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Mediating role of sports emotions in implicit beliefs and mental toughness among athletes

El papel mediador de las emociones deportivas en las creencias implícitas y la fortaleza mental de los atletas

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Abstract

This study examines the mediating role of sports emotions in the relationship between implicit beliefs and mental toughness among student-athletes. Implicit beliefs, categorized as incremental (growth mindset) and entity (fixed mindset), influence athletes' cognitive, emotional, and behavioral responses to competition. Mental toughness, a key psychological trait in athletic success, is shaped by both cognitive and emotional factors. This study utilized a quantitative research design with 500 student-athletes from Regions 9 and 10 in Mindanao, Philippines, employing standardized measures to assess implicit beliefs, sports emotions, and mental toughness. Mediation analysis revealed that sports emotions significantly influenced the relationship between implicit beliefs and mental toughness. Incremental beliefs were associated with greater happiness and excitement, leading to higher mental toughness, while entity beliefs were linked to increased dejection and anxiety, resulting in lower resilience. Notably, dejection and anger were significant mediators in the relationship between implicit beliefs and mental toughness, highlighting the role of emotional regulation in sports performance. These findings underscore the importance of fostering a growth mindset and developing emotional regulation strategies to enhance mental resilience among athletes. The study suggests that coaches, sports psychologists, and educators should implement interventions that reinforce growth-oriented beliefs and adaptive emotional responses to optimize performance. Future research should explore longitudinal designs and additional psychological factors that influence mental toughness to develop more comprehensive athlete development programs.

Keywords: implicit beliefs, mental toughness, sports emotions, growth mindset in athletes, emotional regulation strategies

Resumen

Este estudio examina el papel mediador de las emociones deportivas en la relación entre las creencias implícitas y la fortaleza mental en atletas estudiantiles. Las creencias implícitas, categorizadas como incrementales (mentalidad de crecimiento) y de entidad (mentalidad fija), influyen en las respuestas cognitivas, emocionales y conductuales de los atletas en la competencia. La fortaleza mental, un rasgo psicológico clave en el éxito deportivo, se ve influenciada tanto por factores cognitivos como emocionales. Este estudio empleó un diseño de investigación cuantitativo con 500 atletas estudiantiles de las Regiones 9 y 10 de Mindanao, Filipinas, utilizando medidas estandarizadas para evaluar creencias implícitas, emociones deportivas y fortaleza mental. El análisis de mediación reveló que las emociones deportivas influyeron significativamente en la relación entre las creencias implícitas y la fortaleza mental. Las creencias incrementales se asociaron con mayores niveles de felicidad y entusiasmo, lo que condujo a una mayor fortaleza mental, mientras que las creencias de entidad se vincularon con mayores niveles de abatimiento y ansiedad, resultando en menor resiliencia. Específicamente, el abatimiento y la ira fueron mediadores significativos en la relación entre las creencias implícitas y la fortaleza mental, lo que destaca la importancia de la regulación emocional en el rendimiento deportivo. Estos hallazgos subrayan la necesidad de fomentar una mentalidad de crecimiento y desarrollar estrategias de regulación emocional para fortalecer la resiliencia mental en los atletas. Se recomienda que entrenadores, psicólogos deportivos y educadores implementen intervenciones que refuercen creencias orientadas

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al crecimiento y respuestas emocionales adaptativas para optimizar el rendimiento. Investigaciones futuras deberían explorar diseños longitudinales y otros factores psicológicos que influyan en la fortaleza mental para desarrollar programas más completos de formación deportiva.

Palabras clave: creencias implícitas, fortaleza mental, emociones deportivas, mentalidad de crecimiento, regulación emocional

Introduction

Sports evoke intense emotions, influencing both athletes and spectators. Competitive sports require a positive mental state, characterized by vigor, dedication, and absorption, essential for athlete engagement and performance (Singh et al., 2024; Ma, 2025). Mental toughness plays a critical role in stress management, resilience, and confidence, allowing athletes to perform under pressure (Hudaniah & Masturah, 2024; Guzmán-Muzante et al., 2024). Despite its importance, the cognitive and emotional determinants of mental toughness remain underexplored.

One key factor is implicit beliefs, which shape how individuals perceive abilities and respond to challenges (Stähler, 2022). Entity beliefs (fixed mindset) lead to avoidance of difficulty and emotional distress, while incremental beliefs (growth mindset) foster perseverance, effortful learning, and emotional regulation (Vechiu & Gradinariu, 2024; Giannini, 2022). These beliefs influence motivation, confidence, and resilience in competitive sports, yet the mechanisms linking implicit beliefs to mental toughness, particularly the role of sports emotions, remain unclear.

Sports emotions can either enhance or hinder performance, depending on regulation. Positive emotions boost focus, motivation, and endurance, while negative emotions like anxiety and frustration impair decision-making and self-efficacy (Tamminen et al., 2025; Cooper et al., 2021). Incremental beliefs may help athletes interpret stressors positively, promoting adaptive emotional responses and greater mental toughness, whereas entity beliefs heighten anxiety and self-doubt, reducing resilience (Korkutata et al., 2024).

This study examines the relationship between implicit beliefs and mental toughness, focusing on sports emotions as a mediator. It explores intercorrelations, predictive relationships, and sociodemographic influences, providing insights into cognitive-emotional mechanisms shaping resilience. Findings will guide coaches, sports

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psychologists, and athletes in fostering growth mindsets and emotional regulation strategies to enhance performance and well-being in high-pressure sports environments.

