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Multidimensional self-concept in sport science students: a cross-sectional comparison between individual and team sport participants

El autoconcepto multidimensional en los estudiantes de ciencias del deporte: una comparación transversal entre los practicantes de deportes individuales y de equipo

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Abstract: Sports practice plays a significant role in the development of self-concept, a multidimensional construct comprising physical, emotional, family, social, and academic domains. However, evidence remains limited regarding how sport modality is associated with these dimensions in Sport Science students, a population in the process of professional training within physical activity and sport contexts. The aim of this study was to examine the association between sport modality (individual vs. team) and multidimensional self-concept using a cross-sectional comparative design. A sample of 128 undergraduate Sport Science students (44% individual sports; 56% team sports) completed a validated self-concept questionnaire. Exploratory and confirmatory factor analyses provided support for the factorial validity and reliability of the instrument. Group differences were analyzed using independent-sample t-tests. Results showed that students engaged in team sports reported significantly higher levels of family and social self-concept, although effect sizes were small. No statistically significant differences were found in physical, emotional, or academic self-concept, suggesting a relatively homogeneous profile in these dimensions. These findings should be interpreted as associative rather than causal. From an applied perspective, these results may inform the design of educational and training strategies aimed at fostering key interpersonal and intrapersonal competencies in future sport professionals.

Keywords: self-concept; team sports; individual sports; sport science students

Resumen: La práctica deportiva desempeña un papel significativo en el desarrollo del autoconcepto, un constructo multidimensional que abarca los ámbitos físico, emocional, familiar, social y académico. Sin embargo, los datos disponibles siguen siendo limitados en cuanto a cómo la modalidad deportiva se relaciona con estas dimensiones en los estudiantes de Ciencias del Deporte, una población que se encuentra en proceso de formación profesional en los ámbitos de la actividad física y el deporte. El objetivo de este estudio fue examinar la asociación entre la modalidad deportiva (individual frente a colectiva) y el autoconcepto multidimensional mediante un diseño comparativo transversal. Una muestra de 128 estudiantes universitarios de Ciencias del Deporte (44 % deportes individuales; 56 % deportes colectivos) completó un cuestionario validado de autoconcepto. Los análisis factoriales exploratorios y confirmatorios respaldaron la



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validez factorial y la fiabilidad del instrumento. Las diferencias entre grupos se analizaron mediante pruebas t para muestras independientes. Los resultados mostraron que los estudiantes que practicaban deportes de equipo presentaban niveles significativamente más altos de autoconcepto familiar y social, aunque los tamaños del efecto fueron pequeños. No se encontraron diferencias estadísticamente significativas en el autoconcepto físico, emocional o académico, lo que sugiere un perfil relativamente homogéneo en estas dimensiones. Estos hallazgos deben interpretarse como asociativos más que causales. Desde una perspectiva aplicada, estos resultados pueden servir de base para el diseño de estrategias educativas y de entrenamiento destinadas a fomentar competencias interpersonales e intrapersonales clave en futuros profesionales del deporte.

Palabras clave : autoconcepto; deportes de equipo; deportes individuales; estudiantes de ciencias del deporte.

1. Introduction

In recent decades, research trends have increasingly focused on identifying the factors that significantly influence people's lives. Within this context, studies on routines and behavioral patterns have been recognized as major indicators for understanding the direct consequences of human behavior (Agu et al., 2021; Wu et al., 2021). Numerous psychological theories have sought to predict human responses based on prior actions and predispositions (Ajzen, 2020).

Among these, one of the most widely applied is the Theory of Planned Behavior (TPB) (Dotong & Manalang, 2023; Goswami et al., 2024; Ordiñana-Bellver et al., 2022; Srivastava et al., 2023), which explains the key factors influencing attitudinal responses. The theory is built upon three central constructs. First, Perceived Behavioral Control, which reflects the individual's perception of their ability to perform the action or behavior under study. Second, the Subjective Norm, which relates to the perceived social pressure from significant others regarding the adoption or rejection of a particular behavior. Finally, Attitude Toward the Behavior, referring to the individual's personal evaluation of the potential adoption of that behavior (Dotong & Manalang, 2023).

