences; P-YES-S = Portuguese version of the Youth Experience Survey for Sport; E-WB = Emotional Well-being; P-WB = Psychological Well-being; S-WB = Social Well-being; MHC-SF = Mental Health Continuum – Short Form; M = Mean; SD = Standard deviation; α = Cronbach's alpha. * $p < .05$; ** $p < .01$ - Spearman Correlation.

Table 2 and Table 3 present model effect estimations (effect size) of the P-YES-S and its dimensions regarding age, sport type, and training experience as well as the P-MHC-SF and its dimensions, respectively. Results indicated how for the P-YES-S, there was no substantial variation for sport type, which may indicate not difference between groups. Age group showed substantial variation in the Personal and Social Skills dimension, in which youth from 14 to 18 years old presented higher values. Training experience showed substantial variation in the Cognitive Skills and Negative Experiences dimensions that more experienced participants presented higher values. Any possible variation was observed in NE and P-YES-S for age group, in CS and IE for sport type and in PSS, IE, P-YES-S for time of experience. Results indicated how for the P-MHC-SF, age group showed substantial variation in the Emotional Well-Being dimension (higher values for the youngest age group) and sport type showed substantial variation in the Social Well Being and Psychological Well-Being dimensions (higher values for participant from individual sports). Training experience showed no substantial variation. Furthermore, no variation was verified in S-WB and P-WB for age group and in P-WB for training experience.

Table 2. Estimates of the P-YES-S and its dimension in relation to age, type of sport and time of experience.

	PSS	CS	IE	NE	P-YES-S
Estimates (95% CI)					
Age group					
10 to 13	-0.24 (-0.50 to 0.02)	0.05 (-0.11 to 0.22)	-0.06 (-0.21 to 0.08)	0.00a	0.00 ^a
14 to 18	0.17 (-0.08 to 0.41)	-0.05 (-0.21 to 0.11)	0.05 (-0.09 to 0.18)	0.00a	0.00a
Sport					
Individual	0.06 (-0.17 to 0.28)	0.00a	-0.01a	-0.04 (-0.19 to 0.10)	0.04 (-0.08 to 0.15)
Team	-0.13 (-0.36 to 0.09)	0.00a	-0.01a	0.04 (-0.11 to 0.18)	-0.04 (-0.16 to 0.08)
Training Experience					
1 to 3	-0.04a	-0.13 (-0.33 to 0.07)	-0.01a	-0.15 (-0.35 to 0.05)	0.00a
4 to 8	-0.04a	0.14 (-0.06 to 0.34)	-0.01a	0.14 (-0.06 to 0.34)	0.00a

Note. PSS = Personal and Social Skills; CS = Cognitive Skills; IE = Initiative experiences; NE = Negative Experiences; P-YES-S = Portuguese version of the Youth Experience Survey for Sport; CI = Confidence Interval. ^aThe 95% of confidence intervals were too large that no variance could be reported using two decimal places. The estimates reported as "0.00" are affected for the same reason that could not be reported using two decimal places.

Table 3. Estimates of the MHC-SF and its dimension in relation to age, type of sport and time of experience.

	E-WB	S-WB	P-WB	MHC-SF
Estimates (95% CI)				
Age group				
10 to 13	0.19 (-0.07 to 0.46)	-0.01a	-0.01 ^a	0.05 (-0.12 to 0.22)
14 to 18	-0.15 (-0.40 to 0.11)	-0.01a	-0.01a	-0.05 (-0.22 to 0.12)
Sport				
Individual	0.12 (-0.11 to 0.35)	0.26 (-0.02 to 0.55)	0.15 (-0.02 to 0.32)	0.23 (-0.05 to 0.51)
Team	-0.08 (-0.31 to 0.15)	-0.28 (-0.57 to 0.00)	-0.17 (-0.34 to 0.01)	-0.23 (-0.52 to 0.06)
Training Experience				
1 to 3	0.06 (-0.09 to 0.22)	0.10 (-0.16 to 0.37)	-0.01 (-0.03 to 0.02)	0.09 (-0.14 to 0.33)
4 to 8	-0.02 (-0.17 to 0.14)	-0.12 (-0.38 to 0.14)	-0.01 (-0.04 to 0.02)	-0.09 (-0.33 to 0.14)

Note. E-WB = Emotional Well-being; P-WB = Psychological Well-being; S-WB = Social Well-being; MHC-SF = Mental Health Continuum – Short Form; CI = Confidence Interval. ^aThe 95% of confidence intervals were too large that no variance could be reported using two decimal places. The estimates reported as "0.00" are affected for the same reason that could not be reported using two decimal places.

DISCUSSION

The present study examined the effects of age, sport type, and training experience on the psychosocial development and mental health of youth Brazilian athletes from the same sport club. We first analyzed the correlation between participants' psychosocial development (P-YES-S) and mental health (P-MHC-SF) state scores, with results indicating a positive moderate correlation (0.41). Thus, it appears that there may be a link between youth's positive experiences in sport and their mental well-being. However, the Personal and Social Skills dimension presented low internal consistency (0.51). In the transcultural validation of the YES-S, the Personal and Social Skills dimension was reduced from 14 items to only three⁶.

Similarly, in the French adaptation of the YES-S²², the Personal and Social Skills dimension also presented low internal consistency (0.68) Indeed, personal and social skills is a complex construct to measure because it is related to intrapersonal and interpersonal domains of youth's lives such as emotional control, self-competence communication skills, teamwork, leadership, and others^{4,11}. Given that the correlation between the scales was not high, this may indicate the worth of using both scales to interpret our data. Further conceptual and empirical exploration of personal and social skills is needed to understand the link of such skills with the mental health status of youth athletes.