Implicit Beliefs and Athlete Performance

Implicit beliefs, conceptualized as fixed (entity) or growth (incremental) mindsets, shape athletes' cognitive, emotional, and behavioral responses to competition (Sik et al., 2023). Entity-minded athletes view abilities as innate and unchangeable, leading to lower motivation, avoidance of challenges, and decreased resilience (García Peñas et al., 2024). In contrast, incremental-minded athletes see skills as developable through effort, fostering perseverance, adaptive coping, and greater mental toughness (Tóth et al., 2024).

Athletes with growth mindsets set higher personal goals, cultivate intrinsic motivation, and engage in deliberate practice, enhancing psychological resilience and adaptability (Hodgson & Sanders, 2022). These beliefs also correlate with positive emotions like confidence and enthusiasm, which sustain engagement and skill acquisition. Young athletes particularly benefit from incremental beliefs, as their resilience is still developing. Coaches and trainers play a vital role in reinforcing growth-oriented mindsets through effort-based feedback and self-improvement strategies (Lopes, 2024).

Despite these benefits, many sports environments still emphasize performance-based talent models, reinforcing entity beliefs. This highlights the need for structured mindset training to promote adaptability, resilience, and emotional regulation (Nilsen et al., 2024). Given the profound impact of mindset on motivation, performance, and emotional resilience, further research should explore longitudinal effects of mindset training and its interaction with coaching styles, competition pressure, and team dynamics (Lopes, 2024).

Mental Toughness in Sports Psychology

Mental toughness is a crucial psychological trait that enables athletes to perform under pressure, manage stress, and sustain motivation in competitive sports (Yang & Endozo, 2025). It encompasses self-confidence, emotional regulation, and resilience,

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allowing athletes to recover from setbacks and maintain high performance despite external pressures (Guzmán-Muzante et al., 2024). While traditionally seen as innate, research suggests it can be developed through psychological skills training, goal-setting, mindfulness, and exposure to competition (Ojio et al., 2024). Coaching, mentorship, and strong social support systems further enhance resilience and stress management in athletes (Yang & Endozo, 2025).

Despite extensive research on its behavioral aspects, less attention has been given to implicit beliefs—the underlying perceptions about whether abilities are fixed or developable (Vechiu & Gradinariu, 2024). Entity-minded athletes see mental toughness as static, leading to lower resilience and greater fear of failure, whereas incremental-minded athletes believe it can be developed through effort, fostering greater perseverance and motivation (Giannini, 2022). Empirical evidence suggests that incremental beliefs encourage athletes to view setbacks as learning opportunities, use adaptive coping strategies, and remain motivated, while entity beliefs contribute to avoidance behaviors and emotional distress (Orlanes et al., 2024).

Given the significance of mental toughness in athletic success, future research should explore its cognitive foundations, particularly the role of implicit beliefs in resilience and stress management. Longitudinal studies across different sports disciplines could provide insights for designing effective psychological training interventions, helping athletes build confidence, adaptability, and sustained motivation in competitive settings.

The Role of Sports Emotions in Athletic Performance

Emotions are crucial in athletic performance, influencing decision-making, focus, confidence, and motivation (Tamminen et al., 2025). Positive emotions like excitement and pride enhance engagement and energy, while negative emotions such as anxiety and frustration impair concentration and resilience, especially in high-pressure situations (DeWolfe et al., 2024). Effective emotional regulation strategies, including cognitive reappraisal, mindfulness, and relaxation techniques, help athletes maintain composure and improve performance under stress. Additionally, emotional intelligence supports adaptability, motivation, and quicker recovery from setbacks (Korkutata et al., 2024).

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Implicit beliefs play a key role in shaping emotional responses. Incremental-minded athletes—who believe in skill development through effort—experience more positive emotions, fostering perseverance and goal-directed behavior (Tóth et al., 2024). In contrast, entity-minded athletes, who view abilities as fixed, are prone to anxiety, fear of failure, and frustration, which can undermine performance (García Peñas et al., 2024).

Despite evidence linking emotions to performance, the interaction between implicit beliefs, emotional regulation, and mental toughness remains underexplored. Future research should examine these relationships across sports disciplines, competitive levels, and cultural contexts to inform psychological interventions that enhance resilience, self-regulation, and overall success (Padir & Vangölü, 2023). Integrating insights from sports psychology and cognitive science can help coaches, psychologists, and athletes develop training programs that strengthen mental toughness and optimize competitive performance.

Mediating Role of Sports Emotions in the Implicit Beliefs–Mental Toughness Relationship

The mediating role of sports emotions in the relationship between implicit beliefs and mental toughness is gaining attention but remains underexplored in sports psychology. Incremental-minded athletes, who view abilities as developable, exhibit more adaptive emotional responses, fostering resilience and sustained performance (Chen, 2024). They reframe challenges as growth opportunities, maintain confidence and determination, and employ effective coping strategies, which strengthen mental toughness.

On the other hand, entity-minded athletes, who perceive abilities as fixed, are prone to anxiety, fear of failure, and frustration, which impair concentration, motivation, and resilience (Cunha et al., 2024). Their inability to regulate emotions under pressure increases stress responses, hindering mental toughness development. Cognitive appraisal theory explains this dynamic, suggesting that incremental beliefs lead athletes to interpret stressors as challenges, promoting positive emotions and perseverance, while entity beliefs trigger stress, anxiety, and emotional exhaustion (Giannini, 2022).