The TPB has been widely applied in educational and sport contexts as a tool to examine the behavioral characteristics of individuals in these domains (Ordiñana-Bellver et al., 2024). Within this framework, factors such as federated sport participation, sport modality, and the specific discipline practiced emerge as differentiating elements when



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analyzing behavioral responses, particularly among those who engage in sport on a regular basis (Barcala-Furelos et al., 2025).

Athletes are frequently described as resilient individuals capable of coping with competitive stress, making decisions, and assuming risks. Within this context, self-concept represents one of the most relevant constructs for understanding the consequences of sport practice (Sánchez-Torres et al., 2021). Self-concept is a multidimensional construction that individuals develop about themselves from both intrapersonal and interpersonal perspectives (Moradi & Soroush, 2023). In sport, this self-perception is shaped over time through experiences of success and failure, which gradually mold one's image of self across different domains. A positive self-concept fosters goal achievement and personal growth, whereas a negative self-concept acts as a barrier, generating insecurity and dissatisfaction about one's abilities (Mossman et al., 2024).

Previous research has examined the influence of practicing individual versus team sports on self-concept in general, and on specific dimensions in particular (Korovljev & Popović Stijačić, 2017). Nevertheless, the literature on this issue remains limited, warranting further exploration of the effects of both modalities. Some studies suggest that individual sports emphasize performance and personal responsibility, requiring athletes to manage competitive situations through the development of proactivity, confidence, and autonomy (Backman & Svensson, 2022; Feraco & Meneghetti, 2022; Sánchez-Torres et al., 2021). However, because success depends exclusively on the individual, such contexts can also generate considerable psychological and physical pressure (Sánchez-Torres et al., 2021). As individual sports are grounded in self-control, discipline, and self-efficacy, they are likely to strongly influence physical, emotional (intrapersonal), and academic dimensions of self-concept (Korovljev & Popović Stijačić, 2017).

Conversely, team sports are associated with goal attainment, achievement, and performance through cooperation, coordination, and teamwork. In this modality, self-concept is shaped by interpersonal interactions and collective experiences (Šagát et al., 2021). Team settings foster a sense of belonging and group identity, as positive experiences are shared and reinforce social bonds (Moradi & Soroush, 2023). Negative outcomes are also collectively experienced, with responsibility often distributed across



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the group, allowing athletes to learn from shared mistakes and develop skills such as assertiveness and empathy (Borges-Silva et al., 2024; Cámara-Martínez et al., 2023; Yi et al., 2024). Consequently, team sports are more directly associated with social, emotional (interpersonal), and family dimensions of self-concept (Casino-García et al., 2021; Murray et al., 2021). However, when group identity is disrupted by poor results, adverse effects may arise, potentially undermining self-image and social self-concept (Zuckerman et al., 2021).

For decades, sport practice has been associated with numerous physical and psychological benefits (Feraco & Meneghetti, 2022). Among Sport Science students, these effects are particularly relevant given the profile of individuals who choose this field with the expectation of pursuing a professional career in sport-related sectors (Matic et al., 2022). Indeed, Sport Science graduates are expected to possess a set of interpersonal and intrapersonal skills that enable them to adapt to diverse professional contexts. Sport Science students must be proactive and creative, while feeling prepared to meet the challenges of the sport industry (Lohmann et al., 2024). These personal attributes are not coincidental but are largely shaped by sport practice and accumulated experience (Vandoni et al., 2021). Sport participation has a direct impact on personality and self-concept, which varies depending on the type of sport practiced and the dimensions it influences (Moradi & Soroush, 2023).

Understanding how sport modality is associated with different self-concept profiles may have important implications for the training of future professionals in Physical Activity and Sport Sciences. These students will later assume roles as educators, coaches, and trainers, where interpersonal and intrapersonal competencies are essential (Sánchez-Torres et al., 2021). Identifying whether participation in team or individual sports is linked to specific psychosocial profiles may help inform curriculum design, pedagogical strategies, and practical training experiences aimed at fostering both social and personal development (Feraco & Meneghetti, 2022).

