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Exploración de las variaciones en el agotamiento entre deportes de equipo e individuales: las estrategias de afrontamiento como mediadoras entre el capital psicológico y el agotamiento en deportistas de nivel 3

Exploring Variations in Burnout Across Team versus Individual Sports: Coping Strategies as a Mediator Between Psychological Capital and Burnout in Tier 3 Athletes

Explorando as Variações do Burnout em Esportes Coletivos versus Individuais: Estratégias de Enfrentamento como Mediadoras entre o Capital Psicológico e o Burnout em Atletas de Nível 3

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RESUMEN

El agotamiento deportivo sigue siendo un problema crítico en el ámbito del deporte de élite, especialmente entre aquellos que participan en disciplinas individuales, quienes podrían ser más susceptibles en comparación con sus homólogos en deportes de equipo. Esta investigación transversal, basada en encuestas, tuvo como objetivo explorar la disparidad en los niveles de agotamiento entre atletas de deportes individuales y de equipo, examinar cómo se relaciona el capital psicológico (PsyCap) con el agotamiento deportivo y determinar si las estrategias de afrontamiento actúan como un factor mediador en esta relación. En el estudio participaron un total de 119 atletas de nivel 3, quienes completaron medidas estandarizadas sobre PsyCap, mecanismos de afrontamiento y síntomas de agotamiento. Los hallazgos indicaron que los atletas que practican deportes individuales experimentaron niveles de agotamiento notablemente superiores a los de sus homólogos en deportes de equipo ($p < 0,001$). Los atletas de deportes individuales experimentaron niveles más elevados de agotamiento ($*d* = 2,37$; un tamaño del efecto grande). Además, hallamos que el PsyCap se asociaba negativamente con el agotamiento ($p < 0,01$), lo que indica que los atletas con mayores niveles de recursos psicológicos experimentaban menos síntomas de agotamiento. Un análisis más profundo reveló que las estrategias de afrontamiento actuaron como un mediador total en esta relación; los atletas con un PsyCap elevado mostraron una mayor propensión a utilizar métodos de afrontamiento eficaces, lo cual, a su vez, contribuyó a mitigar el agotamiento. En conjunto, el modelo explicó una proporción sustancial de la varianza en los niveles de agotamiento entre los atletas. Estos resultados subrayan el papel fundamental tanto del PsyCap como de las técnicas de afrontamiento eficaces para mitigar los riesgos de agotamiento entre los atletas de élite. Las intervenciones orientadas a potenciar estos factores protectores podrían contribuir a prevenir o mitigar el agotamiento entre los atletas de élite, especialmente en el caso de aquellos que practican deportes individuales.

Palabras clave: Agotamiento del deportista, rendimiento atlético, salud mental, psicología del deporte.

ABSTRACT

Athlete burnout remains a critical issue within the realm of elite sports, particularly among those participating in individual disciplines, who may be more susceptible compared to their counterparts in team sports. This cross-sectional survey research aimed to explore the disparity in burnout levels between individual and team sport athletes, examine how psychological capital (PsyCap) relates to athlete burnout, and determine whether coping strategies serve as a mediating factor in this relationship. A total of 119 tier 3 athletes participated in the study, completing standardized measures of PsyCap, coping mechanisms, and burnout symptoms. The findings indicated that athletes engaged in individual sports experienced notably higher levels of burnout than their counterparts in team sports ($p < 0.001$). Athletes in individual sports experienced higher levels of exhaustion ($d^* = 2.37$, a large effect size). Moreover, we found that PsyCap was negatively associated with burnout ($p < 0.01$), indicating that athletes with higher levels of psychological resources experienced fewer symptoms of burnout. Further examination revealed that coping strategies served as a full mediator in this relationship; athletes with elevated PsyCap were more likely to utilize effective coping methods, which in turn helped mitigate burnout. Overall, the model explained a substantial amount of the variance in burnout levels among the athletes. These results highlight the vital role of both PsyCap and effective coping techniques in mitigating burnout risks among elite athletes. Interventions aimed at enhancing these protective factors may help prevent or mitigate burnout among elite athletes, particularly those in individual sports.

Keywords: Athlete burnout, athletic performance, mental health, sports psychology.

RESUMO

O esgotamento profissional em atletas continua sendo um problema crítico no âmbito dos esportes de elite, particularmente entre aqueles que praticam modalidades individuais, que podem ser mais suscetíveis em comparação com seus pares em esportes coletivos. Esta pesquisa transversal teve como objetivo explorar a disparidade nos níveis de esgotamento profissional entre atletas de modalidades individuais e coletivas, examinar como o capital psicológico (PsyCap) se relaciona com o esgotamento profissional e determinar se as estratégias de enfrentamento atuam como um fator mediador nessa relação. Um total de 119 atletas de nível 3 participaram do estudo, respondendo a questionários padronizados de PsyCap, mecanismos de enfrentamento e sintomas de esgotamento profissional. Os resultados indicaram que os atletas de modalidades individuais apresentaram níveis de esgotamento profissional significativamente maiores do que seus pares em esportes coletivos ($p < 0,001$). Os atletas de modalidades individuais também apresentaram níveis mais elevados de exaustão ($d = 2,37$, um tamanho de efeito grande). Além disso, constatamos que o PsyCap apresentou uma associação negativa com o esgotamento profissional ($p < 0,01$), indicando que atletas com níveis mais elevados de recursos psicológicos apresentaram menos sintomas de esgotamento profissional. Uma análise mais aprofundada revelou que as estratégias de enfrentamento atuaram como mediadoras completas nessa relação; atletas com alto Capital Psicológico (PsyCap) apresentaram maior probabilidade de utilizar métodos eficazes de enfrentamento, o que, por sua vez, ajudou a mitigar o burnout. De modo geral, o modelo explicou uma parcela substancial da variância nos níveis de burnout entre os atletas. Esses resultados destacam o papel vital tanto do PsyCap quanto das técnicas eficazes de enfrentamento na mitigação dos riscos de burnout entre atletas de elite. Intervenções voltadas para o aprimoramento desses fatores de proteção podem ajudar a prevenir ou mitigar o burnout entre atletas de elite, particularmente aqueles que praticam esportes individuais.

