

Exploring the Role of Psychosocial Correlates in Mental Toughness Among Para-Athletes: A Systematic Review

Akash Kumar*, Chetna Jaiswal**, and Nishi Srivastava***

Abstract

Mental toughness is a critical psychological quality, especially for para-athletes, who face distinct challenges such as social perceptions, physical obstacles, and limited resources. Despite a substantial body of research on various aspects of para-sport, little attention has been given to the psychological factors that hinder or support their performance and well-being. This review aims to examine the psychosocial aspects influencing mental toughness in para-athletes. Data from ResearchGate, PubMed, ScienceDirect, and Google Scholar were systematically reviewed, identifying 13 relevant studies. The findings highlight that psychosocial correlates, such as burnout, coaching style, and societal perceptions, significantly impact mental toughness and overall well-being in para-athletes. The review also reveals several gaps in the literature, particularly in exploring these factors in greater depth, especially concerning non-elite para-athletes, cross-cultural comparisons, and the limited use of mixed-methods approaches. Future research should address these gaps, focusing on the role of burnout, coaching styles, societal perceptions, and the effects of empowerment and social inclusion on para-athletes' mental toughness.

Keywords: *mental toughness, para-athletes, psychosocial factors, burnout, coaching style.*

Parasport refers to organised sports adapted explicitly for individuals with functional impairments. These sports range from recreational activities to highly competitive events such as the Paralympic Games, which are held every four years soon after the Olympic Games. Derived from the Greek word "para," meaning "beside" or "alongside," the term signifies that parasports exist in parallel with able-bodied sports, promoting the idea of equality in spirit and competition (Handi Life Sport A/S, 2022). The Paralympic Games represent the culmination of the Paralympic Movement, providing a global platform for para-athletes to showcase their skills. Despite this, there remains a lack of widespread public understanding of the games and the psychological characteristics of para-athletes. A deeper understanding of these athletes' mental and social aspects can significantly benefit coaches, teams, and society, fostering a more inclusive and supportive environment for para-athletes (Singh et al., 2024).

Participation in parasports offers athletes a unique opportunity to engage in physical activities that promote health in various ways. The structure of sports, combined with the demands of training and competition, enhances athletes' physical, social, psychological, and cognitive health outcomes. Whether in individual or team sports, the experiences of para-athletes contribute to overall well-being, allowing them to train with others, develop camaraderie, and build resilience through shared challenges (Eather et al., 2023). The Paralympic Games have grown from a small archery demonstration into the world's second-largest multi-sport event, second only to the Olympic Games (Brittain, 2016). Parasports have gained immense popularity over the past few decades, encompassing various disciplines such as wheelchair basketball, adaptive skiing, para-swimming, and track events. These sports highlight the remarkable athletic achievements of para-athletes and bring attention to

the unique physical, psychological, and social challenges they face compared to non-disabled athletes. Since the inaugural Paralympic Games in Rome, Italy, in 1960, the event has served as the premier global stage for athletes with disabilities, taking place every four years (IPC - Paralympics News, Sports and Results, n.d.).

Para-athletes compete in three main categories of impairments: physical, visual, and intellectual (Qvarfordt et al., 2024). To ensure fair competition, a classification system is used, which allows athletes to compete based on their abilities rather than their disabilities. This system categorises athletes into different sports classes depending on the extent of their impairments and how these impact performance in areas such as skill, fitness, and mental focus. Eligible impairments include conditions such as limb deficiency, reduced muscle power, and visual impairment, while non-eligible conditions, like low muscle tone or hearing loss, are excluded (Admin, 2023; IPC Classification - Paralympic Categories & How to Qualify, n.d.).

The history of parasports dates back over a century, with the first known sports groups for athletes with disabilities being established in Berlin in 1888, specifically for the deaf. Organised sports for veterans with disabilities gained momentum after World War II, primarily for rehabilitation purposes. A key figure in this movement was Dr Ludwig Guttmann, who, in 1944, founded the spinal injuries centre at Stoke Mandeville Hospital in the UK. His efforts transitioned athletes from rehabilitation to leisure and eventually competitive sports, forming the foundation for what would later become the modern Paralympic Movement (Paralympics History - Evolution of the Paralympic Movement, n.d.).

India's journey in the Paralympic Games began in 1968, marking its first appearance on the global stage. Although India did not secure any medals in this debut, the nation made a significant comeback at the

*Department of Psychology, Central University of South Bihar, Gaya, Bihar, Email: akashkr@cusb.ac.in

**Department of Psychology, Central University of South Bihar, Gaya, Bihar, Email: ORCID ID: 0009-0006-4718-5681

***Department of Psychology, Central University of South Bihar, Gaya, Bihar, ORCID ID: 0009-0001-4436-3618

1972 Heidelberg Games, clinching its first gold in the 50m freestyle swimming event. However, India's participation was interrupted in the 1976 and 1980 Games before resuming in 1984, establishing its presence in parasports competitions (Chakraborty, 2020). The London 2012 Paralympic Games were pivotal, as they significantly altered societal perceptions of disability and created expanded career opportunities for individuals with disabilities (Paradis et al., 2017). At the 2024 Summer Paralympics in Paris, India achieved its best-ever performance, winning 29 medals, including seven gold, nine silver, and 13 bronze. This brought India's total Paralympic medal count to 50, surpassing the 19 medals won at Tokyo 2020. India participated in 12 disciplines in Paris, three more than in Tokyo.

