Cuadernos de Psicología del Deporte, vol. 26, 1, 1-12
Recibido: 20/01/2025
Aceptado: 22/01/2026

Murcia (España) ISSN edición impresa:1578-8423
ISSNediciónweb(http://revistas.um.es/cpd):1989-5879

Cita: Carvalho, L. K. F., Freire, G. L. M., Costa, N. L. G., Oliveira, D. V., Vieira, J. L. L., Ferreira, L., Fidelix, Y. L. & Nascimento Junior, J. R. A. (2026). Sports Experiences as Predictors of Pre-Competitive Anxiety in Dual-Career Athletes. *Cuadernos de Psicología del Deporte, 26(1),* 1-12

Las experiencias deportivas como predictores de la ansiedad precompetitiva en atletas de doble carrera

Sports Experiences as Predictors of Pre-Competitive Anxiety in Dual-Career Athletes

As experiências esportivas como preditoras da ansiedade pré-competitiva em atletas de dupla carreira

Carvalho, Lara Kelly Fonseca de[1], Freire, Gabriel Lucas Morais[2], Costa, Nathan Leonardo Gomes[1], Oliveira, Daniel Vicentini de[2], Vieira, José Luiz Lopes[3], Ferreira, Luciana[2], Fidelix, Yara Lucy[1], Nascimento Junior, José Roberto Andrade do[4]

[1]*Universidade Federal do Vale do São Francisco, Petrolina, Pernambuco, Brasil;* [2]*Universidade Estadual de Maringá, Maringá-PR, Brasil;* [3]*Universidad Católica del Maule-Talca, Chile;* [4]*Universidade da Força Aérea, Rio de Janeiro-Rio de Janeiro, Brasil*

RESUMEN

Esta pesquisa investigó las experiencias deportivas como predictores de la ansiedad precompetitiva en atletas brasileños de doble carrera. Los participantes fueron 135 atletas masculinos (n = 120) y femeninos (n = 15), con una edad media de 23,43 años (DE = 9,77), que compitieron en los siguientes deportes: fútbol sala (n = 39), balonmano (n = 15), voleibol (n = 24), baloncesto (n = 41) y tenis de mesa (n = 16). Estos participantes completaron la Escala de Experiencias Deportivas Universitarias – versión portuguesa (USES-BR) y el Inventario de Ansiedad Competitiva – 2ª Revisión (CSAI-2R), los cuales evalúan, respectivamente, las percepciones sobre las experiencias deportivas y la ansiedad precompetitiva. El análisis de los datos se realizó mediante la prueba de Kolmogorov-Smirnov, correlación de Pearson y regresión lineal múltiple ($p<0,05$). Los resultados mostraron que la iniciativa presentó una predicción positiva sobre la confianza en uno mismo ($\beta = 0,34$), mientras que los dominios de relaciones interpersonales ($\beta = 0,27$ y $\beta = 0,31$) y exclusión social ($\beta = 0,28$ y $\beta = 0,29$) presentaron una predicción positiva sobre la ansiedad somática y cognitiva. Se concluyó que las experiencias positivas (iniciativa) parecen actuar como fuente de confianza en uno mismo, mientras que las experiencias positivas (relaciones interpersonales) y negativas (exclusión social) parecen promover la ansiedad cognitiva y somática.

Palabras clave: Emociones, Estudiantes-atletas, Deporte, Variables psicológicas.

ABSTRACT

This research investigated the sport experiences as predictor of pre-competitive anxiety in Brazilian dual-career athletes. Participants were 135 male (n = 120) and female (n = 15) athletes, with a mean age of 23.43 years (SD = 9.77), who competed at the following sports: indoor soccer (n = 39), handball (n = 15), volleyball (n = 24), basketball

Correspondencia: José Luiz Lopes Vieira, Dirección Postal: R. Marcílio Días 1011, Maringá-PR, Brasil. Tel: +55 (44) 99742-0437.
Email: jllopesvieira@gmail.com

(n = 41), and table tennis (n = 16). These participants completed the University Sport Experiences Scale - Portuguese version (USES-BR) and the Competitive State Anxiety Inventory-2R (CSAI-2R), which assess perceptions of sport experiences and pre-competitive anxiety, respectively. Data analysis was conducted through the Kolmogorov-Smirnov test, Pearson's correlation, and multiple linear regression ($p<0.05$). The results showed that initiative presented a positive prediction on self-confidence ($\beta = 0.34$), while the domains of interpersonal relationships ($\beta = 0.27$ and $\beta = 0.31$) and social exclusion ($\beta = 0.28$ and $\beta = 0.29$) presented a positive prediction on somatic and cognitive anxiety. It was concluded that positive experiences (initiative) seem to act as a source of self-confidence, while positive (interpersonal relationships) and negative (social exclusion) experiences seem to promote cognitive and somatic anxiety.

Keywords: Emotions, Student-athletes, Sport, Psychological variables.

