



Exploring gender variations in wellness, burnout, sleep quality, and positive discomfort in semi-professional basketball athletes

Explorando las variaciones de género en el bienestar, el agotamiento, la calidad del sueño y la incomodidad positiva en jugadores semi-profesionales de baloncesto

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Abstract

Introduction: Semi-professional basketball players are exposed to substantial physical and psychological demands while simultaneously managing academic, occupational, and personal responsibilities.

Objective: This study examined gender differences in wellness, burnout, sleep-related variables, and the Positive Symptom Distress Index (PSDI) among semi-professional basketball players, as well as the relationships among these variables.

Methodology: A total of 96 semi-professional basketball players (60 females and 36 males) completed validated questionnaires assessing wellness, burnout, sleep deprivation, and psychological distress.

Results: Significant gender differences were observed only for PSDI, with male players reporting higher levels of psychological distress than female players. No significant differences were found in wellness, burnout, or sleep deprivation. Correlation and regression analyses revealed gender-specific patterns: in females, wellness was negatively associated with burnout and PSDI, whereas burnout and sleep deprivation were positively associated with PSDI. In males, PSDI was primarily predicted by sleep deprivation.

Discussion: These findings emphasize the importance of adopting gender-sensitive and multidimensional approaches to monitoring psychological well-being and recovery-related factors in semi-professional basketball players.

Conclusions: Practitioners should implement integrated strategies that enhance recovery, reduce psychological distress, and prevent maladaptive responses, particularly in athletes balancing competitive sport with academic, occupational, and personal commitments.

Keywords

Basketball; wellness; burnout; sleep; psychological distress; gender differences.

Resumen

Introducción: Los jugadores semi-profesionales de baloncesto afrontan elevadas demandas físicas y psicológicas mientras compatibilizan la práctica deportiva con responsabilidades académicas, laborales y personales.

Objetivo: El presente estudio analizó las diferencias de género en bienestar, burnout, variables relacionadas con el sueño y el *Positive Symptom Distress Index* (PSDI) en jugadores semi-profesionales de baloncesto, así como las relaciones entre estas variables.

Metodología: Participaron 96 jugadores semi-profesionales de baloncesto (60 mujeres y 36 hombres), quienes completaron cuestionarios validados para evaluar el bienestar, el burnout, la privación del sueño y el malestar psicológico.

Resultados: Las diferencias de género únicamente fueron significativas en el PSDI, mostrando los hombres mayores niveles de malestar psicológico que las mujeres. No se encontraron diferencias significativas en bienestar, burnout ni privación del sueño. Los análisis de correlación y regresión revelaron patrones específicos según el género: en las mujeres, el bienestar se asoció negativamente con el burnout y el PSDI, mientras que el burnout y la privación del sueño se asociaron positivamente con el PSDI. En los hombres, el PSDI estuvo principalmente asociado con la privación del sueño.

Discusión: Estos resultados ponen de manifiesto la necesidad de adoptar un enfoque multidimensional y sensible al género para el seguimiento del bienestar psicológico y de los factores relacionados con la recuperación en jugadores semi-profesionales de baloncesto.

Conclusiones: Los profesionales deberían implementar estrategias integradas dirigidas a optimizar la recuperación, reducir el malestar psicológico y prevenir respuestas desadaptativas, especialmente en deportistas que compaginan la competición con responsabilidades académicas, laborales y personales.

Palabras clave

Baloncesto; bienestar; burnout; sueño, malestar psicológico; diferencias de género.



Introduction

Mental health has emerged as one of the most important research priorities in sport sciences, reflecting a progressive shift from a performance-centred approach towards a more holistic understanding of athlete health and development. Although regular participation in sport is consistently associated with substantial physical, psychological, and social benefits, competitive athletes are routinely exposed to multiple physiological and psychosocial demands that may compromise both their well-being and long-term sporting careers. High training loads, frequent competition, performance expectations, injury risk, and the continuous pursuit of excellence require athletes to adapt to highly demanding environments in which physical and psychological resources are constantly challenged. When these demands exceed an individual's capacity to cope or recover adequately, psychological functioning may deteriorate, increasing susceptibility to mental health problems while simultaneously impairing athletic performance and long-term participation in sport (Lundqvist & Andersson, 2021; Rice et al., 2019; Schinke et al., 2018). These challenges are particularly evident among semi-professional athletes, who represent a unique population exposed to demands comparable to those experienced by elite competitors but with substantially fewer organisational and healthcare resources. In contrast to fully professional athletes, semi-professional players frequently balance intensive training schedules and competitive commitments with academic studies, employment, and family responsibilities. This dual-career context generates cumulative physical, emotional, and social demands that may hinder recovery, increase psychological strain, and compromise long-term adaptation (Kuettel & Larsen, 2020; Purcell et al., 2019). Consequently, contemporary sport science has progressively adopted a multidimensional perspective of athlete health, recognising that sustainable performance depends not only on physical preparedness but also on psychological well-being, recovery capacity, sleep quality, stress regulation, and resilience (Fletcher & Sarkar, 2012; Reardon et al., 2019; Schinke et al., 2018).

Current conceptual frameworks further emphasise that mental health should not be understood merely as the absence of psychological disorders. Instead, it represents a dynamic continuum resulting from the interaction between protective psychological resources and vulnerability factors that influence both sporting performance and overall quality of life. Accordingly, recent consensus statements advocate the systematic integration of psychological well-being, burnout, sleep, recovery, and stress management into athlete monitoring programmes, highlighting the importance of identifying psychological risk factors before they evolve into clinically relevant conditions (Biggins et al., 2021; Purcell et al., 2019; Reardon et al., 2019). In line with this perspective, recent evidence has highlighted the need to implement preventive strategies capable of simultaneously promoting mental health and athletic performance, particularly during adolescence and early adulthood, when athletes are especially vulnerable to psychological overload (Ruiz-Barquín et al., 2024). Among the different dimensions of positive mental health, psychological well-being has received increasing attention because of its close relationship with adaptive functioning and sustained athletic development. Psychological well-being encompasses emotional balance, life satisfaction, autonomy, environmental mastery, positive interpersonal relationships, purpose in life, and personal growth, reflecting an individual's ability to successfully manage everyday challenges while maintaining optimal psychological functioning (Diener et al., 2018; Huppert, 2009; Ryff & Singer, 1996). Within competitive sport, greater psychological well-being has consistently been associated with higher intrinsic motivation, more effective emotional regulation, stronger resilience, improved recovery perception, greater self-determined behaviour, and enhanced long-term engagement in sport (Deci & Ryan, 2008; Henriksen et al., 2020; Lundqvist, 2011).

Although psychological well-being constitutes an important protective resource, prolonged exposure to demanding sporting environments without sufficient recovery may progressively lead to athlete burnout, one of the most extensively studied maladaptive outcomes in competitive sport. Burnout is currently conceptualised as a multidimensional syndrome characterised by physical and emotional exhaustion, a reduced sense of accomplishment, and sport devaluation, reflecting the cumulative psychological consequences of chronic stress and inadequate adaptation to persistent competitive demands (Gustafsson et al., 2017; Raedeke & Smith, 2001). According to Smith's cognitive-affective model (1986), burnout develops when athletes perceive that environmental demands consistently exceed their available coping resources, resulting in progressive deterioration of motivation, emotional regulation, and psychological functioning.