Noteworthy performances included Avani Lekhara, Preethi Pal, Deepthi Jeevanji, Dharambir, Parnav Soorma, Sumit Antil, and Mariyappan Thangavelu. Mariyappan was the first Indian athlete to win medals in three consecutive Paralympic Games, while Preethi Pal secured her first-ever medal in a track event. In archery, India achieved two milestones: Sheetal Devi, the youngest Indian Paralympian medalist, and Harvinder Singh, who became the nation's first-ever Paralympic archery champion (Peesara, 2024).

As parasports and para-athletes gain increasing visibility, there is a growing need for ongoing awareness, education, and research into the psychosocial factors that influence their performance and well-being. Beyond the spotlight of the Paralympic Games, the Parasports brand continues to champion parasports at all levels, celebrating athletes across various stages of competition and highlighting the profound impact of sports on their lives (Para Sport - Educating & Empowering Para Athletes | IPC, n.d.).

Psychosocial factors are elements that combine psychological and social features and have a substantial impact on an individual's behaviour, performance, and well-being. In the context of parasports, these characteristics are critical in shaping the experiences and outcomes of disabled athletes. Motivation, social support, identity, and mental toughness are all key psychosocial aspects that influence athletic performance and well-being. Understanding these factors is critical for creating effective support systems and interventions that improve para-athletes' athletic experiences and general well-being. Disability sport regulating bodies, such as the International Olympic Committee, seek to promote social change through events that improve participation, awareness, attitudes, communication, and infrastructure development for people with impairments.

Among the different psychosocial elements, Mental Toughness (MT) is a particularly significant characteristic for athletes, especially parasports

participants. MT is a psychological concept that has been shown to be a significant factor in sports. Gucciardi (2015) defines MT as "a personal capacity to consistently produce high levels of subjective like personal goals or strivings or objective performance like sales, race time, and GPA etc. despite everyday challenges and stressors as well as significant adversities" (Gucciardi et al., 2008). Mental toughness (MT) is widely recognised as a critical personal resource that supports elite physical performance and sporting achievement. The theory of mental toughness identifies three main components: control, challenge, and commitment, with confidence as a fourth (Clough et al., 2002). Control refers to a person's capacity to retain composure and control emotions under pressure, allowing them to perform consistently and efficiently in high-stress situations like competitions or training sessions. Commitment is a solid drive to persist in training and competition, exhibiting dedication to achieving objectives. Committed athletes work hard, stick to their routines, and overcome challenges, exhibiting high tenacity. Challenge refers to athletes' positive evaluation of problems as possibilities for progress, embracing them as opportunities to learn, develop, and improve their abilities while promoting resilience and adaptation in competitive contexts. Confidence is the belief in one's skills to do effectively, which encourages self-assurance and optimism. It enables athletes to face obstacles assertively, sustain motivation, and perform at their peak, even under stress.

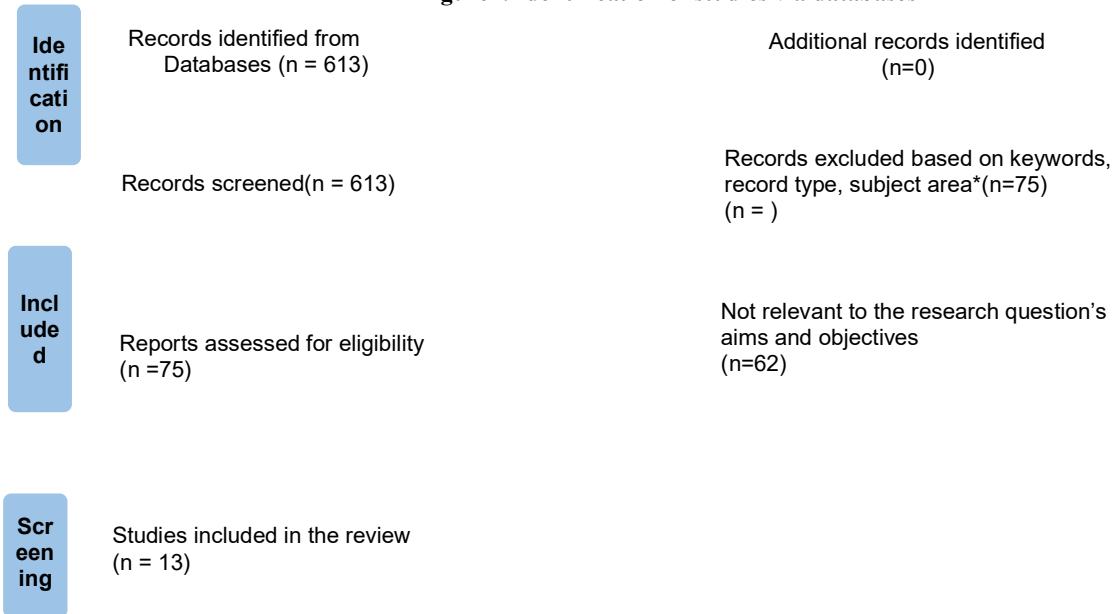
The tremendous increase in MT studies in sports over the last few decades has increased our understanding of the concept and its implications for athletes (Singh et al., 2022). This review stems from the critical role of mental toughness in shaping performance, psychological resilience and the healthy well-being of para-athletes. Extensive research has been done on non-disabled athletes, but there remains a critical gap in understanding the role of mental toughness in para-athletes. Para athletes navigate unique physical, social and psychological challenges, making it essential to examine the factors contributing to their mental toughness and overall achievement. By reviewing the mental toughness of para-Athens, this study seeks to shed light on psychological attributes that facilitate their ability to cope with difficult situations, increase performance and maintain motivation. Understanding these dynamics will not only inform coaching strategies, policy initiatives and mental skills training to support para-athletes in achieving their full potential.