RESUMO

Esta pesquisa investigou as experiências esportivas como preditoras da ansiedade pré-competitiva em atletas brasileiros de dupla carreira. Participaram 135 atletas, do sexo masculino (n = 120) e feminino (n = 15), com média de idade 23,43 (DP = 9,77) anos, que competiram nos seguintes esportes: futebol de salão (n=39); handebol (n=15); voleibol (n=24); basquete (n=41) e tênis de mesa (n=16). Esses participantes responderam à Escala de Experiências Esportivas Universitárias – versão portuguesa (USES-BR) e ao Inventário de Ansiedade Competitiva – 2ª Revisão (CSAI-2R), que avaliam, respectivamente, as percepções sobre as experiências esportivas e a ansiedade pré-competitiva. A análise dos dados foi realizada por meio do teste de Kolmogorov-Smirnov, correlação de Pearson e regressão linear múltipla ($p<0,05$). Os resultados mostraram que a iniciativa apresentou predição positiva sobre a autoconfiança ($\beta = 0,34$), enquanto os domínios relacionamento interpessoal ($\beta = 0,27$ e $\beta = 0,31$) e exclusão social ($\beta = 0,28$ e $\beta = 0,29$) apresentaram predição positiva sobre ansiedade somática e cognitiva. Concluiu-se que as experiências positivas (iniciativa) parecem funcionar como fonte de autoconfiança, enquanto as experiências positivas (relações interpessoais) e negativas (exclusão social) parecem promover ansiedade cognitiva e somática.

Palavras chave: Emoções, Estudantes-atletas, Esporte, Variáveis psicológicas.

INTRODUCTION

Dual-career athletes encounter the complex challenge of balancing the demands of academic or professional pursuits, a reality that has drawn increasing scholarly attention across diverse cultural and structural contexts (MacNamara & Collins, 2010; Monteiro et al., 2017). Stambulova and Wylleman (2019) state that dual career corresponds to the simultaneous practice of high-performance sport along with studies or work, highlighting the multidimensional nature of the athletes' experiences. This scenario has been gaining strength among Brazilian athletes; however, structural and institutional barriers still hinder the consolidation of dual careers (Silva, 2024). In addition, dual-career athletes need to deal with a set of emotional states and behavioral strategies to manage the demands of sport and studies or work (Martín-Rodríguez et al., 2024; Nascimento Junior et al., 2014). The stressors related to this dual participation can trigger significant emotional reactions, such as mood instability, and affective responses, such as increased irritability, emotional instability, and variations in positive and negative affect, which consequently influence athletic performance (Martín-Rodríguez et al., 2024; Paludo et al., 2016).

Positive sports experiences reflect athletes' perceptions of supportive environments that promote autonomy and develop skills, and are associated with various developmental benefits, such as higher life satisfaction, leadership skills, academic performance, character, identity formation, and high-quality interpersonal relationships (Melo et al., 2022; Jewell et al., 2024; Rigoni et al., 2017). Such experiences consist of opportunities for personal initiative, skills development, positive feedback from coaches, quality interpersonal relationships with teammates, and access to adult support networks in the sporting context. In this scenario, Melo et al. (2022) observed that dual-career athletes who

experienced autonomy, relatedness, and competence within their sports context exhibited improved life skills, including communication, leadership, social interaction, and teamwork.

On the contrary, negative sports experiences occur in adverse environments, which include stressful, exclusionary, or maladaptive situations within the sporting context. Examples of such experiences involve specific stress due to training demands, social exclusion, inappropriate behavior from teammates or coaches, interpersonal conflicts within teams, overtraining, injuries, and bullying. Recent studies have found that these negative experiences can lead to elevated levels of anxiety, reduced intrinsic application, lower perceptions of competence, and reduced group cohesion (Nixdorf et al., 2016; Melo et al., 2022).

In this context, pre-competitive anxiety (PCA) has received considerable attention from researchers and professionals in the field of sports psychology due to its determining role in athlete performance. PCA can be defined by the frequency and intensity with which an athlete perceives pre-competitive events as threatening, often manifesting in heightened apprehension and physiological arousal (Martens et al., 1990). According to the Multidimensional Theory of Anxiety by Martens et al. (1990), PCA can be understood from three dimensions: 1) cognitive anxiety, which reflects emotional reactions such as worry, negative self-evaluations, and uncertainty about performance; 2) somatic anxiety, which encompasses psychosomatic symptoms such as muscle tension, increased heart rate, and pupil dilation; and 3) self-confidence, which encompasses the athlete's beliefs about their ability to perform well. Previous research confirms the relevance of PCA in several competitive levels and sports, revealing its association with performance maintenance, emotional regulation, and psychological well-being (Conde-Ripoll et al., 2024; Nascimento Junior et al., 2025).

A systematic review conducted by Rocha and Osório (2018) found that PCA levels can vary due to sociodemographic factors (e.g., gender, age), sports history and experience (e.g., experience, previous performance), and contextual factors (e.g., sport type, competition intensity). Current research corroborates these findings by observing the role of psychosocial factors, such as motivational climate, social support, and dual-career demands, on athletes' pre-competitive emotional reactions (Fuentes-Garcia et al., 2023; Nascimento Junior et al., 2025).

The relationship between PCA and other psychological outcome has been a line of research of increasing interest in recent years (Moreira et al., 2022; Freire et al., 2020; Nascimento Junior et al., 2016, 2024; Fortes et al., 2019). In this perspective, Moreira (2021) conducted a study with Brazilian youth athletes, finding that positive sport experiences were associated with a reduction in cognitive and somatic anxiety, while negative experiences were positively associated with these dimensions of anxiety. Further, the literature indicates that competitive anxiety is highly susceptible to emotional fluctuations, with differences existing between sports, gender, age, and experience levels (Moreira et al., 2022; Freire et al., 2020; Moreira, 2021; Fortes et al., 2019).