The development of burnout has been associated with multiple interacting factors, including excessive training loads, elevated competitive pressure, perfectionistic tendencies, inadequate recovery, and prolonged psychosocial stress (Goodger et al., 2007; Kellmann, 2010; Meeusen et al., 2013). These risk factors are particularly relevant in semi-professional athletes, whose dual-career demands often require balancing intensive training and competition with educational, occupational, and family responsibilities. Consequently, cumulative stress may gradually compromise recovery processes and increase vulnerability to psychological maladaptation over the course of the competitive season.

Beyond its detrimental effects on sporting performance, burnout has consistently been linked to anxiety, depressive symptoms, emotional dysregulation, psychological distress, reduced motivation, and premature sport withdrawal, reinforcing its relevance as a major indicator of athletes' mental health rather than simply a consequence of excessive training (Gerber et al., 2010; Glandorf et al., 2022; Glandorf et al., 2025; Gouttebarga et al., 2019; Yan & Wang, 2025). Similarly, recent evidence has highlighted burnout as one of the principal psychological concerns among young competitive athletes, supporting the implementation of early monitoring programmes capable of identifying athletes at increased psychological risk before symptoms become clinically significant (Ruiz-Barquín et al., 2024).

Despite the growing body of literature, findings regarding gender differences in burnout remain inconsistent. Whereas some investigations have reported greater emotional exhaustion among female athletes, others have observed higher burnout symptoms in males or have found no significant gender-related differences (Isoard-Gautheur et al., 2016; Walton et al., 2021). These discrepancies suggest that burnout is unlikely to be determined by biological sex alone and may instead reflect the interaction between individual characteristics, competitive level, environmental demands, and psychosocial context. Recovery processes play a fundamental role in preventing the accumulation of chronic stress, making sleep quality one of the central components of athlete health monitoring. Adequate sleep contributes to physiological restoration, cognitive performance, emotional regulation, endocrine function, motor learning, and immune competence, all of which are essential for maintaining both optimal performance and long-term psychological well-being (Fullagar et al., 2015; Walsh et al., 2021). Conversely, insufficient or disturbed sleep has been associated with impaired cognitive functioning, slower reaction times, reduced physical performance, increased injury risk, emotional instability, and poorer mental health outcomes (Watson, 2017).

Competitive athletes are especially susceptible to sleep disturbances owing to intensive training schedules, frequent travel, evening competitions, competitive anxiety, and cumulative psychosocial demands (Yaguachi-Alarcón et al., 2026). Experimental studies have demonstrated that sleep restriction compromises recovery, cognitive processing, and sport-specific performance, whereas sleep extension improves reaction time, sprint performance, and technical skills such as basketball shooting accuracy (Fullagar et al., 2015; Mah et al., 2011). Furthermore, interventions promoting sleep hygiene and recovery behaviours appear to enhance both physiological restoration and competitive readiness (Halson, 2014).

Importantly, the relationship between sleep and psychological health appears to be bidirectional. Poor sleep quality may exacerbate emotional dysregulation, perceived stress, burnout symptoms, and psychological distress, whereas elevated psychological stress may further disrupt sleep, creating a self-perpetuating cycle that compromises recovery, well-being, and athletic performance (Reardon et al., 2019; Walsh et al., 2021). Supporting this perspective, recent evidence has identified significant associations between poorer sleep quality and higher burnout levels among athletes, reinforcing the inclusion of sleep assessment within comprehensive psychological monitoring programmes (Valadez Jiménez & González-Hernández, 2025). As observed for psychological well-being and burnout, evidence regarding gender differences in sleep quality remains equivocal. Although female athletes frequently report poorer subjective sleep quality than males, potentially owing to hormonal fluctuations, greater psychosocial demands, and emotional stress, these differences are not consistently observed after controlling for sport-specific and contextual characteristics (Nowakowski et al., 2013). Consequently, further research is required to determine whether gender-related differences in sleep quality persist within homogeneous populations such as semi-professional basketball players.

Beyond the negative psychological consequences traditionally associated with competitive stress, contemporary sport psychology has increasingly recognised that exposure to demanding situations is not

inherently maladaptive. According to the concept of positive discomfort, or eustress, appropriately regulated challenges may stimulate psychological growth, resilience, and adaptive functioning by encouraging athletes to develop effective coping strategies in response to competitive demands (Fletcher & Sarkar, 2012). However, when the intensity or duration of these demands exceeds an athlete's adaptive capacity, the potential benefits of positive discomfort may progressively give way to psychological overload. Consequently, assessing psychological distress provides an objective means of quantifying the psychological cost associated with prolonged exposure to cumulative sporting and psychosocial stressors. Existing evidence suggests that female athletes generally report greater emotional burden and higher levels of psychological distress than their male counterparts; however, whether these differences remain evident within semi-professional populations has received limited scientific attention (Walton et al., 2021). Although psychological well-being, burnout, sleep quality, and psychological distress have each been widely investigated, they are commonly examined as independent constructs despite representing closely interconnected dimensions of the same adaptive process. From a holistic perspective, psychological well-being may function as a protective resource that enhances resilience and facilitates recovery, whereas inadequate sleep and persistent competitive stress may accelerate burnout and increase psychological distress. Understanding how these variables interact may therefore provide a more comprehensive representation of athletes' psychological functioning than analysing each construct separately.

An important consideration that remains insufficiently understood is the role of gender in shaping athletes' psychological responses to competitive sport. Rather than reflecting biological factors alone, gender-related differences are likely to arise from the complex interaction of physiological characteristics, psychosocial demands, coping strategies, and sport-specific contextual factors, all of which may differentially influence psychological well-being, burnout, sleep quality, and psychological distress. Nevertheless, the current evidence remains inconclusive, with previous investigations reporting inconsistent findings across sporting disciplines, competitive levels, and psychological outcomes. These inconsistencies suggest that the influence of gender is highly context-dependent and may vary according to the characteristics of the population under investigation. Consequently, further research involving homogeneous samples of semi-professional athletes is warranted to clarify whether these psychological dimensions differ between male and female players. Such evidence would contribute to a more nuanced understanding of athlete mental health and support the development of individualised monitoring strategies and targeted interventions aimed at optimising both psychological well-being and long-term athletic performance.

This integrated perspective may be particularly relevant in semi-professional athletes, who are routinely exposed to concurrent sporting, academic, occupational, and social demands while receiving fewer psychological and medical support resources than elite professionals. Despite these unique contextual characteristics, relatively few studies have simultaneously examined psychological well-being, burnout, sleep quality, and positive discomfort within the same analytical framework, particularly while considering potential gender-related differences. This limitation restricts current understanding of the complex relationships among these variables and hinders the development of multidimensional athlete monitoring programmes capable of identifying individuals at increased psychological risk before clinically relevant symptoms emerge. Accordingly, the primary objective of the present study was to analyse gender-related differences in wellness, operationalised as life satisfaction (Diener et al., 1985), burnout, sleep quality, and positive discomfort among semi-professional basketball players, while simultaneously examining the structural relationships among these psychological dimensions. Based on the available theoretical and empirical evidence, three hypotheses were formulated: i) significant gender-related differences would be observed in psychological responses, particularly in positive discomfort and sleep quality, reflecting differences in psychosocial demands; ii) higher levels of wellness would be inversely associated with burnout and positive discomfort; and iii) poorer sleep quality would be positively associated with burnout and psychological discomfort, with the strength of these relationships potentially differing between male and female athletes.