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Research highlights the role of emotion regulation strategies, such as self-talk, cognitive reappraisal, and relaxation training, in strengthening mental toughness and resilience (Tamminen et al., 2025). However, the specific mechanisms of this mediation remain unclear, requiring further investigation into how sports emotions interact with implicit beliefs across different sports and competition levels. Future studies should develop integrated models to enhance adaptive mindsets, emotional resilience, and performance. By promoting incremental beliefs and effective emotion regulation, coaches and sports psychologists can cultivate mentally tough athletes for long-term success.

Implications for Coaching and Athlete Development

Understanding the interaction between implicit beliefs, emotions, and mental toughness has important implications for coaching and athlete development. Coaches, trainers, and sports psychologists play a key role in fostering growth-oriented mindsets and emotion regulation strategies to enhance resilience and performance. Mindset interventions, including structured feedback, goal-setting, and positive reinforcement, help athletes develop incremental beliefs, leading to greater motivation, persistence, and mental toughness (Zhang et al., 2025).

Training athletes to manage emotions under pressure is crucial. Strategies such as cognitive reappraisal, self-talk, relaxation, and mindfulness improve resilience and competitive performance by reducing negative emotions and maintaining focus (Robazza et al., 2024). Developing emotional intelligence through techniques like reflective journaling and biofeedback training further enhances mental toughness. Additionally, psychological skills training (PST), including visualization, goal-setting, and resilience-building exercises, strengthens both performance and long-term psychological well-being (Wang et al., 2025).

Sports organizations and educational institutions can integrate mental conditioning programs into athletic training to prepare athletes for elite competition and life beyond sports. Workshops on growth mindset, stress management, and self-reflection can cultivate sustained psychological resilience. Future longitudinal and cross-sport studies should explore the long-term effects of mindset interventions to refine athlete development strategies (Yoon & Nam, 2024).

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By integrating psychological principles into coaching, sports professionals can develop mentally tough, motivated, and resilient athletes, maximizing their potential and sustaining excellence in competitive performance.

Objectives of the Study and Hypotheses Formulation

Mental toughness is vital for athletic performance, helping athletes overcome challenges, stay focused, and maintain motivation. While research has examined its psychological influences, the connection between implicit beliefs, sports emotions, and mental toughness remains underexplored, particularly in adolescent athletes. Implicit beliefs—whether abilities are malleable or fixed—shape emotional responses to competition and adversity, impacting mental resilience. Understanding the mediating role of sports emotions in this relationship is key to developing effective psychological interventions.

This study explores the interrelationships among implicit beliefs, sports emotions, and mental toughness, assessing whether implicit beliefs predict both mental toughness and sports emotions and examining the mediating role of emotions. Findings aim to guide coaches, sports psychologists, and educators in fostering mental resilience in adolescent athletes.

Based on these objectives, the study will test the following hypotheses:

H_{a1}: There is a significant intercorrelation among implicit beliefs, sports emotions, and mental toughness.

H_{a2}: Implicit beliefs significantly predict mental toughness and sports emotions.

H_{a3}: Sports emotions significantly mediate the relationship between implicit beliefs and mental toughness.

Methods

Research Design

This study employed a quantitative research design to examine the interrelationships among implicit beliefs, sports emotions, and mental toughness among student-athletes. Specifically, a correlational research approach was utilized to determine the strength and direction of associations among these psychological constructs.

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To test the hypothesized relationships, multiple mediation analysis was conducted to assess whether sports emotions served as a mediating variable between implicit beliefs and mental toughness. This statistical approach allowed for a deeper understanding of the underlying mechanisms through which implicit beliefs influenced mental toughness, providing insights into how sports emotions played a role in this relationship.

By adopting this design, the study aimed to generate empirical evidence that could contribute to the development of psychological interventions for enhancing student-athletes' mental resilience and emotional regulation in competitive sports settings.

Participants, Sampling Technique, and Sample Size

This study included 500 student-athletes (ages 13–18) from high schools in Regions 9 and 10, Mindanao, Philippines, actively competing in team sports. A purposive sampling technique ensured participants met specific criteria: (1) active in competitive team sports, (2) participation in school or regional tournaments, and (3) regular training engagement. This approach enhanced the study's validity by focusing on athletes with relevant competitive experience. The sample size provided sufficient statistical power for multiple mediation analysis and correlational assessments, allowing for meaningful insights into mental toughness and emotional regulation in competitive sports.

Instruments

The This study utilized three standardized instruments to measure implicit beliefs, sports engagement, and sports emotions among student-athletes. Each scale has demonstrated strong reliability in previous research, ensuring validity and accuracy in data collection.

1. Implicit Beliefs Scale

The Implicit Beliefs Scale was adapted from the DIMTI (Sarrazin et al., 1996) to assess athletes' incremental and entity beliefs regarding their abilities in sports. The scale consisted of 8 items, rated on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). It measured two sub-dimensions:

- Entity beliefs (fixed mindset): Cronbach's $\alpha = 0.82$
- Incremental beliefs (growth mindset): Cronbach's $\alpha = 0.77$

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2. Sports Engagement Scale (SES)

The Sports Engagement Scale (SES) was used to measure athletes' level of engagement in sports activities, including vigor, dedication, and absorption. The scale comprised 13 items, with each item rated on a Likert scale. The reliability of its subscales was high, with Cronbach's $\alpha > 0.85$.