Palavras chave: Esgotamento do atleta, desempenho atlético, saúde mental, psicologia esportiva.

INTRODUCCIÓN

Elite athletes, who stand apart from recreational or non-professional athletes due to their pursuit and attainment of excellence in high-level sport, represent a key group for research into performance-related stress and psychological

Team vs Individual Sports Burnout: Influence of Coping and PsyCap

well-being (Kremžar Jovanović et al., 2022; Rice et al., 2016). These athletes are subjected to rigorous training regimens and intense competitive environments, which often expose them to elevated risks of burnout (Dišlere et al., 2025; X. Li et al., 2020). Evidence from handball has likewise shown that disruptions to training and lifestyle can negatively affect psychological well-being in elite female players (Suárez Iglesias et al., 2023). Therefore, exploring the role of psychological capital (PsyCap) and effective coping strategies in helping elite athletes handle competitive pressures is an essential focus of research (Daumiller et al., 2021). Recent work in Psych likewise emphasizes the importance of developing psycho-behavioural skills to support athlete's psychological development and adaptation in demanding performance environments (Moodie et al., 2023). Gaining insight into the individual factors that lead to burnout is crucial for creating effective strategies for its prevention and management, especially since not all athlete's experience burnout equally; some manage to avoid it altogether (S. L. Cresswell & Eklund, 2007; Feigley, 1984). Burnout in athletes is conceptualized as a maladaptive psychological outcome linked to sport involvement (Smith, 1986a). Contrasts with the often enriching and rewarding nature of athletic participation. Nonetheless, the sports environment can also foster various negative experiences (Kerr & Stirling, 2012). Among these, athlete burnout has garnered increasing scholarly attention in recent years (Gustafsson, Kenttä, et al., 2011). Given the constant demands and prolonged stress characteristic of elite-level competition, these athletes may be particularly vulnerable to burnout (Kolbinger & Lames, 2017). Factors associated with burnout are essential for deepening our understanding of how and why it occurs. Preliminary research indicates that fostering psychological resources such as hope may serve as a protective factor, potentially reducing burnout while enhancing athlete's well-being, health, and performance outcomes (Snyder, 2002).

Although estimates vary, research suggests that between 1% and 9% of athletes may experience burnout (Gustafsson et al., 2007). The widely accepted definition proposed by Raedeke (1997) and supported by various scholars, conceptualises athlete burnout as a syndrome composed of three core components: (i) emotional and physical exhaustion, (ii) a reduced sense of accomplishment, and (iii) sport devaluation (S. L. Cresswell & Eklund, 2006a; Raedeke, 1997). This symptom-based framework enables the investigation of the potential antecedents and consequences of burnout, such as injury, illness, or withdrawal from sport (S. Cresswell & Eklund, 2004). Among these symptoms, emotional and physical exhaustion, often stemming from stress, is regarded as the central feature of athlete burnout (Gustafsson, Kenttä, et al., 2011). A reduced sense of accomplishment refers to athletes feeling less competent in their skills and performance, while sport devaluation reflects a growing indifference or negative attitude toward a sport, they once enjoyed (Raedeke & Smith, 2001). It is critical to note that an athlete must exhibit all three symptoms over a significant period for a formal identification of burnout (Schaufeli, 2003). Burnout is linked to adverse outcomes such as diminished motivation, lower athletic performance, and increased likelihood of quitting the sport altogether (Gustafsson et al., 2014). Recent evidence has also shown that athlete profiles characterized by entrapment and maladaptive forms of sport commitment are especially relevant for understanding the aetiology of burnout and dropout risk (De Francisco et al., 2022). Consequently, understanding athlete burnout is highly relevant for coaches, sport administrators, and athletic organizations. It is often considered a possible outcome when an athlete is unable to manage the prolonged psychological and social stressors associated with intense training and competition (Smith, 1986a).

The degree to which an athlete identifies with their role, referred to as athletic identity, significantly influences their experiences and may greatly affect their susceptibility to burnout. Notably, the type of sport, whether individual or team-based, can moderate the relationship between athletic identity and burnout outcomes (Lemyre P. N. et al., 2008). Research suggests that athletes in individual sports, such as swimming, gymnastics, or tennis, often experience higher levels of pressure and personal responsibility for outcomes, which may elevate the effect of burnout (Cai et al., 2025; Gustafsson, Hassmén, et al., 2011). These athletes are frequently more isolated in their training and competition settings, which can reduce opportunities for shared emotional coping and support, factors shown to buffer against stress-related exhaustion (Goodger et al., 2007).

Athletes in team sports often benefit from stronger social identities and collective resilience, which can buffer against burnout symptoms like emotional exhaustion and reduced accomplishment (DeFreese & Smith, 2014). However, poor team dynamics or role conflict may increase stress (S. L. Cresswell & Eklund, 2006b). Thus, while team environments offer social support, they are not immune to burnout risks, especially when cohesion is lacking.