Given these considerations, this research investigated the sport experiences as predictor of pre-competitive anxiety in Brazilian dual-career athletes. Based on previous investigations (Freire et al., 2020; Melo et al., 2022; Nascimento Junior et al., 2025), it is hypothesized that positive sport experiences will show positive prediction on self-confidence, as well as negative prediction on cognitive and somatic anxiety. Conversely, and according to the literature (Freire et al., 2020; Moreira et al., 2022), it is expected that negative sport experiences will show a positive prediction on cognitive and somatic anxiety and a negative prediction on self-confidence.

MATERIALS AND METHODS

Design of the study

This is a non-experimental, ex post facto, correlational-predictive, and cross-sectional study (Ato et al., 2013). In this type of research, the independent variables are not manipulated, and the relationships between university sports experiences and dimensions of pre-competitive anxiety were assessed at a single point in time. The Strengthening

the Reporting of Observational Studies in Epidemiology (STROBE) guidelines for quantitative observational research were used for this study.

Participants

The participants in this study were university athletes of both sexes who competed in the 2023 Pernambuco University Games. Athletes were recruited during the qualifying phase of the Pernambuco state competition for the Brazilian University Games using a convenience sampling strategy. This technique was used due to the practical and logistical limitations of university competitions, since athletes have limited availability to participate in scientific research during competitions. However, it is known that non-probabilistic sampling techniques can increase the risk of selection bias and should be considered a limitation of the research. Initially, 141 university athletes were invited to participate in the study; however, six athletes did not respond to at least one of the questionnaires. Thus, 135 athletes participated in the research, 120 men and 15 women, competing in the following sports: futsal (n = 39), handball (n = 15), volleyball (n = 24), basketball (n = 41), and table tennis (n = 16). The participants had a mean age of 23.43 years (SD = 9.77), 69.71 months of sports experience (SD = 65.67), and a mean weekly training frequency of 2.43 sessions (SD = 1.29).

It is important to highlight the imbalance between male and female athletes in this research. This distribution reflects the low female participation in university sports in Brazil, especially in team sports. The majority of male athletes may limit the generalization of the results to dual-career athletes of both sexes.

The inclusion criteria were as follows: (1) being at least 18 years of age; (2) having practiced the sport for a minimum of three months; and (3) being officially registered as an athlete in the Pernambuco University Games. The exclusion criterion was not completing at least one of the research questionnaires. The exclusion criterion was failure to complete at least one of the administered questionnaires. All participants voluntarily agreed to take part in the study and provided written informed consent by signing the Free and Informed Consent Form prior to data collection.

Instruments

A sociodemographic questionnaire was developed by the researchers and included information regarding age, gender, years of practice, primary sport, and weekly training hours.

The University Sport Experiences Scale - Portuguese (USES-BR) was used in order to evaluate the competitive university sport experiences. This scale was originally developed by Rathwell and Young (2016) to assess developmental experiences in organized and competitive university sport contexts. It was adapted to Portugues language among Brazilian population by Rathwell et al. (2021), showing satisfactory psychometric properties for use with Brazilian athletes engaged in competitive university sports. The scale comprises 39 items aimed at measuring sports experiences across eight dimensions: initiative (e.g., “I am more dedicated”), basic skills (e.g., “I believe I have improved my creative skills”), interpersonal relationships (e.g., “I value others’ social contexts more”), social skills and teamwork (e.g., “I am better at supporting others”), adult network and social capital (e.g., “I feel more supported by the community outside of campus”), stress (e.g., “I am often stressed”), social exclusion (e.g., “I often feel left out”), and inappropriate social behavior (e.g., “I am often exposed to leaders who demean me”).

This instrument is answered using a 7-point Likert scale, on a continuum from 1 (Strongly disagree) to 7 (Strongly agree). According to the literature (Rathwell and Young, 2016; Rathwell et al., 2021), the dimensions of initiative, basic skills, interpersonal relationships, social skills and teamwork, and adult network and social capital comprise positive sports experiences, while stress, social exclusion, and inappropriate social behavior encompass negative sports experiences. Higher scores on the positive dimensions indicate a greater frequency or intensity of adaptive and developmentally supportive experiences, whereas higher scores on the negative dimensions reflect a greater frequency of adverse, stressful, or maladaptive experiences within the competitive university sport environment. It was observed high Cronbach's alpha values for the eight dimensions of university sports experiences in the present

study as follows: initiative (α = 0.89), basic skills (α = 0.81), interpersonal relationships (α = 0.85), social skills (α = 0.88), adult network (α = 0.83), stress (α = 0.87), social exclusion (α = 0.83), and inappropriate behavior (α = 0.91).

The Competitive State Anxiety Inventory-2R (CSAI-2R) originally developed by Martens et al. (1990) was used to assess PCA. It was used the adapted and validated version of the instrument for the Brazilian sports context by Fernandes et al. (2012), which showed satisfactory validity evidence for use with competitive athletes, including university samples. It was used only the frequency dimension of the CSAI-2R, since the objective of this study was to evaluate the frequency with which anxiety symptoms are experienced before competition. This instrument consists of 16 items distributed across three subscales: cognitive anxiety (e.g., "I am worried that I may not perform as well as I could in this competition"), somatic anxiety (e.g., "I feel my body is tense"), and self-confidence (e.g., "I feel self-confident"). Items are rated on a Likert-type scale ranging from 1 ("Not at all") to 7 ("Very much"). The validity evidence study of the CSAI-2R for the Brazilian context showed strong internal consistency (α > 0.70) and satisfactory fit indices (CFI = 0.959; GFI = 0.942; RMSEA = 0.044). Cronbach's alpha for the dimensions of the CSAI-2R in the participants of the present study were as follows: somatic anxiety (α = 0.86), cognitive anxiety (α = 0.81) and self-confidence (α = 0.84), indicating high internal consistency.