The next step in the analysis consisted of examining the four dimensions of the P-YES-S according to age, sport type, and training experience. The Personal and Social Skills dimension revealed higher scores in older athletes (i.e., 14-18 years old) when compared to younger athletes (10-13 years old). As the three items of the Personal and Social Skills dimension in the P-YES-S are focused on one's relationship with others, our findings may be explained by the identity development processes that occur when adolescents enhance their interaction with several social groups outside the family^{11,23}.

As youth athletes mature and devote more time to practice and competitions with their teammates and coaches, they may have more opportunities to develop their social skills, thus rating themselves higher on this dimension. Further, given the importance of belonging and connectedness in adolescence, it may help explain why older athletes scored higher on their relationship with others than younger athletes²³. The Cognitive Skills dimension revealed higher values in athletes with more experience (i.e., 4-8 years) than those with less experience (i.e., 1-3 years).

The Cognitive Skills dimension of the P-YES-S is associated with academic, creative, and technological accomplishments. Thus, the results may be explained by the increased cognitive capacity that manifests itself during adolescence through increased abstract thinking and reasoning, logical operations, consideration of others' point of view, and the ability to think about the process of thinking, with sustained sport participation having been shown in past research to positively influence athletes' cognitive development²⁴. Negative Experiences revealed higher values in athletes with less experience (i.e., 1-3 years) than those with more experience (i.e., 4-8 years). These results may be explained by the demands of the performance environment, which tend to develop in athletes' emotional regulation and resilience skills to deal with negative experiences on and off the playing field⁴.

The participants had high scores in all dimensions of the P-MHC-SF. Our results support past studies that young athletes develop fewer mental health problems, have lower depression scores, and fewer anxiety symptoms^{11,25}. When compared by age, sport type, and training experience, only age and sport type showed substantial variations in the different dimensions. The Emotional Well Being dimension was higher in younger athletes (i.e., 10-13 years old) compared to older athletes (i.e., 14-18 years old). The reason can be related to the lower level of pressure that athletes 10 to 13 years of age may perceive, being in earlier stages of the long-term athlete development model, with perhaps less training load, fewer competition demands, and lower performance expectations²⁶.

Concerning sport type, previous research has shown how participating in team sports can lead to reductions in anxiety²⁵, increases in life satisfaction²⁷, enhanced emotional self-efficacy²⁸, and reductions in depressive symptoms²⁹. However, individual sport athletes scored higher than team sport athletes on all dimensions of the instrument (i.e., emotional, psychological, and social well-being). This may be due to the level of competitiveness that exists between team sports peers³⁰ or even the sense of belonging that can be reduced as a result of competition for minutes of play and positions on the teams. A recent study has shown that the sense of belonging among individual sport athletes supports the development of enjoyment and social identity³⁰.

Some limitations of this study should be mentioned to be overcome by future studies. As the sample was composed only of male athletes, this study was not able to analyze the variables with female athletes. Also, due to the low number of participants, the results cannot be extrapolated to the Brazilian population

and other social or individual characteristics that could increase our model fit were not considered. Although the authors tested the clarity of language of the P-MHC-SF, the use of a questionnaire not specifically translated to the Brazilian population should be considered a limitation. Future studies are needed to investigate mental health in youth athletes, addressing more information regarding other variables in the sports environment (e.g., coach-athlete relationship, peer interactions, parent support, coach experience) and related to the athletes' lifestyle (e.g., sleep quality, screen time, other activities).

CONCLUSION

In summary, the findings of the present study shed light on two main aspects. First, as previous research has shown, youth athletes operate in organized sport environments that influence their development of skills and attributes that include resilience, emotional control, teamwork, discipline, and leadership^{5,11}. However, youth athletes have multiple social roles beyond sport and continuously learn as they interact with significant others in their families, in their communities, and at school. Consequently, it is the combined influence of social interactions occurring in all these contexts that must be considered when we think about adolescent development. The results of the present study reinforce the need for researchers to further explore other athletic-related variables (e.g., enjoyment, quality of the athlete-coach relationship, sleep quality, and sleep time) that may facilitate psychosocial development and mental health. Such variables should be investigated in terms of their contributions to creating positive states of mental well-being.

Second, our results for team and individual sports are dissimilar to those reported in previous studies that have examined emotional, psychological, and social well-being^{13,14}. The higher scores of individual athletes may be attributed to the quality of the club climate as well as the relationships developed. Thus, the results contrasting team and individual sport may suggest that sport type may have less to do with psychosocial development and mental health than previously reported. Rather, irrespective of sport type, clubs should be concerned with promoting quality sports experiences delivered by trained and compassionate coaches who care for those they coach equally as athletes and as people.

COMPLIANCE WITH ETHICAL STANDARDS

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Ethical approval

The study was approved by the Ethics Committee on Human Research of the Federal University of Santa Catarina under protocol CEP 3822901. This study was written in accordance with the standards set by the Declaration of Helsinki.

Conflict of interest statement

The authors declare that they have no competing interests.

Author Contributions

Conceived and designed the experiments: MM; MC; VC; RTQ; JVN. Performed the experiments: MM; MC; VC; RTQ; JVN. Analyzed the data: MM; MC; VC; RTQ; JVN. Contributed reagents/materials/analysis tools: MM; MC; VC; RTQ; JVN. Wrote the paper: MM; MC; VC; RTQ; JVN. All authors read and approved the final version of the manuscript.

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