Sport type also shapes how athletic identity relates to burnout: individual sport athletes may face greater emotional exhaustion and depersonalization due to higher personal accountability and limited social support, whereas team athlete's experiences vary with team quality. Positive psychology research shows that PsyCap a combination of hope, self-efficacy, resilience, and optimism, plays a protective role in mental health (Avey et al., 2011; Huang et al., 2025; F. Luthans et al., 2006). In handball players, related psychological skills linked to mental toughness have also been identified as relevant resources for performance and psychological functioning (Lacárcel García et al., 2022). Individuals high in PsyCap adopt adaptive coping strategies and perceive challenges more positively (Rabenu et al., 2017). Likewise, recent sport-specific evidence suggests that higher resilience is associated with lower competitive anxiety in high-performance athletes, reinforcing the protective role of positive psychological resources in demanding sport settings (Córdova-Castillo et al., 2024). Studies link higher PsyCap with reduced emotional exhaustion and cynicism (Abbas & Raja, 2015; Avey et al., 2010; Lupşa & Virgă, 2020). In elite sport settings, PsyCap mitigates prolonged stress and lowers burnout risk (Lonsdale et al., 2009; Yang et al., 2023). Importantly, PsyCap is trainable, offering a pathway to strengthen athlete's mental resilience and reduce burnout (Lee et al., 2022). Consequently, Athletes with higher levels of PsyCap are more inclined to develop and sustain other key psychological strengths, initiating a positive cycle that helps lower their (Bolelli & Ekizler, 2022).out (Bolelli & Ekizler, 2022).

The connection between PsyCap and athlete burnout is multifaceted and does not follow a strictly linear pattern; it is an intricate interplay influenced by several psychological mechanisms. One of these mechanisms is coping strategies, which play a vital role in linking athlete's psychological assets to their feelings of burnout symptoms (Avey, Luthans, Smith, et al., 2010). Coping refers to the mental and behavioural strategies individuals use to handle psychological stress arising from both internal and external sources (Folkman, 2013). Various frameworks exist to evaluate how athletes manage stress, with one common classification distinguishing between problem-focused and avoidant coping styles (Endler & Parker, 1994). According to the cognitive-affective model of burnout (Smith, 1986) problem-focused coping is believed to alleviate burnout by lessening the severity and persistence of stress (Dunkley & Blankstein, 2000). Recent evidence also shows that task-oriented coping is inversely associated with reduced accomplishment and sport devaluation, whereas emotion and distraction-oriented coping are positively associated with burnout symptoms, particularly in individual sports (Rodríguez-Chaparro & Florez-Villamizar, 2025). On the other hand, avoidant coping is often ineffective in reducing stress and may contribute to heightened burnout symptoms. This is evidenced by research showing that junior tennis players suffering from burnout were less inclined to utilize problem-focused coping strategies than their more actively involved counterparts (Gould et al., 1996). Additionally, studies have shown that problem-focused strategies are linked to more positive emotional outcomes, whereas avoidant strategies are associated with negative emotional responses in athletes (Nicholls & Polman, 2007). Notably, these negative emotional responses, particularly elevated anxiety, are believed to play a role in the onset of burnout (Gaudreau & Blondin, 2002).

Despite the growing body of research on athlete burnout, several important gaps remain. First, there is an empirical gap, as limited studies have directly compared burnout levels between individual and team sport athletes. Second, a conceptual gap exists in understanding the combined role of PsyCap and coping strategies in explaining burnout. While these variables have been studied independently, their integrated relationship remains underexplored in elite sport contexts. Third, there is a mechanism (mediational) gap, as few studies have examined whether coping strategies serve as a mediating pathway linking PsyCap to athlete burnout. Addressing these gaps, the present study aims to (1) compare burnout levels across sport types, (2) examine the relationship between PsyCap and burnout, and (3) test the mediating role of coping strategies.

MATERIAL Y MÉTODOS

Research Design

We employed a non-experimental, cross-sectional associative research design. In this approach, variables are measured in their natural setting without manipulation, and relationships among variables are

Team vs Individual Sports Burnout: Influence of Coping and PsyCap

examined at a single point in time (Ato et al., 2013). The studies that analyse associations and predictive relationships between variables can be classified as associative (correlational–explanatory) designs. Since the present study examined the relationships between PsyCap, coping strategies, and athlete burnout, and tested a mediation model using survey data collected at one time point, it is consistent with this cross-sectional associative design.

Participantes

An a priori power analysis was performed utilising G*Power software, version 3.1.9.7, developed by Franz Faul, Edgar Erdfelder, Albert-Georg Lang, and Axel Buchner, primarily associated with the Heinrich Heine University Düsseldorf in Germany (Kang, 2021) to calculate the minimum sample size needed for the study. The analysis indicated that at least 119 participants were necessary to detect a medium effect size when testing the hypotheses. We recruited participants using a non-probability convenience sampling method, in which athletes who were readily accessible and willing to participate were invited through sports academies, training centres, and institutional contacts. The sample consists of 119 Tier 3 athletes (national level players in India) from different regions, comprising 62 (52.3%) males and 57 (47.7%) females (McKay et al., 2022) consists of sports like cricket, football, hockey, athletics and boxing. Individual sports athletes accounted for the largest proportion of participants with 68 (57.1%), and team sport athletes with 51 (42.9%). Inclusion criteria required participants to be Tier 3 athletes aged 18 years or above and actively engaged in competitive sport. Athletes who were not actively competing or who provided incomplete responses were excluded from the study.

Instruments

Psychological Capital Questionnaire (PCQ): PCQ-24 was used for measuring the PsyCap (F. L. Luthans et al., 2012). This tool includes 24 items divided equally across four key components: hope, self-efficacy, resilience, and optimism, with each dimension represented by six statements. The responses were collected using a 6-point Likert scale, with options ranging from 1 (strongly disagree) to 6 (strongly agree). For this study, the questionnaire was adapted following appropriate permission to fit a sports-related context by rewording the items to better correspond with athlete's experiences. The sample items are "I feel confident in presenting information to a group of players/athletes/teammates" and "I always look on the bright side of things regarding my performance in-game". The initial form of the PCQ-24 is recognized for its high psychometric reliability, showing Cronbach's alpha coefficients between .88 and .89, and it exhibits strong convergent and discriminant validity (F. Luthans et al., 2007).