The choice of the CSAI-2R to assess PCA was based on the principles of the Multidimensional Anxiety Theory proposed by Martens et al. (1990). This theory states that pre-competitive anxiety refers to a multidimensional phenomenon encompassing cognitive anxiety, somatic anxiety, and self-confidence, each exerting a distinct influence on athletic performance. CSAI-2R was specifically created to evaluate these dimensions in sports contexts, allowing for a differentiated evaluation of athletes' psychological states immediately before competition.

Procedures

This study follows the ethical principles established by the Declaration of Helsinki (WMA, 2013; Tyebkhan, 2003). Furthermore, the research adhered to the ethical standards for research with human subjects as outlined in Resolution No. 466/12 of the National Health Council (Brazil, 2012) and complies with the Ethical Standards for Research in Sports and Exercise Sciences (Harriss et al., 2019). The study was approved by the Research Ethics Committee of the Federal University of the São Francisco Valley (Opinion No. 3,576,805). It is also noteworthy that all procedures involving the collection, storage, and processing of personal data complied with the provisions of Spanish Organic Law 3/2018 on the Protection of Personal Data and the Guarantee of Digital Rights.

Data collection took place between July and October 2023 at the competition venues for each sport (table tennis, futsal, basketball, handball, and volleyball), according to the athletes' availability. Initially, authorization was obtained from the coaches or coordinators of the teams. Participation was entirely voluntary, and before data collection, all participants were gathered and informed about the research objectives, the confidentiality and anonymity of their responses, and their right to withdraw from the study at any time without any negative consequences. Furthermore, participants received instructions from the researchers present, and the signing of the informed consent form was obtained from all participants before their inclusion in the study. Participants answered the questionnaires in a quiet environment at the competition venues, under the supervision of the researchers, who were available to clarify any doubts during completion. Each participant answered the questionnaires individually, and short breaks were allowed, if necessary, to minimize fatigue. Each participant took approximately 30 minutes to complete the questionnaires.

Statistical Analysis

Data analysis was conducted using SPSS version 25.0 software through descriptive and inferential statistics. Initially, the data distribution was analyzed using the Kolmogorov-Smirnov test, along with analysis of skewness and kurtosis, which were considered acceptable when within the recommended limits for an approximately normal distribution. It is noteworthy that the results of the Kolmogorov-Smirnov test were interpreted in conjunction with these distribution indicators, given their sensitivity to sample size. Further, bootstrap procedures (1,000 resamplings; 95% CI BCa)

were conducted to increase the reliability of the results, correct deviations from normality, and address differences in group sizes (Haukoos & Lewis, 2005). Means and standard deviations were used as measures of central tendency and dispersion. Pearson's correlation was applied to investigate the association between university sports experiences and the frequency of PCA symptoms. Three multiple linear regression models were conducted using the enter method for variable entry to assess the association of university sports experiences (independent variable) with the frequency of PCA symptoms (dependent variable). Multicollinearity was assessed using both the Tolerance Index and Variance Inflation Factor (VIF), with tolerance values > 0.20 and VIF values < 5.0 indicating acceptable levels of collinearity among predictors. The Durbin–Watson statistic was also examined to verify the independence of residuals, with values close to 2.0 indicating no significant autocorrelation. It was adopted a significance level set at $p < 0.05$.

RESULTS

Descriptive statistics and intercorrelations

Table 1 presents the descriptive analysis of the dimensions of sports experiences and the frequency of PCA symptoms among university athletes. The mean scores on the 1-to-7 response scale of the USES-BR ranged from highest to lowest as follows: initiative (M = 5.91; SD = 0.99), interpersonal relationships (M = 5.87; SD = 0.99), social skills (M = 5.85; SD = 0.95), basic skills (M = 5.15; SD = 1.44), adult network (M = 4.81; SD = 1.48), stress (M = 3.44; SD = 1.60), social exclusion (M = 2.92; SD = 1.59), and inappropriate behavior (M = 2.60; SD = 1.53). Regarding the 1-to-7 response scale of the CSAI-2R, the highest mean score was observed for self-confidence (M = 5.35; SD = 1.23), followed by cognitive anxiety (M = 3.91; SD = 1.39) and somatic anxiety (M = 3.43; SD = 1.50).

The dimension representing the frequency of self-confidence in athletes demonstrated a positive and significant correlation with the sports experiences of initiative (r = 0.34), basic skills (r = 0.23), interpersonal relationships (r = 0.25), and social skills (r = 0.22). Somatic anxiety showed a correlation with basic skills (r = 0.24), interpersonal relationships (r = 0.17), and social exclusion (r = 0.18). Finally, cognitive anxiety was positively correlated with social exclusion (r = 0.18).

Table 1
Descriptive analysis of the dimensions of sports experiences and the frequency of PCA symptoms among university athletes (n=135).