Method

This study utilized a descriptive, cross-sectional, correlational design and was carried out between February and March 2025. Semi-professional basketball players typically engaged in training sessions at least four times weekly across different teams within the same competitive category, with each session lasting approximately 90 minutes. Training routines included a warm-up, the main training activities, and a cooldown period. Players participated in one competitive match per week.

Prior to completing the questionnaires, all participants were informed about the primary objectives of the study and provided written informed consent. The procedures adhered to the guidelines set forth by the American Psychological Association (APA, 2020) for psychological assessment and evaluation, ensuring confidentiality and anonymity of all responses. Furthermore, the research was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki and received approval from the Ethics Committee of the University of Granada (n. 4712/CEIH/2024).

Participants

A total of 96 healthy semi-professional basketball players from Andalusia participated in this study. Participants were divided into two equal groups based on gender: one comprising female players age mean was of 23.38 years ($SD = 3.40$) and the other male players age mean was of 23.64 ($SD = 3.28$). An a priori sample size calculation was conducted using the online tool G*Power (www.gpower.hhu.de), considering a statistical power of 95% and an alpha level of 0.05, which indicated that a sample of at least 80 participants would be adequate for the analyses. Inclusion criteria for participants were as follows: (i) a minimum of 10 years of systematic basketball training and competitive experience (excluding amateur players, as reaching semi-professional status necessitates sustained long-term commitment); (ii) absence of any current or chronic injury, and no history of neuropsychological conditions that could influence questionnaire responses; (iii) lack of pre-existing medical conditions that could interfere with athletic development or bias psychological assessments; (iv) provision of signed informed consent; and (v) complete submission of all questionnaires.

Procedure

The assessment protocol was administered electronically via Google Forms® (Google LLC, USA). Participants completed the questionnaire using their mobile devices. Prior to participation, they received information regarding the study's purpose, their rights as participants, and assurances of confidentiality, emphasizing that their responses would be used solely for research purposes. Access to the survey was granted only after participants provided informed consent. Neither monetary compensation nor individual feedback was provided to participants. Data collection took place between February and March 2025.

Instrument

Symptom Checklist-90-Revised (SCL-90-R)

The Symptom Checklist-90-Revised (SCL-90-R; Derogatis, 2002) comprises 90 items assessing nine primary symptom dimensions: Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism. Additionally, it evaluates three global indices of distress, with the Global Severity Index (GSI) being the most salient indicator. Item responses are rated on a 5-point Likert scale ranging from 0 (not at all) to 4 (extremely). The instrument demonstrates robust internal consistency across its primary dimensions and global indices, yielding Cronbach's alpha values from $\alpha = .77$ to $\alpha = .90$, and a comprehensive scale reliability of $\alpha = .96$. Positive discomfort was assessed through the questionnaire's global distress dimension, with the Positive Symptom Distress Index (PSDI) serving as the outcome measure. This index reflects the intensity of psychological symptoms and was used to characterise the emotional impact of prolonged exposure to the physical, psychological, and social demands inherent to competitive sport.

Satisfaction With Life Scale (SWLS)

In the present study, wellness was operationalized as global life satisfaction and assessed using the Satisfaction with Life Scale (SWLS; Diener et al., 1985). This self-report instrument captures individuals'



overall cognitive appraisal of their quality of life according to their own personal standards, providing an indicator of subjective well-being. The SWLS comprises five items rated on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Item scores are summed to obtain a total score between 5 and 35, with higher values reflecting greater perceived life satisfaction. The original validation of the instrument demonstrated satisfactory psychometric properties, including high internal consistency (Cronbach's $\alpha = .87$) (Diener et al., 1985).

Pittsburgh Sleep Quality Index (PSQI)

The Pittsburgh Sleep Quality Index (PSQI; Buysse et al., 1989) was used to evaluate sleep quality and sleep disturbances over the previous month. The instrument consists of 19 self-rated items that generate seven component scores: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction. The sum of these components yields a global score ranging from 0 to 21. According to the original authors, the global index exhibits adequate internal consistency, reporting Cronbach's alpha of $\alpha = .83$.

Athlete Burnout Questionnaire (ABQ)

Athlete burnout was assessed using the Athlete Burnout Questionnaire (ABQ; Raedeke & Smith, 2001). This 15-item instrument measures three dimensions of sport-specific burnout: Physical/Emotional Exhaustion, Reduced Sense of Accomplishment, and Sport Devaluation. Item responses are rated on a 5-point Likert scale ranging from 1 (almost never) to 5 (almost always). According to the original authors, the instrument exhibits sound psychometric properties, reporting Cronbach's alpha coefficients of $\alpha = .88$ for Physical/Emotional Exhaustion, $\alpha = .77$ for Reduced Sense of Accomplishment, and $\alpha = .74$ for Sport Devaluation.

Data analysis

Descriptive statistics were calculated for each variable. Given the non-normal distribution of the data, non-parametric statistical methods were employed to ensure an appropriate analysis. Specifically, the Kruskal-Wallis H test was used to analyze the difference (Males Group and Females Group) in Well-being, Burnout, SD and PSDI measures. Subsequently, Pearson's correlation coefficient r was used to examine the relationship between all variables. To interpret the magnitude of these correlations, the following criteria were adopted: Trivial: ≤ 0.10 ; small: 0.10 to 0.29; moderate: 0.30 to 0.49; large: 0.50 to 0.69; very large: 0.70 to 0.89; almost perfect: ≥ 0.90 (Schober & Schwarte, 2018). Multiple regression analysis was used to model the prediction of the remaining variables. In this regression analysis, all variables were examined separately. Data were analyzed using Statistica software (version 13.3; Statsoft, Inc., USA).

Results

Descriptive statistics were computed for all study variables (Table 1). The distribution of the data was examined using the Shapiro-Wilk test, which indicated departures from normality. Consequently, non-parametric procedures were adopted for all subsequent analyses. Differences between male and female players in wellness, burnout, sleep deprivation (SD), and Positive Symptom Distress Index (PSDI) scores were examined using the Kruskal-Wallis H test. As the grouping variable comprised only two independent categories, this procedure is mathematically equivalent to the Mann-Whitney U test; therefore, no post hoc pairwise comparisons were required. To complement the significance testing, effect sizes were estimated using (epsilon-squared, ϵ^2), providing an indication of the magnitude of the observed between-group differences.

Table 1. Descriptive statistics for age, wellbeing, burnout, sleep deprivation, and positive discomfort by gender.