Athletic Coping Skills Inventory (ACSI): The Athletic Coping Skills Inventory (ACSI-28), developed by Smith et al. (1995), is designed to assess how athletes mentally cope with various challenges in their sport. The scale consists of 28 items distributed across seven dimensions: establishing goals and mentally preparing, maintaining focus, staying calm under pressure, effectively handling challenges, performing well in high-stress situations, possessing self-confidence, and being driven to achieve success (Smith et al. (1995). Participants respond using a four-point Likert scale, indicating how often they encounter each situation, ranging from "Almost never" (0) to "Nearly always" (3). The internal consistency reliability (Cronbach's alpha) for the subscales ranges from 0.62 for the concentration factor to 0.78 for the peaking under pressure dimension. The overall reliability coefficient for the full scale is reported to be 0.86.

Athlete Burnout Questionnaire (ABQ): The Athlete Burnout Questionnaire (ABQ), developed by Raedeke & Smith (2001), was utilised to assess burnout levels in athletes. This 15-item instrument measures three core dimensions: (i) emotional and physical exhaustion, (ii) sport devaluation, and (iii) a diminished sense of personal achievement. Athletes evaluated each statement using a 5-point Likert scale, with responses ranging from 1 ("almost never") to 5 ("almost always"). In addition to scores for each specific subscale, an overall burnout score was derived by averaging the responses across all three subscales (Raedeke & Smith, 2004). Prior studies have confirmed the

ABQ's reliability (Lemyre et al., 2006), as well as its factorial structure and both convergent and divergent validity (S. L. Cresswell & Eklund, 2006a), of ABQ scores.

Procedure

We distributed three questionnaires (PsyCap, athlete burnout, and coping strategies) to individuals in the online survey (Google Forms) (Evans & Mathur, 2005). The questionnaires were administered in English, as all participants had sufficient proficiency in English to understand and respond to the items appropriately. Before completing the questionnaires, we provided participants with an informed consent statement at the beginning of the Google Form explaining the purpose of the study and the voluntary nature of participation. Participants indicated their digital consent before proceeding to the survey. They were also assured that all responses would remain confidential and that the data would be used solely for research purposes. We conducted the study in India, so it complied with the applicable national ethical and data protection guidelines. The study procedures were reviewed and approved by the Research Committee of the Department of Physical Education and Sports, Pondicherry University, India. All methods adhered to the ethical principles outlined in the Declaration of Helsinki ("World Medical Association Declaration of Helsinki," 2013). This study was conducted in compliance with the "Standards of Ethics in Research in Sport and Exercise Science" (Harriss et al., 2019).

Data analysis

We analysed the data using IBM SPSS Statistics Version 27.0 in conjunction with the PROCESS macro version 4.1. The initial analysis included assessing missing data, identifying outliers, and examining the normality of the data distribution. We managed missing values using multiple imputation techniques. We evaluated data normality using skewness and kurtosis statistics and found that PsyCap (skewness = -0.695 , kurtosis = -0.180), coping strategies (skewness = -0.018 , kurtosis = -0.139), and athlete burnout (skewness = 0.653 , kurtosis = 1.779) all fell within the acceptable range of -2 to $+2$, indicating that the data were approximately normally distributed (Kim, 2013). Furthermore, the sample size is >50 , and the Kolmogorov-Smirnov statistic we used. It indicated a significant deviation from normality for PsyCap ($D = 0.143$, $p < .001$), whereas coping strategies ($D = 0.060$, $p = .200$) and athlete burnout ($D = 0.047$, $p = .200$) did not show significant deviations. However, considering the sensitivity of the Kolmogorov-Smirnov test to large sample sizes and the acceptable skewness and kurtosis values, all variables were treated as approximately normally distributed. We assessed the internal consistency of the instruments using Cronbach's alpha and found acceptable to good reliability, with alpha values of 0.78 for the ABQ, 0.86 for the PsyCap scale, and 0.88 for the ACSI-28; values above 0.70 are generally considered acceptable, above 0.80 good, and above 0.90 excellent (Tavakol & Dennick, 2011). After these steps, we calculated descriptive statistics and Pearson correlation coefficients for the main variables in the study. The strength of the correlations (r) between the variables was interpreted based on their magnitude. Correlation values below 0.1 were categorized as trivial; those ranging from 0.1 to 0.3 were considered small; values between 0.3 and 0.5 were deemed moderate; those from 0.5 to 0.7 were classified as large; correlations between 0.7 and 0.9 were labelled very large; and values from 0.9 to 1.0 were interpreted as nearly perfect (Cohen, 2013). To compare athlete burnout levels between athletes from different sporting identities, we conducted an independent samples t-test. Cohen's d was used to assess the effect size, measuring the difference between the means of two groups in standard deviation units. A Cohen's d of 0 indicates no difference between the means. Generally, a d of 0.2 is considered small, 0.5 is medium, and 0.8 is large (Kambitta Valappil et al., 2024). To examine the proposed mediation model, we conducted linear regression analysis, followed by a mediation analysis using the PROCESS macro (Model 4) was utilised with 5,000 bootstrap samples to estimate both direct and indirect effects, yielding bias-corrected confidence intervals. In this framework, PsyCap was designated as the independent variable (X), coping strategies acted as the mediating variable (M), and athlete burnout was identified as the dependent variable (Y) (Baron & Kenny, 1986).

Additionally, we assessed common method bias using Harman's single-factor test. Controlled variables such as age and gender were not included in the analysis, based on theoretical considerations. The result of the CMB test in this study was (38.5 %) below the 50% threshold recommended by (Podsakoff et al., 2003) indicating that CMB was not a significant concern. Such bias might otherwise influence the relationship between PsyCap and coping

Team vs Individual Sports Burnout: Influence of Coping and PsyCap

strategies (Path A), as well as the link between coping strategies and burnout (Path B). All tests were conducted using a two-tailed approach with a significance level of $p < 0.05$. Standardized beta coefficients (β) were used to report effect sizes in regression analyses, while Cohen's d was used for interpreting group differences in mean scores (Podsakoff et al., 2012).