The present study aims to examine the effects of individual versus team sports on self-concept in Sport Science students. Moreover, these findings may contribute to identifying which aspects of sport, both at grassroots and competitive levels, should be preserved or adapted to positively influence self-concept, particularly in younger



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populations, in order to prevent negative repercussions later in life (Mindrescu et al., 2022).

2. Materials and Methods

Participants

The study involved 128 undergraduate students enrolled in Sport Sciences of University of Valencia from first to last course. Of these, 23.3% were female and 76.7% male, with a mean age of 20.58 years ($SD = 3.64$). Among the participants, 44% reported practicing individual sports, whereas 56% engaged in team sports.

Procedure

The study was approved by the Catholic University of Valencia (Reference: UCV/2020-2021/071). A non-probabilistic convenience sampling method was employed. Participants were selected based on their accessibility and willingness to collaborate, as they belonged to groups available during the data collection period. This approach enabled the collection of relevant information from a specific educational context.

A priori statistical power analysis was conducted using G*Power 3.1 (Faul et al., 2009) to determine the minimum required sample size. Assuming a two-tailed independent-samples t-test, an alpha level of .05, statistical power of 0.80, and an expected effect size of $d = 0.5$, the required sample was estimated at $N = 128$ participants. The final sample ensuring adequate power to detect effects of interest.

Similarly, for the confirmatory factor analysis (CFA), the commonly recommended ratio of at least 5–10 participants per estimated parameter (Kline, 2016) was applied. With 20 items and five parameters estimated, the sample size met the minimum requirement, supporting the robustness of the factorial analyses conducted.

The study complied with the ethical principles of the Declaration of Helsinki for research involving human participants. Prior to participation, informed consent was obtained, ensuring that students understood the purpose of the study, the voluntary nature of their participation, and the confidentiality of their responses. Anonymity was guaranteed at all stages, and the data were used exclusively for scientific purposes.



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Additionally, the research protocol received approval from the institutional ethics committee, confirming compliance with international ethical standards.

Instrument

Data were collected using an adapted questionnaire from previous studies (García et al., 2013; García et al., 2014), designed to assess five dimensions of self-concept: physical, emotional, family, social, and academic. The questionnaire was administered in person, with confidentiality of responses guaranteed and a comfortable environment provided. Participants were informed about the study's purpose beforehand, and all ethical requirements related to privacy and data use were strictly followed.

Data Analysis

Both exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were performed to evaluate the factorial structure of the instrument. The EFA was conducted to identify item groupings within the expected dimensions, using the Maximum Likelihood method with direct Oblimin rotation, recommended when factors are assumed to be correlated (Costello & Osborne, 2005). The number of factors was determined through parallel analysis, a more robust criterion than Kaiser's rule or scree plot inspection (Horn, 1965; Lloret-Segura et al., 2014).

Subsequently, a CFA was conducted to confirm the validity of the factorial structure identified in the EFA. Model fit indices were evaluated, including χ^2/df (≤ 3 indicating good fit; (Bollen, 1989; Kline, 2016), RMSEA (≤ 0.08 acceptable, ≤ 0.06 optimal; (Browne & Cudeck, 1992; Hu & Bentler, 1999), Comparative Fit Index (CFI ≥ 0.90 ; (Hu & Bentler, 1999)), and Tucker–Lewis Index (TLI ≥ 0.90 ; (Bentler & Bonett, 1980)). Analyses were conducted using the latest version of JASP (v0.17.3; (JASP Team, 2025), which provides advanced tools for structural modeling studies.

Independent-sample t-tests were carried out to examine significant differences between individual and team sport athletes in each self-concept dimension. This test allows for comparing mean scores between two independent groups, under the assumptions of normality and homogeneity of variance (Field, 2018; Pallant, 2020).



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Effect sizes were calculated using Cohen's *d*, with thresholds of 0.2 (small), 0.5 (medium), and 0.8 (large) (Cohen, 2013).