3. Sports Emotion Questionnaire

The Sports Emotion Questionnaire was utilized to assess the five key dimensions of sports emotions, including:

- Anxiety
- Dejection
- Anger
- Excitement
- Happiness

The questionnaire employed a 5-point Likert scale and demonstrated strong reliability, with subscales reporting Cronbach's $\alpha > 0.80$.

Data Analysis

This study utilized SPSS (Version 20) and Hayes' PROCESS Macro to analyze the relationships among implicit beliefs, sports emotions, and mental toughness. Descriptive statistics (means, standard deviations, and frequency distributions) summarized participant scores, while Kolmogorov-Smirnov and Shapiro-Wilk tests assessed normality. Cronbach's α measured instrument reliability.

Inferential analyses included Pearson's correlation to examine interrelationships, multiple regression to test implicit beliefs as predictors, and mediation analysis (PROCESS Macro, Model 4) to assess sports emotions as a mediator. The bootstrapping method (5,000 resamples, 95% CI) evaluated indirect effects, ensuring a robust examination of the study's hypotheses.

Ethical Statement

This study was conducted in accordance with ethical guidelines to ensure the rights, privacy, and well-being of all participants. The research protocol was reviewed and approved by the Institutional Ethics Review Board of J.H. Cerilles State College. Informed consent was obtained from all participants before their involvement in the study.

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For participants under the age of 18, parental or guardian consent was secured in compliance with ethical standards for research involving minors.

Participation in the study was entirely voluntary, and participants were informed of their right to withdraw at any stage without any penalty or consequence. Confidentiality and anonymity were strictly maintained throughout the research process. All data were collected, stored, and processed securely to protect participants' identities and comply with applicable data protection laws and regulations.

Results

Understanding the psychological factors that influence athlete performance is essential in optimizing training and competition outcomes. Implicit beliefs, particularly the distinction between incremental (growth mindset) and entity (fixed mindset) beliefs, play a crucial role in shaping an athlete's motivation, resilience, and response to challenges. Additionally, sports emotions significantly impact engagement and mental toughness, with positive emotions fostering confidence and persistence, while negative emotions may hinder performance. Evaluating these variables provides insight into how athletes regulate their emotions and develop psychological resilience. A summary of the descriptive statistics for these key variables is presented in Table 1.

Table 1

Descriptive Statistics of Study Variables

Variable	Mean (M)	Standard Deviation (SD)
Implicit Beliefs		
Incremental Beliefs	3.92	0.64
Entity Beliefs	2.87	0.71
Sports Emotions		
Happiness	4.15	0.58
Excitement	4.07	0.61
Anxiety	3.02	0.76
Dejection	2.89	0.72
Anger	2.74	0.69
Mental Toughness	3.76	0.68

Incremental beliefs ($M = 3.92$, $SD = 0.64$) were more prevalent than entity beliefs ($M = 2.87$, $SD = 0.71$), suggesting that most athletes believe in improving through effort

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and training. Positive emotions like happiness ($M = 4.15$, $SD = 0.58$) and excitement ($M = 4.07$, $SD = 0.61$) were reported more frequently than negative emotions such as anxiety ($M = 3.02$, $SD = 0.76$) and dejection ($M = 2.89$, $SD = 0.72$), indicating generally favorable emotional states. However, moderate levels of anxiety and dejection suggest that some athletes experience emotional distress due to competition-related pressures. Mental toughness ($M = 3.76$, $SD = 0.68$) was moderate, with variability in resilience, stress management, and focus, highlighting the need for enhanced coping strategies in some athletes.

Athletes' implicit beliefs influence their emotional responses and engagement in sports. Those with incremental beliefs tend to interpret challenges as opportunities for growth, leading to more adaptive emotional experiences, while entity beliefs are often linked to heightened negative emotions that may hinder engagement. Sports emotions play a crucial mediating role in this relationship, as they can either enhance or impair an athlete's motivation and persistence. Understanding how specific emotions, such as dejection and anger, mediate the connection between implicit beliefs and sports engagement provides valuable insights into psychological resilience in athletics. A summary of the multiple mediation analysis results is presented in Table

Table 2

Results of Multiple Mediation Analyses of Sports Emotion (Incremental Beliefs as IV)

Independent Variable (IV)	Mediating Variable (M)	Dependent Variable (DV)	Effect of IV on M (a)	Effect of M on DV (b)	Direct Effect (c')	Total Indirect Effect	Total Effect (c)	Indirect Effects	Std. Error	BC 95% CI (LL, UL)
Incremental Beliefs (INC)	Anxiety	Sports Engagement	0.8537	0.2555			1.406	0.0011	0.0084	-0.0113, 0.0269
	Dejection		0.0001**	0.0091	0.2221**	-0.0145**		0.0747	0.0351	0.0202, 0.1612
	Excitement		0.0000	0.0020				0.0898	0.0399	0.0353, 0.1714
	Anger		0.0000**	0.0490				-0.0611	0.0341	-1.397, -0.0049
	Happiness		0.0000	0.0003				-0.1175	0.0399	0.0515, 0.2077

The multiple mediation analysis indicates that dejection ($\beta = 0.0747$, $p < 0.01$, $CI = 0.0202, 0.1612$) and anger ($\beta = -0.0611$, $p < 0.01$, $CI = -1.397, -0.0049$) significantly

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mediate the relationship between incremental beliefs and sports engagement. The positive indirect effect of dejection suggests that higher incremental beliefs reduce feelings of dejection, leading to increased sports engagement. Equally, the negative indirect effect of anger implies that incremental beliefs help mitigate anger, indirectly promoting engagement. The direct effect of incremental beliefs on sports engagement ($\beta = 0.2221$, $p < 0.01$) remains significant, demonstrating that even when emotions are accounted for, incremental beliefs continue to exert a strong influence on engagement.