	Age (yrs)	Wellbeing (AU)	Burnout (AU)	SD (AU)	PSDI (AU)
Females					
Mean±SD	23.38±3.40	25.43±5.03	34.62±7.45	6.73±2.92	1.42±0.34
Minimum	18.00	11.00	20.00	2.00	0.00
Range	17.00	22.00	33.00	13.00	2.16
Maximum	35.00	33.00	53.00	15.00	2.16
Males					



Mean±SD	23.64±3.28	25.64±4.93	36.19±9.02	5.78±2.13	1.57±0.35
Minimum	16.00	11.00	22.00	2.00	0.94
Range	17.00	24.00	31.00	8.00	1.54
Maximum	33.00	35.00	53.00	10.00	2.48

Note: SD: Sleep Deprivation; PSDI: Positive Discomfort; AU: Arbitrary Unity

To investigate gender-related differences in psychological outcomes, Kruskal–Wallis H tests were performed for wellness, burnout, sleep deprivation (SD), and the Positive Symptom Distress Index (PSDI). A statistically significant difference was identified only for PSDI ($H = 4.38, p = .036, \varepsilon^2 = .036$), indicating a small effect, with male participants reporting higher levels of psychological distress than female participants. In contrast, no significant between-group differences were observed for wellness ($H = 0.00, p = .96$), burnout ($H = 0.57, p = .45$), or sleep deprivation ($H = 1.88, p = .17$). For the regression models, both the coefficient of determination (R^2) and the adjusted coefficient of determination (adjusted R^2) were reported to quantify the proportion of variance explained by the predictor variables while accounting for model complexity. Collectively, these findings indicate that psychological distress was the only outcome showing a significant gender-related difference, whereas wellness, burnout, and sleep deprivation remained comparable across groups. A complete summary of the descriptive and inferential statistics is presented in Table 1 and Figure 2

Figure 2. Results of the Kruskal–Wallis H test comparing male and female participants across measures of Wellbeing, Burnout, SD, and PSDI. Error bars represent standard deviations

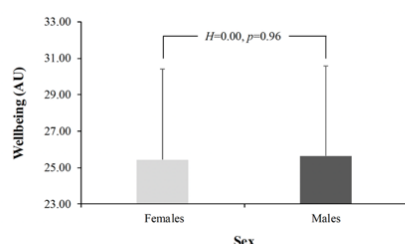


Figure 2.1. Kruskal–Wallis H test comparing male and female participants of Wellbeing values.

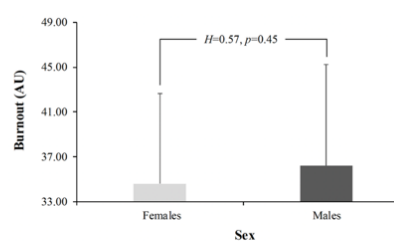


Figure 2.2. Kruskal–Wallis H test comparing male and female participants of Burnout values.

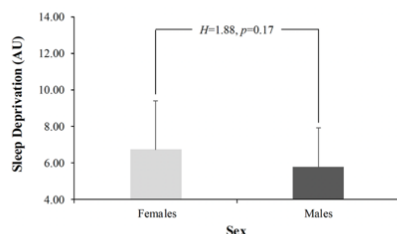


Figure 2.3. Kruskal–Wallis H test comparing male and female participants of SD values.

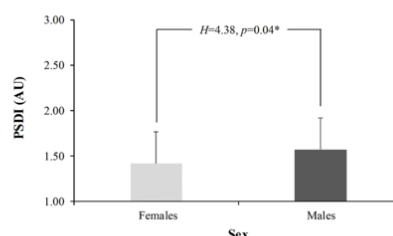


Figure 2.4. Kruskal–Wallis H test comparing male and female participants of PSDI values.

Posteriorly, a correlation analysis was performed to examine the relationship between each one of the four values Wellbeing, Burnout, SD, and PSDI for each gender group (females and males). The dataset revealed a moderate negative correlation between Wellbeing and Burnout values, $r = -.34, p = .01^*$ and between small negative correlation between PSDI and Wellbeing, $r = -.26, p = .04^*$. In addition, we found a positive moderate correlation between Burnout and PSDI, $r = .30, p = .02^*$. See table 2, for more information.

Table 2. Correlation analysis between Wellbeing, Burnout, SD, and PSDI for each gender group.

Females (n=60)				
	Wellbeing (AU)	Burnout (AU)	SD (AU)	PSDI (AU)
Wellbeing (AU)		$r=-.34, p=.01^*$	$r=-.15, p=.25$	$r=-.26, p=.04^*$
Burnout (AU)	$r=-.34, p=.01^*$		$r=.21, p=.11$	$r=.30, p=.02^*$
SD (AU)	$r=-.15, p=.25$	$r=.21, p=.11$		$r=.32, p=.01^*$
PSDI (AU)	$r=-.26, p=.04^*$	$r=.30, p=.02^*$	$r=.32, p=.01$	
Males (n=36)				
Wellbeing (AU)		$r=-.31, p=.06$	$r=-.10, p=.56$	$r=-.32, p=.06$
Burnout (AU)	$r=-.31, p=.06$		$r=.29, p=.08$	$r=.29, p=.09$
SD (AU)	$r=-.10, p=.56$	$r=.29, p=.08$		$r=.47, p=.001^*$
PSDI (AU)	$r=-.32, p=.06$	$r=.29, p=.08$	$r=.47, p=.001^*$	

Note: SD: Sleep Deprivation; PSDI: Positive Discomfort; AU: Arbitrary Unity

A subsequent multiple regression analysis was conducted to identify which variables, namely Wellbeing, Burnout, and SD most effectively explain the variance in the PSDI variable, consistent with prior correlation findings. In female participants, the multiple regression revealed a moderate association, with $r=0.26$, indicating a weak linear relationship. The r^2 was 0.07, suggesting that approximately 7% of the variance in PSDI could be accounted for by the predictors. The adjusted r^2 , which adjusts for the number of predictors, was 0.05. The model's standard error was 0.33, and the overall fit was statistically significant, as reflected by an F of 4.23 ($p = 0.04$). Another multiple regression examining the relationship between PSDI and Burnout yielded an r of 0.03, with an r^2 of 0.09, and an adjusted r^2 of 0.07, indicating a negligible correlation but a marginal increase in explained variance. The model's standard error remained at 0.33, and the F indicated significance 5.75 ($p = 0.02$). Furthermore, the analysis between PSDI and SD revealed a stronger association, with $r = 0.32$, $r^2 = 0.10$, and an adjusted r^2 of 0.09. The standard error was 2.79, and the F showed statistical significance with an F value of 6.56 ($p = 0.01$). These results are summarized in Figure 3 for detailed visualization.

Figure 3. Multiple regression analysis between variables with significant correlation for females' group.

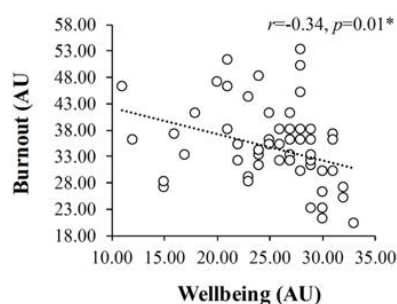


Figure 3.1. Multiple regression analysis for females' group between PSDI and Wellbeing values.