Given that sport modality was the only grouping variable included, no covariates were controlled for. Therefore, the analyses allow for the identification of group differences, but do not permit attribution of these differences exclusively to sport modality.

3. Results

Exploratory Factor Analysis

After analyzing item properties and the reliability of the self-concept scale, internal validity was examined through exploratory and confirmatory factor analyses. An exploratory factor analysis (EFA) was conducted following the procedure recommended by (Lloret-Segura et al., 2014), using the Maximum Likelihood (ML) method. This approach is appropriate when item distributions are approximately normal, with skewness and kurtosis values between -2 and 2 (Lloret-Segura et al., 2014). The number of factors was determined through parallel analysis, complemented by a normalized direct Oblimin rotation to optimize factor extraction. Table 1 presents the indicators of each dimension identified by the EFA, along with their reliability statistics.

During scale validation, two items (aFAM4, aFIS4) were removed for not meeting uniqueness criteria. Both showed factor loadings below the recommended threshold (≥ 0.40) and high correlations with other items, suggesting redundancy and limited specificity for their dimensions. Their removal was necessary to ensure convergent and discriminant validity, thereby optimizing the factorial structure and improving measurement precision.

The solution showed satisfactory fit indices: SRMR = .03 ($< .05$; (Hu & Bentler, 1999)), CFI = .95 ($> .95$; (Hu & Bentler, 1999)), KMO = .77, and a significant Bartlett's test of sphericity ($\chi^2 = 3198.54$; $df = 190$; $p \leq .001$). The five identified factors explained 49% of the total variance.

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Table 1

Factor Structure, Uniqueness, and Reliability Statistics of the Self-Concept Dimensions

	F1	F2	F3	F4	F5	Unicity
scACAD1	0.88					0.21
scACAD2	0.74					0.42
scACAD3	0.72					0.44
scACAD4	0.71					0.47
scFAM1		0.84				0.24
scFAM2		0.82				0.32
scFAM3		0.57				0.60
scEM1			0.72			0.47
scEM2			0.68			0.49
scEM3			0.65			0.55
scEM4			0.56			0.67
scSOC1				0.77		0.38
scSOC2				0.68		0.51
scSOC3				0.63		0.50
scSOC4				0.49		0.69
scPHY1					0.86	0.15
scPHY2					0.64	0.52
scPHY3					0.43	0.77
scFAM4						0.87
scPHY4						0.88
Cronbach's Alfa	0.86	0.79	0.75	0.75	0.72	
McDonald's ω	0.86	0.82	0.76	0.76	0.75	
Eigenvalue	4.14	2.93	1.88	1.74	1.44	
Variance Explained (%)	12	10	10	9	8	
Items	4	3	4	4	3	

Confirmatory Factor Analysis

A confirmatory factor analysis (CFA) was conducted to test the factorial structure extracted from the EFA (15 items grouped into five dimensions). The model yielded a significant chi-square ($\chi^2 = 348.86$; $df = 125$; $p < .001$), with a normalized chi-square ($\chi^2/df = 2.79$) within the acceptable range (< 3.00 ; (Bollen, 1989; Kline, 2016)). The RMSEA value was .06 ($CI = .05-.07$), meeting minimum criteria for acceptable fit ($\leq .08$; (Browne & Cudeck, 1992; Hu & Bentler, 1999)). Additional indices confirmed good model fit: CFI = .92 and TLI = .91, both above the recommended cutoff ($\geq .90$).

Factor loadings for the final 15 items ranged from 0.43 to 0.88, with most items exceeding the recommended loading of 0.50. These results support both the reliability and convergent validity of the scale, providing robust evidence of its suitability for assessing multidimensional self-concept in Sport Science students.

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To further examine convergent validity, the Average Variance Extracted (AVE) and Composite Reliability (CR) were calculated for each dimension of the self-concept scale. AVE values ranged from 0.42 to 0.59, exceeding the recommended minimum threshold of 0.50 for most dimensions (Fornell & Larcker, 1981). Although some factors presented AVE values slightly below 0.50, previous literature indicates that values above 0.40 can still be acceptable when Composite Reliability is adequate (Hair et al., 2019). CR values ranged between 0.70 and 0.85, all of them surpassing the recommended cutoff of 0.70 [Hair et al., 2019], thus confirming the internal consistency of the factors.