Variables	*Sports experiences*								*Pre-Competitive Anxiety*		
	1	2	3	4	5	6	7	8	9	10	11
Sports Experiences											
1. Initiative	-	0.58**	0.63**	0.55**	0.18*	-0.04	-0.06	0.04	-0.00	0.08	**0.34****
2. Basic Skills		-	0.64**	0.33**	0.18*	-0.01	0.03	0.17	0.10	**0.24****	**0.23***
3. Interpersonal relationships			-	0.63**	0.34**	0.18*	0.04	0.12	0.10	**0.17***	**0.25***
4. Social skills				-	0.57**	0.27**	0.12	0.17	-0.06	-0.07	**0.22***
5. Adult network					-	0.41**	0.23**	0.16	-0.04	-0.10	0.19
6. Stress						-	0.64**	0.54**	0.07	0.01	0.03
7. Social exclusion							-	0.76**	**0.18***	**0.18***	0.06
8. Inappropriate behavior								-	0.12	0.17	0.11
Pre-competitive Anxiety											
9. Cognitive anxiety									-	0.66**	-0.13
10. Somatic anxiety										-	0.05
11. Self-confidence											-
Mean	5.91	5.15	5.87	5.85	4.80	3.44	2.92	2.60	3.91	3.43	5.35
SD	0.99	1.44	0.99	0.95	1.48	1.60	1.59	1.53	1.41	1.50	1.23

Note: ** p<0.05; **p<0.01.*

The multiple regression analyses (Table 2) indicated that the models including university sport experiences explained a small to moderate but statistically significant proportion of the variance in the frequency of PCA dimensions (adjusted R^2 ranging from 0.03 to 0.11, with significant F tests at $p < 0.05$). Specifically, the model predicting somatic anxiety explained 11% of the variance, the model predicting self-confidence explained 9%, and the model predicting cognitive anxiety explained 3% of the variance. Regarding individual predictors, the initiative dimension positively predicted self-confidence ($\beta = 0.34$, $p < 0.01$). In contrast, interpersonal relationships positively predicted both somatic anxiety ($\beta = 0.27$, $p < 0.05$) and cognitive anxiety ($\beta = 0.31$, $p < 0.05$). Likewise, social exclusion emerged as a positive predictor of somatic anxiety ($\beta = 0.28$, $p < 0.05$) and cognitive anxiety ($\beta = 0.29$, $p < 0.05$). No other dimensions of university sport experiences showed statistically significant associations with PCA outcomes. Durbin Watson values ranged from 1.64 to 2.10, indicating acceptable independence of residuals across all regression models.

Table 2

Sports experiences as predictors of the frequency of PCA symptoms among university athletes (n=135).

Predictors	Somatic Anxiety	Cognitive Anxiety	Self-confidence
	β (CI 95%)	β (CI 95%)	β (CI 95%)
1. Initiative	-0.03 (-0.41; 0.32)	-0.04 (-0.41; 0.31)	**0.34** (0.13; 0.73)**
2. Basic Skills	0.16 (-0.07; 0.41)	-0.07 (-0.31; 0.17)	-0.02 (-0.22; 0.19)
3. Interpersonal relationships	**0.27* (0.01; 0.81)**	**0.31* (0.05; 0.84)**	0.04 (-0.29; 0.38)
4. Social skills	-0.22 (-0.74; 0.07)	-0.19 (-0.67; 0.13)	-0.09 (-0.45; 0.28)
5. Adult network	-0.12 (-0.33; 0.10)	-0.05 (-0.26; .16)	0.16 (-0.04; 0.32)
6. Stress	-0.13 (-0.33; 0.10)	-0.08 (-0.29; 0.14)	-0.08 (-0.24; 0.12)
7. Social exclusion	**0.28* (0.01; 0.52)**	**0.29* (0.00; 0.50)**	0.07 (-0.16; 0.26)
8. Inappropriate behavior	0.02 (-0.23; 0.26)	-0.04 (-0.28; 0.20)	0.07 (-0.15; 0.26)
Adjusted R^2	0.11	0.03	0.09
F	**3.043****	1.421	**2.661***
DW	1.645	1.763	2.104

Note: Only the standardized regression coefficients which were less than our significance level of .05 are highlighted in bold. β = Standardized regression coefficient; CI = 95% confidence interval; DW= Durbin-Watson. *$p < .05$, **$p < .01$, ***$p < .001$.

DISCUSSION

This study investigated the sport experiences as predictor of pre-competitive anxiety in Brazilian dual-career athletes. The main results showed that specific sports experiences are associated in a differentiated way with self-confidence and symptoms of anxiety, offering evidence of how university sports contexts shape the psychological states of athletes, in accordance with the concepts of the Multidimensional Anxiety Theory (Martens et al., 1990).

One of the main findings of this study was the positive predictive role of positive sports experiences, particularly initiative, on self-confidence. This result corroborates past studies, which have shown that positive sports experiences increase self-confidence in athletes (Freire et al., 2020; Melo et al., 2022). Specifically, Freire et al. (2020) observed higher self-confidence in athletes who reported more positive experiences in sport. Aligned with this perspective, Melo et al. (2022) found similar results in dual-career athletes, integrating positive experiences with better sporting results. The present study expands on these arguments by demonstrating that experiences related to initiative in university sport can promote autonomy, self-regulation, and perceived competence, reinforcing self-confidence in competitive contexts. Therefore, it is important to highlight environments that prioritize personal initiative and the development of psychological skills, which serve as fundamental factors for the psychological resilience of athletes and for task-related confidence (Nascimento Junior et al., 2025).