RESULTADOS

Comparison of Athlete Burnout Across Sporting Identities

Table 1 shows to examine whether athlete burnout differs based on sporting identity, an independent samples t-test was conducted comparing burnout levels between team sport and individual sport athletes. The analysis showed a statistically significant difference between the two groups, $t = 13.446$, $p < .001$, $d=2.37$. individual sport athletes ($M = 46.07$, $SD = 6.43$, $n = 68$) reported significantly higher levels of burnout compared to their team sport counterparts ($M = 32.69$, $SD = 4.42$, $n = 51$).

Table 1

Result of the independent sample t-test for Athlete Burnout Across Sporting Identities.

Variable	Sporting identity	N	M	SD	t	p
Athlete burnout	Team sport	51	32.69	4.42	13.44**	0.000#
	Individual sport	68	46.07	6.43		

Note: - **= $p < 0.001$, N=number of subjects, M=mean, SD= standard deviation, #=large magnitude of effect.

Descriptive statistics and correlation analysis

Table 2 displays the mean scores, standard deviations, and Pearson correlation values for the primary variables examined in the study PsyCap, coping strategies, and athlete burnout. The descriptive findings show that athletes in the sample exhibited PsyCap scores ($M = 189.94$, $SD = 49.43$), reflecting notable levels of personal psychological strengths such as optimism, self-efficacy, resilience, and hope. Coping strategy scores ($M = 90.13$, $SD = 28.85$) suggest that athletes regularly employed mechanisms to manage stress and adversity. Meanwhile, athlete burnout scores ($M = 40.34$, $SD = 8.72$) indicate the presence of symptoms related to physical and emotional exhaustion among participants.

The correlation analysis showed robust and statistically significant associations among the key study variables. PsyCap demonstrated a perfect positive correlation with coping strategies ($r = .976$, $p < .01$), indicating that athletes with greater psychological resources are more likely to utilise more effective coping strategies. This emphasises the important role of positive psychological traits in managing stress. In contrast, PsyCap was found to be perfectly negatively associated with athlete burnout ($r = -.948$, $p < .01$), indicating that those with elevated PsyCap are less prone to experiencing symptoms of burnout. Similarly, coping strategies were perfect and negatively correlated with athlete burnout ($r = -.972$, $p < .01$), indicating that the more frequently athletes used coping strategies, the lower their levels of burnout. These results support the theoretical assumptions that both PsyCap and coping strategies serve as protective factors against burnout in athletes.

Table 2

Descriptive and correlation analysis.

	M	SD	PsyCap	Coping strategy	Athlete burnout
PsyCap	189.94	49.43	1	.976**	-.948**
Coping strategy	90.13	28.85	.976**	1	-.972**
Athlete burnout	40.34	8.719	-.948**	-.972**	1

Note: - **= Correlation is significant at the 0.01 level (2-tailed).

Mediation analysis

To assess how PsyCap and coping strategies predict athlete burnout, two separate regression analyses were conducted, with the outcomes presented in Tables 3 and 4. Before analysis, we examined multicollinearity using tolerance and Variance Inflation Factor (VIF) values. The final model showed no evidence of multicollinearity (tolerance = 1.00; VIF = 1.00), indicating that the predictor variable met the required assumptions for regression analysis. The independence of residuals was examined using the Durbin–Watson statistic. The obtained value (0.433) suggests some degree of positive autocorrelation; however, given that the data are cross-sectional rather than time-series in nature, this issue is unlikely to substantially affect the overall regression estimates. In the initial model, PsyCap significantly predicted coping strategies ($\beta = 0.975$, $t = 48.184$, $p < 0.01$), implying that athletes who possess stronger psychological resources are more inclined to employ effective coping techniques. In the second model, when predicting athlete burnout, coping strategies emerged as a significant negative predictor ($\beta = -0.978$, $t = -9.754$, $p < 0.01$), indicating that more effective coping strategies are linked to lower levels of burnout. However, PsyCap itself did not significantly predict athlete burnout directly ($\beta = 0.007$, $t = 0.065$, $p > 0.05$) once coping strategies were included in the model. This suggests that coping strategies completely mediate the relationship between PsyCap and burnout. The overall regression model accounted for 94.4% of the variance in athlete burnout, as indicated by the Adjusted R^2 value ($F = 978.64$, $p < 0.01$). This suggests an excellent model fit and a very strong predictive power of the independent variables.

Table 3

Regression analysis Model.

	Athlete Burnout	Coping Strategies
	β	t-value
Constant	2.426**	71.331
PsyCap	0.007	0.065
Coping Strategies	-0.978**	-9.754
R	0.972	
Adjusted R^2	0.944	
F-value	978.644**	

Note: - $p < 0.05$, ** $p < 0.01$.