Furthermore, the scale demonstrated excellent reliability. The internal consistency was confirmed not only by the CR values but also by Cronbach's alpha ($\alpha = .72$ to $.86$) and McDonald's omega ($\omega = .75$ to $.86$) coefficients, all of which were satisfactory across the five dimensions.

Table 2

Fit Indices for the Self-Concept Scale

	χ^2 (gl)	χ^2 /gl	RMSEA (IC)	CFI	TLI
Self-concept scale	348.86 (125)	2.79	0.06 (0.05-0.07)	0.92	0.91

Discriminant Validity

To establish discriminant validity, three established criteria were examined. The initial analysis confirmed that all inter-factor correlations were below $.85$ (Kline, 2016). Subsequently, the more rigorous Fornell-Larcker criterion was applied, whereby the square root of the Average Variance Extracted ($\sqrt{\text{AVE}}$) for each factor surpassed its correlations with all other factors (see Table 3). This evidence was further strengthened by calculating the Heterotrait-Monotrait (HTMT) ratio, with all values falling below the recommended $.90$ threshold (Fornell & Larcker, 1981; Hair et al., 2019). The consistent results across these multiple methods provide comprehensive support for the discriminant validity of the five-factor model, indicating that each dimension measures a distinct aspect of self-concept.

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Table 3

Discriminant Validity of the Self-Concept Scale

SC	Acad	Fam	Emo	Soc	Phy
Acad	0,78	0.22	0.09	0.15	0.33
Fam	0.16	0.76	0.12	0.31	0.40
Emo	-0.10	0.08	0.66	0.26	0.25
Soc	0.13	0.20	0.21	0.66	0.32
Phy	0.23	0.22	0.12	0.23	0.74

*The correlation is significant at the 0.01 level (two-tailed). The diagonal shows the values of the $\sqrt{AVE}$.

Group Comparisons

Independent-sample t-tests were performed to compare self-concept dimensions between individual and team sport participants (Table 4). Results indicated that participants engaged in team sports reported higher scores on all self-concept dimensions except for the academic dimension. Statistically significant differences were observed in family self-concept ($M = 4.59$, $SD = .86$ vs. $M = 4.39$, $SD = .78$; $t = -2.61$, $p = .009$, $d = -.25$) and social self-concept ($M = 4.08$, $SD = .74$ vs. $M = 3.92$, $SD = .71$; $t = -2.39$, $p = .017$, $d = -.23$). Physical, emotional, and academic self-concept dimensions showed no significant differences between groups.

Table 4

Student's t-Test Results for Self-Concept Dimensions

Self-Concept	Modalidad	Media	sd	T-Student Test		D Cohen
				t	p	
Phy	Individual	3.91	.76	-1.252	.211	-.12
	Collective	4.02	1.11			
	Total	3.93	.97			
Fam	Individual	4.39	.78	-2.613	.009*	-.25
	Collective*	4.59	.86			
	Total	4.50	.82			
Emo	Individual	3.46	.87	-.608	.543	-.06
	Collective	3.51	.89			
	Total	3.46	.89			
Soc	Individual	3.92	.71	-2.392	.017*	-.23
	Collective*	4.08	.74			
	Total	3.98	.76			
Acad	Individual	3.58	.77	1.229	.220	.12
	Collective	3.50	.73			
	Total	3.53	.76			

Note. sd= standard deviation



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Although statistically significant differences were found in family and social self-concept, the associated effect sizes were small (Cohen's d ranging from $-.23$ to $-.25$), indicating that sport modality explains only a limited proportion of variance in these dimensions. Therefore, these results should be interpreted as differences between groups rather than as effects attributable to sport modality. No significant differences were observed in the remaining dimensions, suggesting a relatively homogeneous self-concept profile across groups in these domains.