Athletes with entity beliefs, who perceive their abilities as fixed, often struggle with negative emotional responses that can diminish their sports engagement. Compared to those with incremental beliefs, these athletes may experience higher levels of dejection and anxiety, making them more vulnerable to disengagement when facing challenges. Understanding how sports emotions mediate this relationship is crucial in identifying psychological barriers to sustained participation. Examining the specific impact of dejection, anxiety, and other emotions on engagement can provide insights into strategies for improving athlete resilience. A summary of the multiple mediation analysis results is presented in Table 3.

Table 3

Results of Multiple Mediation Analyses of Sports Emotion (Entity Beliefs as IV)

Independent Variable (IV)	Mediating Variable (M)	Dependent Variable (DV)	Effect of IV on M (a)	Effect of M on DV (b)	Direct Effect (c')	Total Indirect Effect	Total Effect (c)	Indirect Effects	Std. Error	BC 95% CI (LL, UL)
Entity Beliefs	Anxiety	Sports Engagement	0.4393	0.1184			0.3860	0.0062	0.0100	-0.0066, 0.0361
	Dejection		0.0004**	0.0023**	0.4147**	-0.0287**		-0.0683	0.0304	-0.1406, -0.0215
	Excitement		0.8073	0.0001				-0.0049	0.0195	-0.0471, 0.0324
	Anger		0.0250	0.2242				0.0148	0.0154	-0.0056, 0.0591
	Happiness		0.2284	0.0002				0.0235	0.0205	-0.0097, 0.0731

The multiple mediation analysis indicates that dejection ($\beta = -0.0683$, $p < 0.01$, $CI = -0.1406, -0.0215$) significantly mediates the relationship between entity beliefs and

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sports engagement. The negative indirect effect suggests that stronger entity beliefs—where abilities are perceived as fixed—are associated with heightened feelings of dejection, which in turn lowers sports engagement. The direct effect of entity beliefs on sports engagement ($\beta = 0.4147$, $p < 0.01$) remains significant, demonstrating that despite the influence of emotional mediators, entity beliefs independently contribute to engagement. Other emotions, such as anxiety, excitement, anger, and happiness, do not exhibit significant mediation effects in this model.

Discussion

The findings of this study highlight the significant role of implicit beliefs and sports emotions in shaping student-athletes' sports engagement. The results demonstrate that incremental beliefs ($M = 3.92$, $SD = 0.64$) were more prevalent than entity beliefs ($M = 2.87$, $SD = 0.71$), suggesting that the majority of athletes believe in their ability to improve through effort and training rather than possessing fixed abilities. This aligns with the concept of a growth mindset, which has been linked to greater persistence, motivation, and resilience in sports contexts (Zhang et al., 2025). Athletes with strong incremental beliefs are more likely to embrace challenges and view setbacks as opportunities for growth, fostering long-term commitment and higher levels of sports engagement (Tóth et al., 2024).

The study further reveals that positive emotions such as happiness ($M = 4.15$, $SD = 0.58$) and excitement ($M = 4.07$, $SD = 0.61$) were more dominant than negative emotions like anxiety ($M = 3.02$, $SD = 0.76$) and dejection ($M = 2.89$, $SD = 0.72$). This suggests that student-athletes generally experience emotional states that are conducive to motivation and performance, supporting the broaden-and-build theory of positive emotions, which posits that positive affect enhances resilience and adaptive coping strategies (Akbar et al., 2024). However, moderate levels of anxiety and dejection indicate that some athletes still struggle with emotional distress, which could stem from performance pressure, high expectations, or competitive setbacks (Tamminen et al., 2025). These findings underscore the importance of emotional regulation strategies to help athletes manage negative emotions and maintain optimal performance. Moreover, sociocultural factors such as community support, family expectations, and regional sports

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culture may influence how emotions are experienced and regulated by athletes. In the context of student-athletes from Regions 9 and 10 in Mindanao, local norms regarding masculinity, success, and emotional expression could play a crucial role in shaping their emotional responses to sports challenges.

The multiple mediation analysis revealed that sports emotions significantly mediate the relationship between implicit beliefs and sports engagement. Specifically, dejection ($\beta = 0.0747$, $p < 0.01$, $CI = 0.0202, 0.1612$) and anger ($\beta = -0.0611$, $p < 0.01$, $CI = -1.397, -0.0049$) played mediating roles in the link between incremental beliefs and engagement. The positive indirect effect of dejection suggests that athletes with stronger incremental beliefs experience lower levels of dejection, which in turn fosters higher sports engagement. This finding is consistent with research indicating that belief in one's ability to improve reduces emotional distress and enhances motivation to participate in sports (García Peñas et al., 2024). The negative indirect effect of anger suggests that incremental beliefs may help mitigate frustration and aggression, indirectly promoting sports engagement. Previous studies have found that athletes with a growth mindset tend to display greater emotional control, which contributes to better performance and sustained participation in sports (Korkutata et al., 2024).