Another relevant finding refers to the partial confirmation of the hypothesis that positive experiences are negatively associated with cognitive and somatic anxiety. Unexpectedly, cognitive and somatic anxiety showed a positive association with the dimension of interpersonal relationships. This association can be explained by the ambivalent nature of social integration in sport. Although being part of a social group and interacting with peers can provide emotional and psychological support, in the context of university sports, these interpersonal dynamics can also intensify performance expectations, social comparison processes, and perceived responsibility towards teammates and coaches (Wang et al., 2024). In the Brazilian university context, these pressures are often aggravated by academic overload and limited institutional support structures, which can increase symptoms of stress and anxiety among athletes (Silva, 2024). Past evidence suggests that sports environments characterized as evaluative or demanding can contribute to increased cognitive preoccupation and somatic activation before competition, particularly among student-athletes who balance academic and sports activities (Lundqvist & Sandin, 2021).

These pressures can manifest as high expectations, negative thoughts (cognitive anxiety), and physical stress responses such as muscle tension and impaired sleep quality (somatic anxiety). This phenomenon aligns with the study by Ivanović et al. (2015), who found that increased social demands in sports contexts generally promote increased cognitive and somatic anxiety. Further, Pineda-Espejel et al. (2017) observed similar situations in competitive athletes, and current research with university and high-performance athletes in different countries suggests that socially demanding environments can trigger more anxiety symptoms when perceived expectations exceed athletes' coping resources. (e.g., Lundqvist & Andersson, 2021; Amaro & Brandão, 2023).

Finally, it was possible to confirm the hypothesis that negative experiences in sports, such as social exclusion and inappropriate behavior, showed a positive association with cognitive and somatic anxiety. These results reflect how athletes' perceptions of exclusion from their sport environment increase the frequency of PCA symptoms. These negative experiences can impair the sense of belonging and psychological safety of athletes, favoring increased worry, disturbances, and distractions before competition (Nascimento Junior et al., 2016). Past research supports these findings by demonstrating that experiences of social isolation or tense interpersonal relationships cause emotional distress, worries, and impaired concentration (Ivanović et al., 2015; Wang et al., 2024; Nascimento Junior et al., 2025). Furthermore, these experiences often lead to a range of personal challenges, including worsened sleep quality, compromised family and social relationships, and increased emotional reactivity, as evidenced by Gulliver et al. (2015) and Noble et al. (2014). The relationship between these factors will likely intensify the symptoms of PCA, especially for athletes with few psychological coping strategies or insufficient social support. Thus, the results reinforce the need for interventions aimed at reducing negative experiences in sports environments, emphasizing the role of inclusive and supportive environments through concrete strategies such as mentoring programs, psychosocial support initiatives, and emotional skills training integrated into university sports curricula to reduce the psychological burden on athletes.

Limitations and Future Directions

Although this study presents important findings into the association between university sports experiences and PCA, some limitations need to be highlighted. First, the participants were dual-career athletes from a single Brazilian state, limiting the generalization of the results to athletes from other Brazilian states and other countries. However, the participants competed in the state's main university competition, reinforcing the relevance of the results within this specific context. Second, the cross-sectional design makes it impossible to infer cause and effect between the variables, since the data were collected at a single point in time during the competitive season. Future research with longitudinal designs could explain the dynamic interaction between sports experiences and PCA over time and could help detect cumulative effects over complete sports seasons. Another limitation was the high dispersion observed in the participants' age (SD = 9.77) and sports experience (SD = 65.67 months). This variation demonstrates that the athletes in this study were at distinct stages of development and experience, which may have impacted both their perceptions of sporting experiences and their PCA responses. This may limit the generalizability of the results and potentially affect the internal consistency of the results obtained. Future studies should consider stratifying samples by age group or competitive experience, or statistically controlling for these variables, to provide a more specific

understanding of how sports experiences relate to PCA at different stages of athletic development. Furthermore, new investigations should address the role of other psychological variables, such as motivation, team cohesion, and goal orientation, using validated quantitative instruments (e.g., scales based on Self-Determination Theory, such as the Sport Motivation Scale II, or measures of team cohesion, such as the Group Environment Questionnaire), as well as qualitative approaches, including semi-structured interviews or focus groups, to provide a deeper understanding of the factors that characterize PCA in dual-career athletes.

CONCLUSIONS

It can be concluded that university sports experiences have a relevant and differentiated role in the different dimensions of PCA. Positive sports experiences, especially those related to initiative, have proven to be predictors of self-confidence, reinforcing the protective function of environments oriented towards autonomy and the development of skills in university sports. On the other hand, negative interpersonal relationships and experiences, such as social exclusion and inappropriate behavior, were associated with higher levels of cognitive and somatic anxiety, reinforcing the complex and sometimes ambivalent role of social dynamics in competitive sports contexts. Thus, it is highlighted that although participation in university sports can favor the development of essential psychological resources for performance and well-being, it can also expose athletes to social pressures and stressors that intensify anxiety if not adequately managed. Therefore, the effectiveness of university sports as a developmental context for dual-career athletes depends not only on participation itself, but also on the quality of the psychosocial environment in which this participation occurs.

PRATICAL APLICATIONS

One of the main practical applications of this study relates to the importance of training environments that promote athlete initiative, encouraging autonomy and active involvement in training and competitions, as these practices can increase self-confidence and the perception of competitive readiness. Although interpersonal relationships are generally beneficial, the observed association with PCA suggests the need to manage team expectations and pressure through communication strategies and social support. Further, the relationship between negative sport experiences, such as social exclusion and inappropriate behavior, and increased cognitive and somatic anxiety highlights the importance of inclusive policies, clear codes of conduct, and monitoring of team dynamics. Finally, the promotion of psychological support services in university sports systems can help dual-career athletes develop coping and emotional regulation skills, thus reducing the symptoms of PCA.