4. Discussion

This study analyzed the relationship between sport modality—individual or team—and the overall levels and specific dimensions of self-concept among Sport Science students. As shown, results differed depending on the dimension assessed, highlighting the distinct nature of each sport modality, which presents athletes with different contexts, challenges, and relational dynamics (Korovljev & Popović Stijačić, 2017; Zuckerman et al., 2021). Previous studies have emphasized the importance of teammates in sharing negative experiences and fostering strong interpersonal bonds when experiences are positive (Šagát et al., 2021). Conversely, individual athletes must directly assume both the successes and failures of their performance (Murgui & García, 2016).

However, the observed differences cannot be exclusively attributed to sport modality. Given the cross-sectional and observational design of the study, as well as the absence of additional covariates in the analyses, other individual and contextual factors—such as sex, previous sport experience, personality traits, or characteristics of the training environment—may have influenced the results (Backman & Svensson, 2022; Feraco & Meneghetti, 2022; Sánchez-Torres et al., 2021). Therefore, the findings should be interpreted as associative patterns rather than causal relationships.

Although the findings provide valuable insights into the relationship between sport modality and self-concept among Sport Science students, their generalizability is limited by the characteristics of the sample. Participants were drawn from a single academic program, which may represent a specific cultural and institutional context. Consequently, results should be interpreted with caution when applied to other populations, such as students from different universities, cultural backgrounds, or



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professional training environments. Future research should replicate this study in more diverse contexts to strengthen external validity and confirm whether the observed patterns hold across different educational and cultural settings.

The results align with international evidence suggesting that team sports are associated with higher levels of social and family self-concept, likely due to the emphasis on cooperation, group identity, and shared experiences. However, the absence of differences in emotional and academic self-concept highlights potential cultural or institutional influences. For example, studies conducted in Eastern European and Asian contexts have shown stronger associations between individual sports and intrapersonal dimensions, such as resilience and academic discipline (Honório et al., 2024; Moradi & Soroush, 2023). These discrepancies underscore the importance of considering cultural norms, educational systems, and sport structures when interpreting the relationship between sport modality and self-concept. Incorporating cross-cultural comparisons may help identify whether the mechanisms observed in this study—such as group belonging or feedback reception—are universal or context-specific (García et al., 2014).

Regarding physical self-concept, both individual and team sport athletes reported similarly high scores. Rather than reflecting differences between groups, these results suggest that Sport Science students, in general, demonstrate a strong commitment to physical well-being (Kelly, 2022). Sport is central to their academic, personal, and social lives, serving as a protective factor against unhealthy behaviors and reinforcing the importance of maintaining a positive physical self-concept (Honório et al., 2024).

Significant differences emerged in family self-concept, with team sport athletes scoring higher than those in individual modalities. This may reflect the inherently social nature of team sports, where collective identity, support, empathy, and cooperation are central to achieving shared goals. These group dynamics may extend to family-like support structures that enhance feelings of security and belonging (Molina-García et al., 2024). By contrast, individual sport athletes appear less dependent on such structures, as autonomy and self-efficacy are reinforced in contexts where personal responsibility is paramount (Sánchez-Torres et al., 2021).

These differences may be explained by the greater frequency and intensity of interpersonal interactions inherent to team sports, where cooperation, shared goals, and



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group identity are central elements. Such environments may facilitate the development of social bonds and perceived support, which could extend beyond the sport context and be reflected in higher levels of social and family self-concept.

The findings for social self-concept support earlier research (Moradi & Soroush, 2023; Šagát et al., 2021), confirming that team sport participants reported higher scores than their individual sport counterparts. The constant interaction with teammates, opponents, and coaches fosters interpersonal skills frequently associated with soft skills (Chafaa, 2024). Team settings cultivate interdependence and cohesion, with experiences both within and beyond the sporting context reinforcing social integration (Korovljev & Popović Stijačić, 2017; Moradi & Soroush, 2023). These results support the view that participation in team sports may be linked to higher levels of social self-concept (Bellver et al., 2020).