Similarly, entity beliefs demonstrated a significant mediation effect through dejection ($\beta = -0.0683$, $p < 0.01$, $CI = -0.1406, -0.0215$), indicating that student-athletes who perceive their abilities as fixed are more likely to experience heightened feelings of dejection, which negatively impacts their sports engagement. This supports previous research suggesting that fixed mindsets contribute to vulnerability to negative emotions, particularly in the face of failure or criticism (Gál, 2024). Athletes who believe their abilities are unchangeable may disengage from sports when faced with difficulties, as they perceive failure as a reflection of their innate limitations rather than an opportunity for growth (Vechiu & Gradinaru, 2024). It is also important to recognize that sociocultural perceptions of success and failure in specific regions may reinforce fixed beliefs. For example, in communities where athletic achievements are highly valued or idealized, student-athletes may feel immense pressure to succeed quickly, reinforcing entity thinking when immediate results are not achieved.

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Additionally, mental toughness ($M = 3.76$, $SD = 0.68$) was found to be moderate among participants, indicating variability in athletes' psychological resilience. While many student-athletes demonstrate the ability to cope with setbacks, maintain focus, and recover from failures, others may require further development in emotional regulation and stress management techniques. Mental toughness has been consistently linked to performance outcomes in sports, as it enables athletes to persevere through adversity and sustain high levels of motivation (Yang & Endozo, 2025). Interventions aimed at strengthening mental resilience, such as cognitive restructuring and self-regulation training, could be beneficial in helping athletes manage stress and maintain engagement in their respective sports. These interventions should be sensitive to cultural values and localized experiences, ensuring that psychological training aligns with the athletes' cultural backgrounds and lived realities.

Overall, these findings emphasize the importance of implicit beliefs and emotional experiences in shaping student-athletes' engagement in sports. Promoting a growth mindset through targeted interventions and psychological skills training may help athletes develop greater emotional resilience and enhance their motivation. Additionally, providing athletes with coping strategies to manage negative emotions such as dejection and anger could contribute to a more positive sports experience. Addressing sociocultural influences—such as regional attitudes toward competition, emotional expression, and athlete development—can further enhance the relevance and impact of psychological interventions. Future research may further explore the longitudinal impact of mindset interventions on sports engagement to develop evidence-based programs for student-athletes' psychological and emotional well-being.

Limitations of the Study

While this study provides valuable insights into the role of implicit beliefs and sports emotions in sports engagement, several limitations must be acknowledged. The cross-sectional design limits causal interpretations, highlighting the need for longitudinal studies to examine these psychological factors over time (Juezan & Osorno, 2024). The reliance on self-reported measures may introduce social desirability and response biases, suggesting that future research should incorporate objective performance indicators and

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coach/peer assessments for validation (Louzán & Villarroya López, 2024). In particular, participants may have overreported desirable traits or underreported negative emotions to align with perceived social norms or expectations from coaches and peers, potentially inflating associations between variables.

The study's focus on student-athletes (ages 13–18) in Regions 9 and 10, Mindanao, Philippines, may limit generalizability to athletes of different age groups, competitive levels, and cultural backgrounds (Rodrigues & Subagiyo, 2022). Cultural and regional influences may also have shaped participants' understanding and expression of emotions, as well as their interpretations of mindset-related constructs, introducing context-specific biases that may not be applicable in other populations. Additionally, while sports emotions were examined as mediators, other psychological and social factors such as self-efficacy, motivation, coaching style, and peer influence were not considered, warranting a more holistic approach in future studies (Choudhury & Das, 2024).

Furthermore, sport-specific differences were not assessed, despite the unique psychological demands of team versus individual sports. Future research should explore how implicit beliefs and emotions vary across sports types, skill levels, and competition intensity to refine psychological interventions (DeWolfe et al., 2024). Another source of potential bias lies in the recruitment and selection process, as voluntary participation may have attracted more self-motivated or mentally resilient athletes, thereby skewing the overall psychological profile of the sample.

Despite these limitations, this study advances the understanding of growth mindset, sports emotions, and athlete engagement, reinforcing the need for mental skills training and emotional regulation strategies in sports development programs.

Conclusion

This study highlights the psychological mechanisms influencing sports engagement, particularly the role of implicit beliefs and sports emotions. Findings show that incremental beliefs—emphasizing growth through effort—are more dominant among athletes than entity beliefs, which view abilities as fixed. Athletes with incremental beliefs experienced lower dejection and anger, leading to greater engagement, while entity-minded athletes had higher dejection, negatively impacting participation. These results

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underscore the importance of mindset in motivation, resilience, and commitment to training.

Sports emotions significantly mediated the implicit beliefs–engagement relationship. Positive emotions like happiness and excitement were more prevalent than negative emotions such as anxiety and dejection, indicating a generally favorable psychological environment. However, moderate levels of negative emotions suggest challenges related to performance pressure and self-doubt. Effective emotional regulation enables athletes to sustain motivation despite setbacks.

Coaches, educators, and sports psychologists should foster growth mindsets by emphasizing effort, improvement, and resilience. Structured interventions such as mental skills training, cognitive restructuring, and emotional regulation techniques can help athletes manage dejection and frustration, creating an environment that maximizes both performance and psychological well-being.

Despite its contributions, this study has limitations, including its cross-sectional design, reliance on self-reported measures, and regional focus, affecting causal interpretation and generalizability. Future research should use longitudinal designs, objective assessments, and diverse athlete populations to enhance findings.