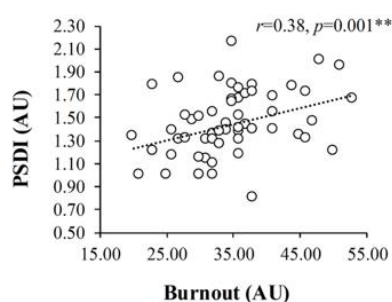


Figure 3.2. Multiple regression analysis for females' group between PSDI and Burnout values.

Conversely, in male participants, the regression model demonstrated a more robust association, with $r = 0.47$, $r^2 = 0.22$, and an adjusted r^2 of 0.20, indicating that approximately 20% of the variance in PSDI could be explained by the predictors. The standard error was 0.31, and the overall model was statistically significant with an F of 9.73 ($p < 0.001$). Refer to Figure 4 for additional insights.

Figure 4. Multiple regression analysis between variables with significant correlation for males' group.

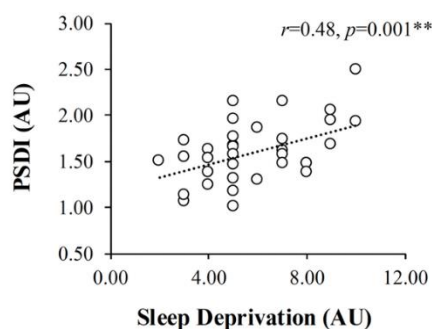


Figure 4.1. Multiple regression analysis for males' group between PSDI and SD values.

Discussion

The present study examined gender-related differences in wellness, burnout, sleep deprivation, and psychological distress (operationalized as positive discomfort) among semi-professional basketball players. The findings partially supported the first hypothesis, as a significant difference was observed only for the PSDI, with male athletes reporting greater psychological distress than their female counterparts. In contrast, no significant gender-related differences were identified in wellness, burnout, or sleep deprivation. These findings suggest that, within this population, the intensity of psychological symptoms may be more sensitive to gender-related factors than broader indicators of psychological well-being or recovery. The second hypothesis was also partially confirmed. Among female players, higher levels of wellness were associated with lower burnout and reduced psychological distress, indicating that greater life satisfaction may represent an important protective resource against maladaptive psychological responses. This pattern reinforces the notion that positive psychological functioning is closely linked to resilience and emotional adaptation in competitive sport. Finally, the third hypothesis was supported by the regression analyses, which identified sleep deprivation as a significant predictor of psychological distress. Notably, sleep deprivation explained approximately 20% of the variance in PSDI scores among male athletes, highlighting the potential contribution of inadequate sleep to psychological symptom severity. Collectively, these findings emphasise the interconnected nature of wellness, recovery, and psychological health, supporting the value of multidimensional monitoring strategies for identifying athletes at increased risk of psychological maladaptation.

The absence of significant gender differences in wellbeing may indicate that male and female semi-professional basketball players experience similar levels of life satisfaction and general well-being. In fact, Falcón Miguel et al., (2020), reported that well-being varied according to the type of motor and demand activity performed. This could be explained by the fact that both groups belonged to the same competitive context and were exposed to comparable sporting demands, including regular training sessions and weekly competition. In semi-professional sport, athletes often combine sport participation with academic, occupational, or personal responsibilities, which may create shared psychosocial demands regardless of gender. This interpretation is consistent with research emphasizing that athletes' well-being is shaped by the interaction between sport demands, life context, recovery opportunities, and psychosocial support (Kuettel & Larsen, 2020; Purcell et al., 2019; Schinke et al., 2018). From this perspective, the similarity between groups may reflect the common adaptive requirements of the semi-professional basketball environment. Nevertheless, wellness should be interpreted as a multidimensional construct influenced not only by sport-related demands but also by social support, motivational climate, academic or work pressures, and individual coping strategies (Lundqvist, 2011; Diener et al., 2018).

Similarly, no significant gender differences were found in burnout. This result suggests that male and female athletes in the present study may experience comparable levels of physical and emotional exhaustion, reduced sense of accomplishment, and sport devaluation. Burnout has been conceptualized as

a multidimensional syndrome involving emotional and physical exhaustion, reduced sense of accomplishment, and sport devaluation (Raedeke & Smith, 2001; Gustafsson et al., 2017). In Spanish-speaking sport contexts, De Francisco et al. (2014) highlighted the relevance of assessing burnout through specific sport measures and reported that burnout prevalence may vary depending on the instrument used and the characteristics of the athletes evaluated. Likewise, Isorna et al. (2019), in high-level Spanish canoeists, showed that burnout may be associated with sociodemographic and sport-practice variables, including gender, age, category, years of practice, and training volume. More recently, Gallegos-Sánchez et al. (2023) emphasized the importance of monitoring burnout symptoms in university athletes, a population that may share certain similarities with semi-professional players who combine sport with academic, occupational, or personal responsibilities.

The lack of significant gender differences in burnout in the present study may therefore indicate that burnout risk is more closely related to the general demands of semi-professional basketball than to gender itself. However, this finding should not be interpreted as an absence of burnout risk. On the contrary, previous research has shown that burnout can have relevant consequences for athletes' mental health, sport commitment, and performance (Glandorf et al., 2025; Glandorf et al., 2022; Gouttebarger et al., 2019; Gustafsson et al., 2017). In this regard, Olsson et al. (2025), through a multi-sample examination, found negative relationships between athlete burnout symptoms and sport performance, especially for total burnout, reduced sense of accomplishment, and sport devaluation. Therefore, even when no gender differences are observed, burnout monitoring remains essential for both male and female basketball players.

Regarding sleep deprivation, no significant differences were observed between male and female players. This finding suggests that sleep-related difficulties may affect both groups in a similar way. Sleep is considered a key component of athlete recovery, cognitive functioning, emotional regulation, and performance readiness (Reardon et al., 2019; Walsh et al., 2021). Basketball players are exposed to physical fatigue, irregular schedules, competition-related stress, and recovery demands, all of which can influence sleep quality. Previous evidence has shown that insufficient or poor-quality sleep may impair physical performance, cognitive processing, recovery capacity, and psychological well-being (Fullagar et al., 2015; Watson, 2017). Therefore, the absence of gender differences does not necessarily imply the absence of sleep-related problems, but rather that these difficulties may be similarly distributed across groups. This reinforces the need to integrate sleep monitoring and recovery education into training routines for all semi-professional athletes, independently of gender.

The correlation analysis provided additional information about the relationships among the variables. In female players, wellness was negatively associated with burnout, indicating that higher levels of well-being were related to lower burnout scores. This finding is consistent with previous research suggesting that well-being and adaptive psychological functioning may act as protective factors against maladaptive responses to chronic sport demands (Henriksen et al., 2020; Lundqvist, 2011). Female players who perceive greater life satisfaction and psychological balance may be better prepared to cope with training demands, competitive pressure, and emotional challenges. In contrast, lower levels of well-being may increase vulnerability to emotional exhaustion, reduced accomplishment, and sport devaluation. This relationship supports the importance of promoting psychological well-being as part of burnout prevention strategies in semi-professional basketball.