Team vs Individual Sports Burnout: Influence of Coping and PsyCap

We conducted a mediation analysis using Hayes' PROCESS macro (Model 4) to determine if coping strategies mediate the link between PsyCap and athlete burnout, employing 5,000 bootstrap samples to generate confidence intervals. As shown in Table 4, the results revealed a significant total effect of PsyCap on burnout ($c = -0.1671$, $p < 0.01$, 95% CI $[-0.1774, -0.1568]$), suggesting that greater PsyCap is linked to reduced burnout levels in athletes, affirming a meaningful direct relationship between the two variables. Further analysis showed that PsyCap was a significant predictor of coping strategies ($a = 0.5694$, $p < 0.01$, 95% CI $[0.5460, 0.5928]$), suggesting that athletes with stronger PsyCap are more inclined to engage in effective coping behaviours. Additionally, coping strategies showed a significant and negative association with burnout ($b = -0.2956$, $p < 0.01$, 95% CI $[-0.3556, -0.2355]$), implying that better coping strategies correspond with lower burnout symptoms. The indirect effect of PsyCap on burnout through coping strategies was also significant ($ab = -0.1683$, 95% CI $[-0.2034, -0.1414]$), as the confidence interval did not cross zero, thereby confirming the presence of mediation. Notably, once coping strategies were accounted for, the direct effect of PsyCap on burnout became non-significant ($c' = 0.0011$, $p = 0.9485$, 95% CI $[-0.0339, 0.0362]$), indicating full mediation. These results suggest that the influence of PsyCap on burnout operates primarily through its impact on coping strategies. That is, PsyCap on its own does not directly reduce burnout once coping is accounted for; rather, it exerts its protective influence indirectly by enhancing coping strategies. The overall model was statistically significant ($R^2 = 0.9441$, $F = 978.64$, $p < 0.01$), accounting for a significant portion of the variation in athlete burnout. Coping strategies act as a key psychological pathway through which PsyCap helps reduce burnout. These results emphasize the importance of enhancing both PsyCap and effective coping strategies in athletes to safeguard against burnout in elite sports settings.

Table 4

Pathway Relationship Table.

Pathway Relationship	Notation	Meaning	Effect	95% CI		t Value	Conclusion
				Lower limit	upper limit		
PsyCap → Coping Strategies → Athlete Burnout	a*b	Indirect Effect	-0.1683**	-0.2034	-0.1414	–	Significant mediation
PsyCap → Coping Strategies	a	X ⇒ M	0.5694**	0.5460	0.5928	48.184	Significant
Coping Strategies → Athlete Burnout	b	M ⇒ Y	-0.2956**	-0.3556	-0.2355	-9.754	Significant
PsyCap → Athlete Burnout	c'	Direct Effect	0.0011	-0.0339	0.0362	0.065	Not significant
PsyCap → Athlete Burnout	c	Total Effect	-0.1671**	-0.1774	-0.1568	-32.12	Significant

Note: - * $p < 0.05$, ** $p < 0.01$.

Table 5 shows that the unstandardized indirect effect was -0.1683 (Boot SE = 0.0159, 95% CI $[-0.2034, -0.1414]$). As the confidence interval does not include zero, the indirect effect is statistically significant, indicating that coping strategies significantly mediate the relationship between psychological capital and athlete burnout. Furthermore, the fully standardized indirect effect (an effect size estimate) was -0.9542 (Boot SE = 0.1028, 95% CI $[-1.1676, -0.7522]$), indicating a large mediation effect, which further supports the robustness of coping strategies as a mediator.

Table 5
Total and Standardised Indirect Effect of Coping Strategies.

Intermediary Variable	Effect (Unstandardized)	Boot SE	Boot LLCI	Boot ULCI	Effect (Standardized)	Boot SE	Boot LLCI	Boot ULCI
Coping Strategies	-0.1683	0.015	-0.2034	-0.141	-0.9542	0.1028	-1.167	-0.752

Figure 1
Diagram of model path unstandardised coefficient.

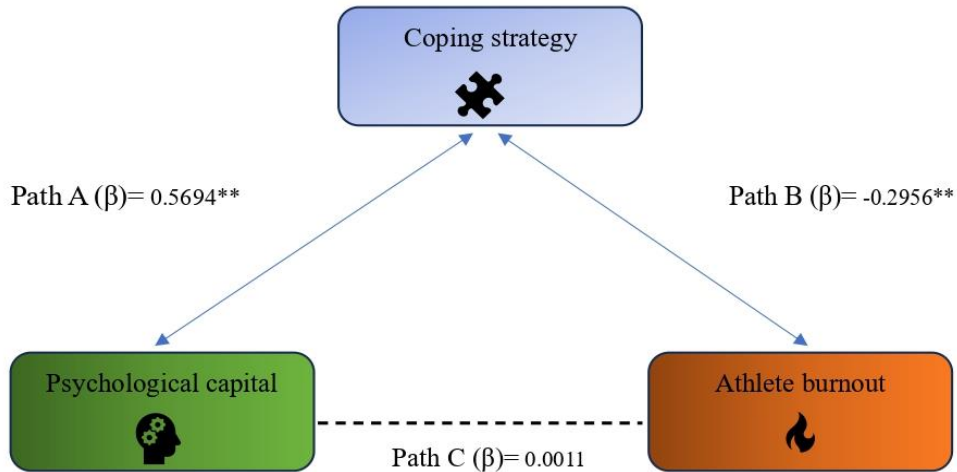
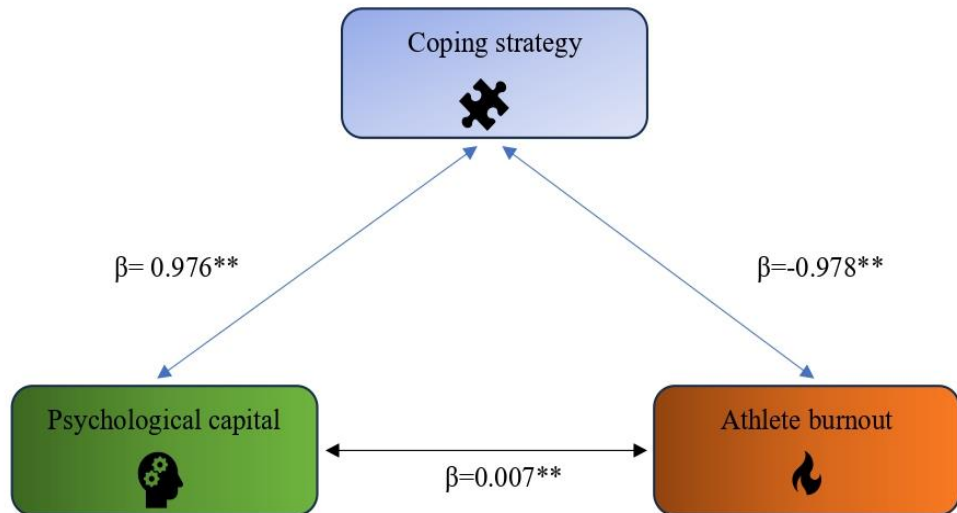


Figure 2
Diagram of model path standardised coefficient.