Ultimately, this study reinforces the impact of mindset and emotions on motivation, resilience, and long-term engagement. Integrating mental conditioning, emotional coping, and motivational strategies can help athletes thrive, sustain commitment, and reach their full potential in competitive sports.

References

- Akbar, A., Abd Karim, Z., Zakaria, J., Kurniawan, R., Dwatra, F. D., & Cahyani, F. (2024). *Understanding Mental Toughness in Student-Athletes: Insights from Sport Psychology*. <https://doi.org/10.47197/retos.v54.102230>
- Chen, B. (2024). The Emotional Athlete: Anxiety, Excitement, and Their Role in Sports Performance. *Communications in Humanities Research*. <https://doi.org/10.54254/2753-7064/27/20232084>
- Choudhury, R. D., & Das, D. (2024). The Science of Team Dynamics: A Review of Psychological Factors Influencing Team Performance in Sports. *International*

Original article. Mediating role of sports emotions in implicit beliefs and mental toughness among athletes. Vol. 11, n.º 3; p. 1-22, July 2025. <https://doi.org/10.17979/sportis.2025.11.3.11863>

Journal of Advanced Research in Science, Communication and Technology, 217–224. <https://doi.org/10.48175/ijarsct-22726>

Cooper, J., Johnson, M., Radcliffe, J. N., & Fisher, J. (2021). Optimal Emotional Profiles for Peak Performance in Strength and Conditioning. *Journal of Strength and Conditioning Research*, 35(3), 833–840.

<https://doi.org/10.1519/JSC.0000000000002832>

Cunha, M., Sofia, R., & Dias, C. (2024). The role of implicit beliefs about emotions and emotion regulation on psychological adjustment: a study among youth athletes.

Human Movement, 25(4), 87–95. <https://doi.org/10.5114/hm/194016>

DeWolfe, C. E. J., Watt, M. C., Galbraith, M. K., Olthuis, J. V., & Stewart, S. H. (2024). Mental health in athletes: anxiety sensitivity as a transdiagnostic risk factor.

International Journal of Sport and Exercise Psychology, 1–20.

<https://doi.org/10.1080/1612197x.2024.2431253>

Gál, É. (2024). Intelligence Mindset, Self-Esteem, Emotions and Unconditional Self-Acceptance During Achievement-Related Difficulties. *Psychology in the Schools*.

<https://doi.org/10.1002/pits.23364>

García Peñas, V., López Martínez, O., Garcés de Los Fayos Ruiz, E., & Corbalán Berná, F. J. (2024). Psychological well-being and healthy personality in sports practice.

Retos: Nuevas Tendencias En Educación Física, Deportes y Recreación, 61, 49–58.

<https://doi.org/10.47197/retos.v61.106260>

Giannini, J. A. (2022). *Examining the relationships between ability conceptions, intrinsic motivation, persistence and performance*.

https://doi.org/10.31390/gradschool_dissertations.4041

Guzmán-Muzante, J. P., Reivan Ortiz, G. G., Urrea Cuéllar, Á. M., Carrasco, A., & Fonseca, A. M. (2024). Mental toughness: state or trait? Context and sporting performance in rugby union, a longitudinal study.

Retos: Nuevas Tendencias En Educación Física, Deportes y Recreación, 61, 988–995.

<https://doi.org/10.47197/retos.v61.108958>

Hodgson, R. L., & Sanders, E. (2022). Implicit Mindsets of Intelligence, Achievement Goals, Self-Handicapping, and Confidence. *Journal of Student Research*, 11(4).

<https://doi.org/10.47611/jsrhs.v11i4.3135>

Original article. Mediating role of sports emotions in implicit beliefs and mental toughness among athletes. Vol. 11, n.º 3; p. 1-22, July 2025. <https://doi.org/10.17979/sportis.2025.11.3.11863>

- Hudaniah, H., & Masturah, A. N. (2024). Ketangguhan mental sebagai solusi kecemasan bertanding atlet. *Jurnal Psikologi*, 20(2), 157. <https://doi.org/10.24014/jp.v20i2.23019>
- Juezan, I. J. I., & Osorno, R. I. M. (2024). Athletic mental energy and sports engagement as mediated by student-athlete satisfaction. *European Journal of Physical Education and Sport*, 11(2). <https://doi.org/10.46827/ejpe.v11i2.5412>
- Korkutata, A., Halis, M., & Bolel, B. (2024). The Impact of Anxiety Experienced in Competition on Decision-Making: A Study on Individual Sports Competitions. *Uluslararası Spor Egzersiz ve Antrenman Bilimi Dergisi*. <https://doi.org/10.18826/useeabd.1532962>
- Kyeong, Y., Kürüm, E., Sheffler, P., Ferguson, L., Davis, E. L., Strickland-Hughes, C. M., & Wu, R. (2024). The implications of growth mindset for depression, well-being, and adjustment over 2 years during the COVID-19 pandemic. *PLOS Mental Health*, 1(7), e0000182. <https://doi.org/10.1371/journal.pmen.0000182>
- Lalog, R. C. (2025). Promoting gender responsiveness in teaching physical education. *Physical Education and Sports: Studies and Research*, 4(1), 1-14. <https://doi.org/10.56003/pessr.v4i1.392>
- Lopes, G. C. D. (2024). The Influence of psychology on sports performance: emotional and cognitive factors. *South Florida Journal of Development*, 5(11), e4683. <https://doi.org/10.46932/sfjdv5n11-038>
- Louzán, R., & Villarroya López, A. (2024). Impact of social desirability bias on the CoPsoQ-ISTAS 21 psychosocial risk assessment questionnaire. <https://doi.org/10.3233/wor-230184>
- Lysiuk, Ya. O., Kyrychenko, A. V., & Petrenko, S. (2024). Psychological training in sports and physical education. *Naukovij Časopis Nacional'nogo Pedagogičnogo Universitetu ĭmeni M.P. Dragomanova*. [https://doi.org/10.31392/udu-nc.series15.2024.11\(184\).20](https://doi.org/10.31392/udu-nc.series15.2024.11(184).20)
- Ma, C. (2025). How Does Emotion Impact Sports Performances? *Lecture Notes in Education Psychology and Public Media*, 83(1), 1-5. <https://doi.org/10.54254/2753-7048/2024.20524>