In the female group, PSDI was also negatively associated with wellness and positively associated with burnout. These findings suggest that greater psychological discomfort was related to lower well-being and higher burnout symptoms. This pattern highlights the close connection between general psychological health and sport-specific maladaptive responses. Previous research has linked burnout with psychological distress, anxiety, depressive symptoms, and reduced mental health in athletes (Gerber et al., 2010; Glandorf et al., 2025; Glandorf et al., 2022; Gouttebarger et al., 2019; Yan & Wang, 2025). In addition, Kang and Gong (2024) showed that maladaptive psychological patterns, such as maladaptive perfectionism, may increase vulnerability to athlete burnout through mechanisms such as fear of failure and self-handicapping. Although perfectionism was not assessed in the present study, this evidence supports the idea that psychological discomfort and maladaptive cognitive-emotional patterns may contribute to burnout processes in athletes. In practical terms, when female athletes report increased distress,

this may be accompanied by a deterioration in perceived well-being and a greater risk of burnout. Therefore, the assessment of distress-related indicators could be useful for the early detection of athletes who may require psychological support or recovery-oriented interventions.

Another relevant finding in female players was the positive association between sleep deprivation and PSDI. This relationship suggests that poorer sleep-related indicators were associated with greater psychological discomfort. Sleep plays a central role in emotional regulation, cognitive functioning, and recovery processes, and poor sleep quality has been associated with increased psychological distress and reduced well-being in athletes (Reardon et al., 2019; Walsh et al., 2021; Watson, 2017). Therefore, inadequate sleep may contribute to increased distress, while higher distress may also interfere with sleep quality, creating a potentially bidirectional relationship. In female athletes, this result supports the need to consider sleep not only as a recovery variable but also as an important component of mental health monitoring.

In male players, the only statistically significant correlation was found between sleep deprivation and PSDI. This result indicates that, among male basketball players, psychological discomfort was particularly related to sleep-related difficulties. Although the associations between wellness, burnout, and PSDI showed a tendency in the expected direction, they did not reach statistical significance. This may suggest that, in this group, sleep deprivation could be a more sensitive indicator of psychological distress than general well-being or burnout. However, the smaller sample size of the male group may also have limited the statistical power to detect significant associations among the remaining variables. Given that sleep inadequacy has been identified as a common issue among athletes and is associated with both performance and mental health outcomes, this result reinforces the importance of sleep assessment in male semi-professional basketball players (Fullagar et al., 2015; Walsh et al., 2021).

The regression analyses further supported the relevance of PSDI in relation to the other variables. In female players, wellness, burnout, and sleep deprivation explained a modest but significant proportion of variance in PSDI. Although the explained variance was relatively low, the results suggest that psychological discomfort in female athletes may be influenced by several interconnected factors, including perceived well-being, burnout symptoms, and sleep-related problems. This multidimensional pattern is aligned with contemporary perspectives on athlete mental health, which emphasize the need to consider psychological well-being, stress, recovery, and social support as interrelated components of athlete development and performance (Henriksen et al., 2020; Purcell et al., 2019; Reardon et al., 2019; Schinke et al., 2018).

In male players, sleep deprivation explained a higher proportion of variance in PSDI than the models observed in the female group. This finding suggests that sleep-related difficulties may be particularly relevant for understanding psychological discomfort among male semi-professional basketball players. From an applied perspective, this result highlights the importance of implementing sleep hygiene strategies, recovery monitoring, and individualized rest recommendations in this population. Previous research has emphasized that sleep is a modifiable factor with direct implications for recovery, emotional regulation, and sport performance (Halsen, 2014; Walsh et al., 2021). Therefore, interventions aimed at improving sleep quality may contribute not only to better recovery but also to reduced psychological discomfort.

Overall, the findings of this study suggest that gender differences in semi-professional basketball players may be more evident in specific indicators of psychological discomfort than in general measures of well-being, burnout, or sleep deprivation. In addition, the relationships among the variables appear to differ by gender. In female players, psychological discomfort was related to several dimensions, including well-being, burnout, and sleep deprivation. In male players, however, psychological discomfort was mainly associated with sleep deprivation. These results reinforce the need for gender-sensitive approaches in athlete monitoring and intervention. Rather than assuming that male and female athletes experience psychological and recovery-related demands in the same way, coaches and practitioners should consider how different indicators may interact within each group.

From a practical standpoint, the present findings highlight the importance of comprehensive monitoring systems in semi-professional basketball (Carbonel Miralles et al., 2003; Valle Martos, 2014). Such systems should include not only physical performance indicators, but also measures of well-being, burnout symptoms, sleep quality, and psychological discomfort. This is especially important in semi-professional

contexts, where athletes may not always have access to the same multidisciplinary support structures available in elite professional environments. In addition, psychological interventions aimed at improving self-regulation, attentional control, coping strategies, and recovery behaviors may be useful to reduce maladaptive responses and promote healthier performance environments. In this regard, recent evidence has highlighted the potential of mental skills training approaches, including neurofeedback-based interventions, to improve concentration, stress and anxiety management, and performance regulation in sport contexts (Corrado et al., 2024). Although this type of intervention has mainly been explored in precision sports, it supports the broader relevance of psychological skills training as a complementary strategy for athlete development.

Although the present study provides novel insights into the relationships among wellness, burnout, sleep deprivation, and psychological distress in semi-professional basketball players, several limitations should be considered when interpreting the findings. First, the cross-sectional nature of the study precludes any inference regarding the directionality or causality of the observed associations. Consequently, it remains unclear whether impaired sleep and burnout contribute to increased psychological distress, whether psychological distress adversely affects recovery and emotional functioning, or whether these variables interact through reciprocal mechanisms over time. Second, all psychological constructs were assessed using self-reported instruments, which may be influenced by recall bias, response tendencies, or social desirability, potentially affecting the accuracy of the reported outcomes. Finally, although both male and female athletes were represented, the unequal distribution of participants between groups may have reduced the sensitivity to detect subtle gender-related differences. These limitations highlight several avenues for future research. Prospective and longitudinal studies are needed to clarify the temporal relationships among psychological well-being, recovery, burnout, and psychological distress, while larger and more balanced samples would improve the robustness and generalisability of the findings. Moreover, incorporating objective indicators of recovery and physiological functioning, such as actigraphy, external and internal training load metrics, heart rate variability, or endocrine biomarkers, would provide a more comprehensive evaluation of athlete health beyond self-reported measures. Future investigations should also adopt a broader ecological perspective by examining the influence of contextual and individual factors that may shape athletes' psychological responses. Variables including training and competition demands, academic or occupational commitments, perceived social support, motivational climate, perfectionism, coping strategies, and fear of failure may interact to influence the relationships observed in the present study. Furthermore, intervention-based research should evaluate the effectiveness of multidisciplinary approaches integrating sleep hygiene education, psychological skills training, stress-management programmes, and recovery-oriented strategies to enhance psychological well-being while reducing burnout and psychological distress. Such evidence would contribute to the development of personalised monitoring systems and evidence-based interventions aimed at promoting both mental health and sustainable performance in semi-professional athletes.