In terms of academic self-concept, scores were very similar across both groups, with no significant differences. However, a closer analysis of individual items revealed that those related to external evaluations by teachers (“My teachers think I am a good student” and “My teachers think I am intelligent and work hard”) showed slightly higher scores among individual sport athletes. This aligns with the subjective norm component of the Theory of Planned Behavior (Hidayana, 2021). The constant feedback loop experienced by individual athletes—where responsibility for performance outcomes falls directly on them—may foster a greater ability to interpret external evaluations constructively, applying them not only in sport but also in academic contexts (Honório et al., 2024).

No significant differences were found in emotional self-concept, with both groups reporting the lowest scores among all dimensions. This result is noteworthy, as the literature often portrays sport as an enhancer of resilience and emotional stability. In this case, extrinsic factors such as personality traits and daily routines may exert a greater influence than sport modality itself (Yi et al., 2024).

Overall, these findings underscore the importance of group experiences and their relationship with social and family self-concept in Sport Science students. The more athletes are exposed to contexts requiring collaboration, the stronger the influence on their interpersonal self-perceptions. Given that sport plays such a central role in the lives of



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these students, it may shape how they perceive social relationships and family ties. This highlights the sensitivity of future Sport Science graduates to the psychosocial processes related to sport practice. It is therefore essential that these experiences are carefully guided toward positive developmental outcomes, ensuring that sport serves as a driver of integral human growth.

From an applied perspective, these findings may have implications for the training of future professionals in Physical Activity and Sport Sciences. Understanding how different sport modalities are associated with specific self-concept dimensions may help educators and trainers design learning environments that promote both interpersonal and intrapersonal competencies (Honório et al., 2024). For instance, team sports contexts may contribute to the development of communication, cooperation, and social skills (Šagát et al., 2021), whereas individual sports may foster autonomy, self-regulation, and personal responsibility (Murgui & García, 2016). Integrating both types of experiences within academic and practical training programs could support a more comprehensive development of future professionals.

Limitations and Future Directions

Despite its contributions, this study presents several limitations. First, the cross-sectional design prevents causal inferences about the relationship between sport modality and self-concept. Second, the use of convenience sampling and the underrepresentation of female students limit the generalizability of the findings. Third, self-reported data may be subject to social desirability bias, particularly in a population highly engaged in sport practice. Future studies should address these limitations by employing longitudinal designs, more diverse and representative samples, and mixed-method approaches to capture both quantitative and qualitative aspects of self-concept development. Additionally, it would be valuable to extend this line of research to other populations, such as athletes from different cultural contexts, grassroots sport participants, or professional athletes, to examine how sport modality influences self-concept across different stages of the sporting career.

5. Conclusions



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This study provides evidence that sport modality is associated with specific dimensions of self-concept in Sport Science students. While no differences were observed in physical, emotional, or academic self-concept, participation in team sports may be related to higher levels of family and social self-concept. These findings highlight the unique contribution of collective experiences, cooperation, and group identity in shaping interpersonal dimensions of self-concept.

From an applied perspective, educators and coaches should recognize the potential of team sports to strengthen social and family-related self-perceptions, while also considering strategies to foster intrapersonal dimensions such as emotional and academic self-concept across all modalities. Promoting a balanced development of self-concept is essential for Sport Science students, who will later act as professionals shaping future generations of athletes.

The results of this study emphasize the importance of considering sport modality when designing educational and training programs. Team sports appear to be particularly effective for strengthening family and social self-concept, which are key for developing interpersonal skills such as cooperation, empathy, and group cohesion. Educators and coaches may therefore prioritize team-based activities when aiming to enhance students' social and relational development. At the same time, the findings suggest the need to implement strategies that foster emotional and academic self-concept, especially in contexts where individual sports predominate. Providing structured feedback, promoting resilience, and integrating reflective practices could help individual athletes strengthen intrapersonal dimensions of self-concept. Overall, incorporating both individual and collective experiences within academic and extracurricular sport programs may contribute to a more holistic development of self-concept, preparing Sport Science students not only for their professional careers but also for their role as agents of social and educational transformation.



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