Original article. Mediating role of sports emotions in implicit beliefs and mental toughness among athletes. Vol. 11, n.º 3; p. 1-22, July 2025. <https://doi.org/10.17979/sportis.2025.11.3.11863>

- Nilsen, D. A., Sigurjónsson, T., Ivarsson, A., & Pensgaard, A. M. (2024). Part I of a two-step mixed-methods approach in developing the Growth Talent Mindsets for Sports Coaches Intervention: The design and targeting of the intervention. *Journal of Applied Sport Psychology*, 1–24. <https://doi.org/10.1080/10413200.2024.2361692>
- Ojio, Y., Yamada, K., Amemiya, R., Kawamura, S., Rice, S., & Purcell, R. (2024). *Understanding the relationship between sport-related psychological safety and mental toughness in male elite athletes*. <https://doi.org/10.21203/rs.3.rs-5315778/v1>
- Orlanes, A. A., Fernández, A., Panganiban, J. A. E., & Panganiban, T. D. C. (2024). Mental Toughness and Adaptability in Game Matches Towards Resiliency of Sepaktakraw Athletes. *Physical Education and Sports Studies and Research*, 3(2), 155–168. <https://doi.org/10.56003/pessr.v3i2.372>
- Padir, M. A., & Vangölü, M. S. (2023). Implicit Theory of Intelligence: Growth Mindset. *Psikiyatride Guncel Yaklasimlar - Current Approaches in Psychiatry*, 15(3), 451–457. <https://doi.org/10.18863/pgy.1163630>
- Robazza, C., Vitali, F., Bortoli, L., & Ruiz, M. C. (2024). Cognitive appraisals linking dispositional mindfulness to athletes' emotions: a multi-states theory approach. *Frontiers in Sports and Active Living*, 6. <https://doi.org/10.3389/fspor.2024.1521613>
- Rodrigues, A., & Subagiyo, D. T. (2022). Apples to Oranges: Inconsistencies in Defining and Classifying Youth Sport Populations. *Clinical Journal of Sport Medicine*, 33(1), 1–4. <https://doi.org/10.1097/jsm.0000000000001038>
- Sik, K., Cummins, J., & Job, V. (2023). *An implicit measure of growth mindset uniquely predicts post-failure learning behavior*. <https://doi.org/10.21203/rs.3.rs-3407717/v1>
- Singh, A., Arora, M. K., & Boruah, B. (2024). The role of the six factors model of athletic mental energy in mediating athletes' well-being in competitive sports. *Dental Science Reports*, 14. <https://doi.org/10.1038/s41598-024-53065-5>
- Stähler, T. (2022). *Implicit Beliefs* (pp. 215–225). Routledge eBooks. <https://doi.org/10.4324/9781003014584-20>

Original article. Mediating role of sports emotions in implicit beliefs and mental toughness among athletes. Vol. 11, n.º 3; p. 1-22, July 2025. <https://doi.org/10.17979/sportis.2025.11.3.11863>

- Tamminen, K. A., Bonk, D., Milne, M., & Watson, J. C. (2025). Emotion dysregulation, performance concerns, and mental health among Canadian athletes. *Dental Science Reports*, 15(1). <https://doi.org/10.1038/s41598-025-86195-5>
- Tóth, R., Resperger, V., & Tóth, L. (2024). *Optimizing athletes' mindsets: Application of Rational Emotive Behavior Therapy (REBT) in sport.* <https://doi.org/10.1556/1020.2024.00008>
- Vechiu, A.-P., & Gradinariu, T. (2024). Implicit Theories in Relationship with Social Judgments and Aggression Behaviors. Evidence Starting from Carol Dweck's Theoretical Framework. *Revista Romaneasca Pentru Educatie Multidimensionala.* <https://doi.org/10.18662/rrem/16.1/831>
- Yang, Y., & Endozo, A. N. (2025). Building Mental Toughness: Insights from a Literature Review on Youth Basketball Players in China. *International Journal for Multidisciplinary Research*, 7(1). <https://doi.org/10.36948/ijfmr.2025.v07i01.35037>
- Yoon, S., & Nam, K. (2024). Correlation between Athletes' Mindset and Grit: A Systematic Review and Meta Analysis. *Han'gug Seu'pocheu Haghoeji.* <https://doi.org/10.46669/kss.2024.22.1.047>
- Zhang, N., Du, G., & Tao, T. (2025). Empowering young athletes: the influence of autonomy-supportive coaching on resilience, optimism, and development. *Frontiers in Psychology*, 15. <https://doi.org/10.3389/fpsyg.2024.1433171>