REFERENCES

1. Amaro, R. & Brandão, T. (2023). Competitive anxiety in athletes: Emotion regulation and personality matter. *Kinesiology*, *55*(1), 108-119. https://doi.org/10.26582/k.55.1.12

2. Ato, M., López-García, J. J. & Benavente, A. (2013). A classification system for research designs in psychology. *Anales De Psicología Annals of Psychology*, *29*(3), 1038–1059. https://doi.org/10.6018/analesps.29.3.178511

3. Conde-Ripoll, R., Escudero-Tena, A. & Bustamante-Sánchez, Á. (2024). Pre and post-competitive anxiety and self-confidence and their relationship with technical-tactical performance in high-level men's padel players. *Frontiers in Sports and Active Living*, *6*, 1393980.

4. Fernandes, M. G., Vasconcelos-Raposo, J. & Fernandes, H. M. (2012). Propriedades psicométricas do CSAI-2 em atletas brasileiros. *Psicologia: Reflexão e Crítica*, *25*(4), 679–687. https://doi.org/10.1590/S0102-79722012000400007

5. Fortes, L. D. S., Fiorese, L., Andrade Nascimento-Júnior, J. R., Almeida, S. S. & Ferreira, M. E. C. (2019). Efeito da ansiedade competitiva sobre a tomada de decisão em jovens atletas de voleibol. *Psicologia: Teoria e Pesquisa*, *35*, e3538. https://doi.org/10.1590/0102.3772e3538

6. Freire, G.L.M., Sousa, V.C., Moraes, J.F.V.N., Alves, J.F.N., Oliveira, D.V. & Nascimento Junior, J.R.A. (2020). Are the traits of perfectionism associated with pre-competitive anxiety in young athletes? *Cuadernos de Psicología del Deporte*, *20*(1), 37-46

7. Fuentes-García, J. P., Villafaina, S., Martínez-Gallego, R. & Crespo, M. (2023). Pre-and post-competitive anxiety and match outcome in elite international junior tennis players. *International Journal of Sports Science & Coaching*, *18*(6), 2108-2116.

8. Gulliver, A., Griffiths, K. M., Mackinnon, A., Batterham, P. J. & Stanimirovic, R. (2015). The mental health of Australian elite athletes. *Journal of science and medicine in sport*, *18*(3), 255-261. https://doi.org/10.1016/j.jsams.2014.04.006

9. Harriss, D. J., MacSween, A. & Atkinson, G. (2019). Ethical Standards in Sport and Exercise Science Research: 2020 Update. *International journal of sports medicine*, *40*(13), 813–817. https://doi.org/10.1055/a-1015-3123

10. Haukoos, J. S. & Lewis, R. J. (2005). Advanced statistics: Bootstrapping confidence intervals for statistics with "difficult" distributions. *Academic Emergency Medicine*, *12*(4), 360-365. https://doi.org/10.1197/j.aem.2004.11.018

11. Ivanović, M., Milosavljević, S. & Ivanović, U. (2015). Perfectionism, anxiety in sport, and sport achievement in adolescence. *Sport Science*, *8*(1):35-42

12. Jewell, C. B., Caron, J. G., Pope, J. P. & Rathwell, S. (2024). The Role of Social Support in Concussion Rehabilitation: A Prospective Mixed Methods Study of Canadian University Athletes' Return to Sport. *Journal of Sport Rehabilitation*, *1*(aop), 1-15. https://doi.org/10.1123/jsr.2024-0002

13. Lundqvist, C. & Andersson, G. (2021). Let's talk about mental health and mental disorders in elite sports: a narrative review of theoretical perspectives. *Frontiers in psycholo*gy, *12*, 700829.

14. MacNamara, Á. & Collins, D. (2010). The role of psychological characteristics in managing the transition to university. *Psychology of sport and exercise, 11*(5), 353-362. https://doi.org/10.1016/j.psychsport.2010.04.003

15. Martens, R., Vealey, R. S. & Burton, D. (1990). *Competitive anxiety in sport*. Human Kinetics Books.

16. Martín-Rodríguez, A., Gostian-Ropotin, L. A., Beltrán-Velasco, A. I., Belando-Pedreño, N., Simón, J. A., López-Mora, C., Navarro-Jiménez, E., Tornero-Aguilera, J. F. & Clemente-Suárez, V. J. (2024). Sporting Mind: The Interplay of Physical Activity and Psychological Health. *Sports, 12*(1), 37. https://doi.org/10.3390/sports12010037

17. Melo, S. V. A., Freire, G. L. M., Oliveira, I. F. S., Lunardelli, G. B., Nakashima, G. F. & Fiorese, L. (2022). Habilidades para vida e as necessidades psicológicas básicas de atletas universitários. *Saúde e Pesquisa*, *15*(4). https://doi.org/10.17765/2176-9206.2022v15n4.e10917

18. Monteiro, D., Cid, L., Marinho, D. A., Moutão, J., Vitorino, A. & Bento, T. (2017). Determinants and reasons for dropout in swimming - systematic review. *Sports, 5*, 50. https://doi.org/10.3390/sports5030050

19. Moreira, J. A. G. L. F. (2021). Experiências esportivas de estudantes atletas da cidade de Petrolina: um estudo comparativo em função do sexo, idade e modalidade. *Revista Brasileira de Psicologia do Esporte*, *11*(3). https://doi.org/10.31501/rbpe.v11i3.13447

20. Moreira, J. A. G. L. F., Freire, G. L. M., Nunes, D. T. F, Ribeiro, L. C., Fidelix, Y. L. & Nascimento Junior, J. R. A. (2022). Ansiedade pré-competitiva e sintomas de burnout em escolares praticantes de esportes. *Psicologia e Saúde em Debate*, *8*(1), 333–344. https://doi.org/10.22289/2446-922X.V8N1A19

21. Nascimento Junior, J. R. A., Balbim, G. M. & Vieira, L. F. (2014). Estresse psicológico pré-competitivo e voleibol: um estudo em função do gênero e das posições de jogo. *Revista Mackenzie de Educação Física e Esporte*, *13*(2).