Conclusions

The present study provides new evidence regarding the relationships among wellness, burnout, sleep deprivation, and psychological distress in semi-professional basketball players. Gender-related differences were observed only in psychological distress, with male athletes reporting higher PSDI scores, whereas wellness, burnout, and sleep deprivation were comparable between groups. Furthermore, the associations among these variables differed according to gender, with wellness showing a stronger protective role in female athletes and sleep deprivation emerging as the main predictor of psychological distress in males. These findings emphasise the complex and multidimensional nature of athlete mental health and highlight the importance of considering gender-specific patterns when interpreting psychological responses to competitive sport. From an applied perspective, integrating regular assessments of wellness, burnout, sleep, and psychological distress into athlete monitoring programmes may facilitate the early identification of athletes at increased psychological risk and support the implementation of targeted recovery and mental health interventions. Such an approach may be particularly valuable in semi-professional settings, where athletes must balance competitive sport with academic, occupational, and personal demands.



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References

- American Psychological Association. (2020). Publication manual of the American Psychological Association (7th ed.). <https://doi.org/10.1037/0000165-000>
- Biggins, M., Purtill, H., Fowler, P., Bender, A., Sullivan, K. O., Samuels, C., & Cahalan, R. (2021). Sleep, health, and well-being in elite athletes from different sports, before, during, and after international competition. *The Physician and Sportsmedicine*, 49(4), 429–437. <https://doi.org/10.1080/00913847.2020.1850149>
- Buyse, D. J., Reynolds III, C. F., Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989). The Pittsburgh Sleep Quality Index: a new instrument for psychiatric practice and research. *Psychiatry Research*, 28(2), 193–213. [https://doi.org/10.1016/0165-1781\(89\)90047-4](https://doi.org/10.1016/0165-1781(89)90047-4)
- Carbonell Miralles, V., Guzmán Luján, J. F., & Dorochenko, P. (2023). Effects of variability of practice on self-efficacy and performance in basketball throwing. *Retos*, 47, 498–504. <https://doi.org/10.47197/retos.v47.95277>
- Corrado, S., Tosti, B., Mancone, S., Di Libero, T., Rodio, A., Andrade, A., & Diotaiuti, P. (2024). Improving mental skills in precision sports by using neurofeedback training: A narrative review. *Sports*, 12(3), 70. <https://doi.org/10.3390/sports12030070>
- De Francisco, C., Arce, C., Villán, M. D., & Garcés de Los Fayos, E. J. (2014). Burnout en deportistas: prevalencia del síndrome a través de dos medidas. *Cuadernos de Psicología del Deporte*, 14(1), 29–38. <https://doi.org/10.4321/S1578-84232014000100004>
- Deci, E. L., & Ryan, R. M. (2008). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian Psychology*, 49(3), 182–185. <https://doi.org/10.1037/a0012801>
- Derogatis, L. R. (2002). SCL-90-R: Cuestionario de 90 síntomas: Manual [Instrumento de evaluación]. TEA Ediciones.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessment*, 49(1), 71–75. https://doi.org/10.1207/s15327752jpa4901_13
- Diener, E., Oishi, S., & Tay, L. (2018). Advances in subjective well-being research. *Nature Human Behaviour*, 2(4), 253–260. <https://doi.org/10.1038/s41562-018-0307-6>
- Fletcher, D., & Sarkar, M. (2012). A grounded theory of psychological resilience in Olympic champions. *Psychology of Sport and Exercise*, 13(5), 669–678. <https://doi.org/10.1016/j.psychsport.2012.04.007>
- Falcón Miguel, D., Castellar Otín, C., Ortega Zayas, M. Ángel, & Pradas de la Fuente, F. (2020). Elementos de la lógica interna y externa de los juegos que explican la experiencia afectiva del alumnado de educación física en secundaria. *Publicaciones*, 50(1), 355–370. <https://doi.org/10.30827/publicaciones.v50i1.15991>
- Fullagar, H. H. K., Skorski, S., Duffield, R., et al. (2015). Sleep and athletic performance: The effects of sleep loss on exercise performance, and physiological and cognitive responses to exercise. *Sports Medicine*, 45(2), 161–186. <https://doi.org/10.1007/s40279-014-0260-0>
- Gallegos-Sánchez, J. J., Gutiérrez-García, M., Rodríguez-Vela, B. R., & Castañeda-Lechuga, C. H. (2023). Síndrome de burnout en deportistas selectivos universitarios mexicanos. *Revista de Ciencias del Ejercicio FOD*, 18(1), 24–29. <https://doi.org/10.29105/rcefod18.1-74>

- Gerber, M., Brand, S., Holsboer-Trachsler, E., & Pühse, U. (2010). Fitness and exercise as correlates of sleep complaints: is it all in our minds?. *Medicine and Science in Sports and Exercise*, 42(5), 893–901. <https://doi.org/10.1249/MSS.0b013e31c0ea8c>
- Glandorf, H. L., Madigan, D. J., Kavanagh, O., & Mallinson-Howard, S. H. (2025). Mental and physical health outcomes of burnout in athletes: a systematic review and meta-analysis. *International Review of Sport and Exercise Psychology*, 18(1), 372–416. <https://doi.org/10.1080/1750984X.2023.2225187>
- Glandorf, H., Madigan, D., Kavanagh, O., Mallinson-Howard, S., Donachie, T., Olsson, L., & Rumbold, J. (2022). Athlete burnout and mental and physical health outcomes: A three-wave longitudinal study. *PsychArchives*. <https://doi.org/10.23668/psycharchives.8214>
- Goodger, K., Gorely, T., Lavalley, D., & Harwood, C. (2007). Burnout in sport: A systematic review. *The Sport Psychologist*, 21(2), 127–151. <https://doi.org/10.1123/tsp.21.2.127>
- Gouttebarga, V., Castaldelli-Maia, J. M., Gorczynski, P., Hainline, B., Hitchcock, M. E., Kerkhoffs, G. M., Rice, S. M., & Reardon, C. L. (2019). Occurrence of mental health symptoms and disorders in current and former elite athletes: a systematic review and meta-analysis. *British Journal of Sports Medicine*, 53(11), 700–706. <https://doi.org/10.1136/bjsports-2019-100671>
- Gustafsson, H., DeFreese, J. D., & Madigan, D. J. (2017). Athlete burnout: Review and recommendations. *Current Opinion in Psychology*, 16, 109–113. <https://doi.org/10.1016/j.copsyc.2017.05.002>
- Halson, S. L. (2014). Sleep in elite athletes and nutritional interventions to enhance sleep. *Sports Medicine*, 44(Suppl 1), S13–S23. <https://doi.org/10.1007/s40279-014-0147-0>
- Henriksen, K., Schinke, R., Moesch, K., McCann, S., Parham, W. D., Larsen, C. H., & Terry, P. (2020). Consensus statement on improving the mental health of high performance athletes. *International Journal of Sport and Exercise Psychology*, 18(5), 553–560. <https://doi.org/10.1080/1612197X.2019.1570473>
- Huppert, F. A. (2009). Psychological well-being: Evidence regarding its causes and consequences. *Applied Psychology: Health and Well-Being*, 1(2), 137–164. <https://doi.org/10.1111/j.1758-0854.2009.01008.x>
- Isoard-Gautheur, S., Guillet-Descas, E., & Gustafsson, H. (2016). Athlete burnout and the risk of dropout among young elite handball players. *The Sport Psychologist*, 30(2), 123–130. <https://doi.org/10.1123/TSP.2014-0140>
- Isorna, M., Vázquez, M. J., Pérez, I., Alias, A., & Vaquero, R. (2019). Síndrome de burnout en piragüistas españoles de alto nivel: prevalencia en función de variables sociodemográficas y de la práctica deportiva. *Psychology, Society & Education*, 11(1), 83–97. <http://hdl.handle.net/10835/6942>
- Kang, W., & Gong, C. (2024). Exploring potential mediating mechanisms between maladaptive perfectionism and athlete burnout based on multi-theory perspectives. *Frontiers in Psychology*, 15, 1416281. <https://doi.org/10.3389/fpsyg.2024.1416281>
- Kellmann, M. (2010). Preventing overtraining in athletes in high-intensity sports and stress/recovery monitoring. *Scandinavian Journal of Medicine and Science in Sports*, 20(Suppl 2), 95–102. <https://doi.org/10.1111/j.1600-0838.2010.01192.x>
- Kuettel, A., & Larsen, C. H. (2020). Risk and protective factors for mental health in elite athletes: a scoping review. *International Review of Sport and Exercise Psychology*, 13(1), 231–265. <https://doi.org/10.1080/1750984X.2019.1689574>
- Lundqvist, C. (2011). Well-being in competitive sports—the feel-good factor? A review of conceptual considerations of well-being. *International Review of Sport and Exercise Psychology*, 4(2), 109–127. <https://doi.org/10.1080/1750984X.2011.584067>
- 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 Psychology*, 12, 700829. <https://doi.org/10.3389/fpsyg.2021.700829>
- Mah, C. D., Mah, K. E., Kezirian, E. J., & Dement, W. C. (2011). The effects of sleep extension on the athletic performance of collegiate basketball players. *Sleep*, 34(7), 943–950. <https://doi.org/10.5665/SLEEP.1132>
- Meeusen, R., Duclos, M., Foster, C., et al. (2013). Prevention, diagnosis and treatment of the overtraining syndrome: Joint consensus statement of the European College of Sport Science and the American College of Sports Medicine. *European Journal of Sport Science*, 13(1), 1–24. <https://doi.org/10.1080/17461391.2012.730061>