Team vs Individual Sports Burnout: Influence of Coping and PsyCap

DISCUSIÓN

This research is among the first to systematically explore the differences in athlete burnout across two types of sporting identities, while also examining the complex relationship between PsyCap and burnout. Unlike previous studies that have looked at these factors separately, this study offers a unified theoretical model that incorporates PsyCap, coping strategies, and athlete burnout. The findings revealed that athletes participating in individual sports experienced greater levels of burnout compared to those in team sports. Additionally, the findings show that PsyCap indirectly reduces burnout, with coping strategies serving as the mediating factor.

The study's results suggest that athletes engaged in individual sports are more susceptible to burnout than their counterparts in team sports. This is consistent with previous research, which has repeatedly found that individual sport athlete's experience greater emotional and physical exhaustion, reduced sense of accomplishment, and heightened sport devaluation (DeFreese & Smith, 2013; Gustafsson, Kenttä, et al., 2011). Several psychological and structural differences may explain this phenomenon. Individual athletes often bear the full burden of performance expectations and outcomes, lacking the shared responsibility and emotional support that team settings offer. As indicated by Defreese (2013), social support acts as a protective factor against burnout, and its absence can exacerbate emotional fatigue and depersonalization, especially in sports that emphasize solo performance and self-reliance. Furthermore, the training environment in individual sports tends to be more rigid and perfectionistic. Athletes in these settings may be more prone to maladaptive perfectionism, a known predictor of burnout (Hill et al., 2010). Without teammates to share psychological stressors or to offer encouragement during adversity, individual athletes may internalise failures more deeply, leading to decreased motivation and increased feelings of inadequacy (Gerber et al., 2018). The findings of this study can be explained using the Cognitive-Affective Stress Model of burnout proposed by Smith. This implies that burnout arises from a prolonged mismatch between external demands and available personal resources (Smith, 1986). Individual athletes, often lacking external coping mechanisms such as peer support, may experience an overwhelming accumulation of stress without sufficient relief, increasing the likelihood of burnout. In contrast, team sport athletes can distribute performance pressure among teammates and benefit from peer camaraderie, shared goals, and collective resilience (Raedeke & Smith, 2004). Competent and authentic coaching contributes positively to athlete's perceived support for their basic psychological needs, which may help explain why socially supportive sport environments can buffer maladaptive outcomes (Soto García et al., 2024). This is in accordance with the Conservation of Resources (COR) theory, which suggests that people are motivated to acquire and safeguard their resources (Hobfoll, 1989). The social and emotional resources present in team environments serve as buffers against psychological depletion, thereby reducing burnout risk.

PsyCap, comprising self-efficacy, hope, optimism, and resilience, has emerged as a robust psychological resource in sport settings (F. Luthans et al., 2006). It has also linked positive personal qualities such as grit and mental toughness, especially in physically active populations, to stronger psychological functioning under challenge (Stamatis et al., 2024). The negative association observed in this study is consistent with previous research suggesting that athletes with higher PsyCap enhance an individual's ability to effectively handle stress, persist through challenges, and maintain motivation, thereby reducing their risk of burnout. This is also consistent with recent findings showing that lower perceived achievement and higher negative emotions are linked to stronger burnout symptoms in elite athletes (Monteiro-Araujo et al., 2025). The present findings align with several studies that have emphasised the protective role of PsyCap in sport and performance domains. For example, Sauvé et al found that college athletes with high PsyCap reported significantly lower levels of emotional exhaustion and higher engagement. Similarly, Li et al observed that PsyCap was negatively correlated with burnout dimensions across diverse athletic populations in China, suggesting its universal applicability across cultures and sports (C. Li et al., 2013; F. Luthans et al., 2007; Sauvé et al., 2022). From a theoretical perspective, this association is well-explained by the Job Demands Resources (JD-R) Model (Bakker & Demerouti, 2007), which posits that personal resources like PsyCap can mitigate the impact of job or performance demands. In this framework, burnout is a consequence of a chronic imbalance between demands and resources. In the sport context, related evidence has also shown that

Nambron et al.

the satisfaction of athlete's basic psychological needs is negatively associated with burnout, reinforcing the importance of psychological resources in preventing maladaptive outcomes (Vílchez Conesa et al., 2020).