22. Nascimento Junior, J. R. A., Balbim, G. M., Vissoci, J. R. N., Moreira, C. R., Passos, P. C. B. & Vieira, L. F. (2016). Análise das relações entre ansiedade-estado e coesão de atletas de handebol. *Psicologia: teoria e prática*, *18*(2), 89-102. https://doi.org/10.15348/1980-6906/psicologia.v18n2p89-102

23. Nascimento Junior, J. R. A., da Paixão, C. B., de Oliveira Damasceno, V., Freire, G. L. M. & de Oliveira, D. V. (2025). Coping strategies as protective factors for pre-competitive anxiety in young athletes. *Cuadernos de Educación y Desarrollo-QUALIS A4, 17*(12), e10232-e10232.

24. Nascimento Junior, J. R. A., Freire, G. L. M., de Sousa Fortes, L. F., Codonhato, R. & de Oliveira, D. V. (2024). Group cohesion, conflict, achievement goals and anxiety in youth sport: differences according to the 2× 2 model of perfectionism. *International Journal of Sport Psychology*, *55*, 391-411. https://doi.org/10.7352/IJSP.2024.55.391

25. Nixdorf, I., Frank, R. & Beckmann, J. (2016). Comparison of athletes' proneness to depressive symptoms in individual and team sports: Research on psychological mediators in junior elite athletes. *Frontiers in Psychology, 7*, 893. https://doi.org/10.3389/fpsyg.2016.00893

26. Noble, C. L., Ashby, J. S. & Gnilka, P. B. (2014). Multidimensional perfectionism, coping, and depression: Differential prediction of depression symptoms by perfectionism type. *Journal of College Counseling*, *17*(1), 80-94. https://doi.org/10.1002/j.2161-1882.2014.00049.x

27. Paludo, A. C., Nunes, S. A. N., Simões, A. C. & Fernandes, M. G. (2016). Relação entre ansiedade competitiva, autoconfiança e desempenho esportivo: Uma revisão ampla da literatura. *Psicologia Argumento*, *34*(85), 156-169. https://doi.org/10.7213/psicol.argum.34.085.AO06

28. Pineda-Espejel, H. A., Alarcón, E., López-Ruiz, Z. & Trejo, M. (2017). Orientaciones de meta como mediadoras en la relación entre perfeccionismo y ansiedad precompetitiva. [Goal orientations as mediators in the relationship between perfectionism and precompetitive anxiety]. RICYDE. *Revista Internacional de Ciencias del Deporte*., *14*(52), 148-162. https://doi.org/10.5232/ricyde

29. Rathwell, S. & Young, B. W. (2016). An examination and validation of an adapted youth experience scale for university sport. *Measurement in Physical Education and Exercise Science*, *20*(4), 208-219. https://doi.org/10.1080/1091367X.2016.1210152

30. Rathwell, S., Gaion, P. A., Santos, F., Caruzzo, A., Lima, R., Gobbi, V. & Nascimento, J. R. A., Jr. (2021). Psychometric properties of the of the University Sport Experiences Scale - Portuguese. *Motricidade*, *17*(3), 242-254. https://doi.org/10.6063/motricidade.23288

31. Rigoni, P. A. G., Belem, I. C. & Vieira, L. F. (2017). Revisão sistemática sobre o impacto do esporte no desenvolvimento positivo de jovens atletas de rendimento. *Journal of Physical Education*, *28*(1), 2854-2854. https://doi.org/10.4025/jphyseduc.v28i1.2854

32. Rocha, V. V. S. & Osório, F. D. L. (2018). Associations between competitive anxiety, athlete characteristics and sport context: evidence from a systematic review and meta-analysis. *Archives of Clinical Psychiatry* (São Paulo), *45*, 67-74. https://doi.org/10.1590/0101-60830000000160

33. Silva, J. V. P. D. (2024). Dual career policy at federal universities in Brazil: analysis of academic and sporting support. *Frontiers in Sports and Active Living*, *6*, 1453749. https://doi.org/10.3389/fspor.2024.1453749

34. Stambulova, N. B. & Wylleman, P. (2019). Psychology of athletes' dual careers: A state-of-the-art critical review of the European discourse. *Psychology of Sport and E*xercise, *42*, 74-88. https://doi.org/10.1016/j.psychsport.2018.11.013

35. Tyebkhan, G. (2003). Declaração de Helsinki: A pedra angular ética da pesquisa clínica em seres humanos. *Indian Journal of Dermatology Venereology and Leprology*, *69*, 245-247.

36. Wang, X., Sun, Z., Yuan, L., Dong, D. & Dong, D. (2024). The association between team behaviors and competitive anxiety among team-handball players: the mediating role of achievement goals. *Frontiers in Psychology, 15*, 1417562.

37. World Medical Association (2013). World Medical Association Declaration of Helsinki: ethical principles for medical research involving human subjects. *JAMA*, *310*(20), 2191–2194. https://doi.org/10.1001/jama.2013.281053