- Nowakowski, S., Meers, J., & Heimbach, E. (2013). Sleep and Women's Health. *Sleep medicine research*, 4(1), 1–22. <https://doi.org/10.17241/smr.2013.4.1.1>
- Olsson, L. F., Glandorf, H. L., Black, J. F., Jeggo, R. E. K., Stanford, J. R., Drew, K. L., & Madigan, D. J. (2025). A multi-sample examination of the relationship between athlete burnout and sport performance. *Psychology of Sport and Exercise*, 76, Artículo 102747. <https://doi.org/10.1016/j.psychsport.2024.102747>
- Purcell, R., Gwyther, K., & Rice, S. M. (2019). Mental health in elite athletes: Increased awareness requires an early intervention framework to respond to athlete needs. *Sports Medicine - Open*, 5(1), 46. <https://doi.org/10.1186/s40798-019-0220-1>
- Raedeke, T. D., & Smith, A. L. (2001). Development and preliminary validation of an athlete burnout measure. *Journal of Sport & Exercise Psychology*, 23(4), 281–306. <https://doi.org/10.1123/jsep.23.4.281>
- Reardon, C. L., Hainline, B., Aron, C. M., et al. (2019). Mental health in elite athletes: International Olympic Committee consensus statement. *British Journal of Sports Medicine*, 53(11), 667–699. <https://doi.org/10.1136/bjsports-2019-100715>
- Rice, S. M., Gwyther, K., Santesteban-Echarri, O., Baron, D., Gorczynski, P., Gouttebauge, V., Reardon, C. L., Hitchcock, M. E., Hainline, B., & Purcell, R. (2019). Determinants of anxiety in elite athletes: a systematic review and meta-analysis. *British Journal of Sports Medicine*, 53(11), 722–730. <https://doi.org/10.1136/bjsports-2019-100620>
- Ruiz-Barquín, R., García-Naveira, A., & Núñez Prats, A. (2024). Descripción de los niveles de burnout en una muestra de jóvenes deportistas y su relación con la percepción y preferencias de liderazgo. *Retos*, 61, 832–852. <https://doi.org/10.47197/retos.v61.104784>
- Ryff, C. D., & Singer, B. (1996). Psychological well-being: Meaning, measurement, and implications for psychotherapy research. *Psychotherapy and Psychosomatics*, 65(1), 14–23. <https://doi.org/10.1159/000289026>
- Schinke, R. J., Stambulova, N. B., Si, G., & Moore, Z. (2018). International society of sport psychology position stand: Athletes' mental health, performance, and development. *International Journal of Sport and Exercise Psychology*, 16(6), 622–639. <https://doi.org/10.1080/1612197X.2017.1295557>
- Schober, P., & Schwarte, L. A. (2018). Correlation coefficients: Appropriate use and interpretation. *Anesthesia & Analgesia*, 126(5), 1763–1768. <https://doi.org/10.1213/ANE.0000000000002864>
- Valadez Jiménez, A., & González-Hernández, J. (2025). Relación de la calidad de sueño y el cronotipo sobre el burnout en entrenadores. *Retos*, 68, 1339–1352. <https://doi.org/10.47197/retos.v68.110935>
- Valle Martos, I. (2014). Influencia en la tasa de aprendizaje de habilidades específicas de baloncesto en base a la metodología de enseñanza. Análisis motivacional. *Publicaciones*, 33, 29–42. <https://revistaseug.ugr.es/index.php/publicaciones/article/view/2309>
- Walsh, N. P., Halson, S. L., Sargent, C., et al. (2021). Sleep and the athlete: Narrative review and 2021 expert consensus recommendations. *British Journal of Sports Medicine*, 55(7), 356–368. <https://doi.org/10.1136/bjsports-2020-102025>
- Walton, C. C., Rice, S., Gao, C. X., et al. (2021). Gender differences in mental health symptoms and risk factors in Australian elite athletes. *BMJ Open Sport & Exercise Medicine*, 7(1), e000984. <https://doi.org/10.1136/bmjsem-2020-000984>
- Watson A. M. (2017). Sleep and Athletic Performance. *Current Sports Medicine Reports*, 16(6), 413–418. <https://doi.org/10.1249/JSR.0000000000000418>
- Yaguachi-Alarcón, A., Yaguachi-Alarcón, A. L., Vargas-Rodríguez, I. A., Ordóñez-Aguilar, G. A., Arias-Ortiz, C. J., Peralta-Machado, J. D., Poveda-Loor, C. L., & González-García, W. A. (2026). Síndrome de burnout, patrón del sueño y conducta alimentaria en universitarios: diferencias según modalidad de estudio (diurno y nocturno). *Retos*, 80, 706–715. <https://doi.org/10.47197/retos.v80.119383>
- Yan, Z., & Wang, L. (2025). The relationship between sleep disorder and mental health in athletes and its mediating role: a cross-sectional study. *PLoS ONE* 20(3): e0319813. <https://doi.org/10.1371/journal.pone.0319813>

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