Athletes with higher levels of PsyCap are more likely to employ adaptive coping strategies, which are associated with lower levels of burnout. This interpretation is strengthened by recent findings showing that resilience is positively associated with goal orientation in competitive swimmers, suggesting that athletes with stronger psychological resources are better positioned to sustain motivation and adapt effectively under pressure (Veliz-Salinas et al., 2026). The current study's results demonstrate that PsyCap has an indirect effect on athlete burnout through its influence on coping strategies. Those with higher PsyCap tended to adopt more effective coping methods, which subsequently contributed to lower experiences of burnout. This suggests that the positive psychological resources embedded within PsyCap not only help athletes withstand stress but also enable them to adopt more constructive approaches to managing performance-related challenges (Galli & Gonzalez, 2015). This result aligns with previous studies highlighting the role of PsyCap as a foundational personal resource that enhances stress coping capabilities in high-demand environments such as competitive sports (Avey et al., 2011). Athletes high in PsyCap tend to interpret setbacks as opportunities for growth, draw on internal motivation to persist, and reframe stressors in more positive or manageable terms (Newman et al., 2014). This interpretation is also consistent with recent work highlighting the developmental value of challenge experiences in strengthening athlete's psychological capacities over time (Taylor et al., 2022). These characteristics contribute to the selection and use of more effective coping strategies, such as problem-solving and seeking support, rather than maladaptive responses like avoidance or denial (Eisenberg et al., 2017). recent evidence has shown that psychological resources and supervision are closely linked to lower precompetitive anxiety and better sport performance in professional football players (Ardura-González & Moral-Jiménez, 2025). The role of coping as a mediator is consistent with the Transactional Model of Stress and Coping, which suggests that an individual's evaluations and responses to stress play a crucial role in shaping their psychological outcomes. Within this framework, PsyCap influences how stress is appraised and how coping strategies are chosen. Athletes with strong psychological resources are more likely to perceive stress as a challenge instead of a threat, enabling them to adopt coping strategies that help prevent burnout (Sarkar & Fletcher, 2014). Supporting this view, recent findings indicate that task-oriented motivational climates are positively associated with resilience in combat-sport athletes, whereas ego-oriented climates relate negatively to resilience (Ortiz-Franco et al., 2024). Recent empirical studies further support the existence of this indirect relationship. Ineffective coping strategies, such as avoidance, denial, and rumination, often intensify stress levels and increase the risk of burnout (Madigan et al., 2020).

Limitations and future studies

While this study provides a valuable understanding of the connections between PsyCap, coping strategies, and athlete burnout across different sport types, it is essential to recognize its limitations. Firstly, the use of a cross-sectional design limits the ability to make definitive causal claims. Although convenience sampling allowed efficient data collection, it may limit the external validity of the study. The sample may not be fully representative of the wider athlete population, as participants were recruited based on accessibility and willingness. This may introduce selection bias and restrict the generalizability of the findings to athletes from different competitive levels, cultural contexts, or sporting disciplines. The mediation analysis highlights possible pathways; it does not allow for confirmation of the chronological sequence among variables. Future research employing longitudinal or experimental approaches is necessary to determine whether higher PsyCap truly leads to improved coping and, in turn, lower burnout levels over time. Secondly, the study's dependence on self-report instruments may introduce potential biases, including social desirability and common method variance. Although validated instruments were used, athletes may underreport burnout symptoms or overestimate their psychological strengths due to social and cultural expectations surrounding mental toughness in sports. Future studies could benefit from incorporating multi-informant assessments (e.g., coach or sport psychologists) and physiological or behavioural measures to enhance the robustness of findings. Given that athletes in individual sports are more vulnerable to burnout, targeted

Team vs Individual Sports Burnout: Influence of Coping and PsyCap

psychological support systems should be implemented to enhance social support and emotional coping. Coaches can play a crucial role by fostering a supportive training climate, encouraging open communication, and reducing excessive performance pressure. Third, the sample was drawn from a limited demographic and geographical context, potentially limiting the generalizability of the results. Cultural norms, training environments, and resource availability can vary substantially across regions and sporting disciplines (Henriksen et al., 2020). Therefore, Future studies should seek to validate this model across more diverse groups or populations, including professional athletes, youth sport participants, and cross-cultural cohorts. Additionally, while the current study focused on the overall construct of PsyCap, it may be beneficial for future research to examine the distinct effects of its subcomponents like hope, optimism, self-efficacy, and resilience on burnout and coping strategies. Disaggregating these elements could provide more nuanced insights into which aspects of PsyCap are most protective in sport contexts. The study did not assess the number of years of structured sports training among participants. As training experience may influence psychological resources, coping strategies, and burnout levels, its omission may limit the interpretation of the findings. Future research should consider including training experience as an important variable. Investigating these moderators could help tailor psychological interventions to specific athlete groups. Finally, future research may explore intervention-based approaches aimed at enhancing PsyCap and promoting adaptive coping strategies among athletes. Such interventions could serve as proactive measures to reduce burnout and enhance long-term athletic engagement and performance. Randomized controlled trials or sport psychology training programs could test the effectiveness of these strategies in real-world athletic settings.

Furthermore, the results highlight the potential value of PsyCap interventions in reducing burnout. Structured psychological skills training programs focusing on hope, self-efficacy, resilience, and optimism may strengthen athlete's mental resources and improve their ability to cope with stress. Techniques such as goal-setting, cognitive restructuring, resilience training, and stress management strategies can be integrated into regular training routines. By enhancing PsyCap, athletes may be more likely to adopt adaptive coping strategies, thereby reducing the risk of burnout and promoting long-term performance and well-being. These findings have important practical implications for sport settings. Tailoring these interventions to specific athlete groups based on sport type, competition level, or gender could further enhance their effectiveness and support long-term engagement in sport.

CONCLUSIONS

This research examined the variation in athlete burnout between individual and team sport participants, explored the connection between PsyCap and athlete burnout, and assessed how coping strategies mediate this relationship. This study found that individual sport athlete's experienced higher levels of burnout compared to team sport athletes. PsyCap showed a negative correlation with athlete burnout, meaning that greater PsyCap was connected to reduced burnout levels. Additionally, coping strategies were identified as a full mediator in the relationship between PsyCap and athlete burnout, indicating that enhanced PsyCap contributes to the use of more effective coping methods, which subsequently help lower burnout levels. These results emphasize the critical role of developing both PsyCap and adaptive coping abilities in athletes as a means of protecting them from burnout in demanding competitive sports environments.

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CONFLICT OF INTEREST

With regard to the research, authorship, and publication of this article, the authors declare that there are no potential conflicts of interest.

ETHICAL CONSIDERATION

The research committee of the Department of Physical Education and Sports at Pondicherry University, India, authorized the various stages of this study methods which followed the Declaration of Helsinki.

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Team vs Individual Sports Burnout: Influence of Coping and PsyCap

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Team vs Individual Sports Burnout: Influence of Coping and PsyCap

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