METHOD

The systematic review followed the PRISMA standards, assuring an organised approach to research selection, data extraction, and synthesis, increasing the findings' dependability.

A meticulous literature search was conducted across numerous academic journals such as Google Scholar, PubMed, Research Gate and Semantic Scholar to specifically on mental toughness in parasports; theoretical papers discussing frameworks and models related to mental toughness in parasports.

Figure1: Identification of studies via databases



identify relevant research on mental toughness in parasports. The search, conducted between January 2015 and June 2024, included databases such as PubMed and Google Scholar and journals including the International Journal of Physical Education, Sports and Health, and Journal of Sports Science and Technology, etc. The search terms included "mental toughness," "Paraathletes," "parasports," "disability sports," "resilience," "confidence," "control," "commitment," and "challenge."

Inclusion and Exclusion Criteria

To ensure the relevance and quality of the studies included in this review on mental toughness in parasports, the following inclusion and exclusion criteria were applied:

Inclusion Criteria:

1. Studies involving male and female athletes with physical disabilities participating in parasports at any competitive level.
2. Articles explicitly examining mental toughness in the context of parasports.
3. Peer-reviewed articles, including quantitative, qualitative, and mixed-methods studies focusing

Studies published between 2015 and 2024.

Articles published in the English language.

Exclusion Criteria:

Studies focusing on athletes with intellectual disabilities or those participating in non-competitive or recreational sports; research including participants who are not identified as para-athletes or do not explicitly focus on parasports.

Articles primarily examine other psychological or social factors (e.g., motivation, self-efficacy, social support) without addressing mental toughness.

Review articles, meta-analyses, non-peer-reviewed articles, including opinion pieces, editorials, conference abstracts, and book chapters; grey literature such as unpublished dissertations, reports from sports organizations, and non-academic sources.

Study selection process

The initial search results were reviewed for relevancy, followed by a full-text evaluation of selected publications. The final review comprised a total of 13 papers.

Results:

Sr. No	SOURCE	STUDY	METHOD	FINDINGS
1.	PubMed	Comparing mental toughness: An investigation on elite Indian standing and seated para-thrower athletes Singh et al. (2022).	Quantitative Method	Investigates mental toughness among elite Indian para-throwers, revealing no significant differences in various characteristics between standing and sitting throwers. Both groups showed equivalent levels of mental toughness.
2.	ResearchGate	Developing mental toughness: Lessons from Paralympians Powell & Myers (2017)	Qualitative Method	Identifies key themes in mental toughness among Paralympic athletes, such as features, cognitions, and cognitive tactics. Challenges and supportive environments contribute to the development of mental toughness.

Sr. No	SOURCE	STUDY	METHOD	FINDINGS
3.	ResearchGate	Psychological burnout in elite athletes with disabilities: The predictive role of mood states and mental toughness Abdoshahi & Babaei (2022).	Quantitative Method	Examines how mood states and mental toughness predict psychological burnout in athletes with disabilities. Results show that factors like happiness and mental toughness are predictors of burnout.
4.	Semantic scholar	Comparative study of mental toughness between male sports persons and para male sportspersons Kumar & Dhapola (2020)	Quantitative Method	Finds significant differences in mental toughness between male and para-male sports persons.
5.	Google Scholar	Mental toughness, barrier overcoming, and societal impact: A comprehensive study of Paralympic athletes Meena & Sheoran (2024)	Mixed-methods approach	Explores the relationship between mental toughness, barrier navigation, and societal impact on Paralympic athletes, using a mixed methods approach.
6.	Semantic Scholar	A comparative study of mental toughness and aggression among para-swimmers and para-athletes Rathi & Singh (2017)	Quantitative Method	Compares mental toughness and aggression in para-swimmers and para-athletes, finding no significant differences in either trait.
7.	Semantic Scholar	Athletes with disability: Does emotional regulation affect mental toughness? Jannah et al. (2023)	Quantitative Method	Highlights the role of emotional regulation in enhancing mental toughness in athletes with disabilities.
8.	Google Scholar	The comparison of mental toughness between 2017 SEA Games athletic athletes and 2017 ASEAN Para Games Paralympic athletic athletes Ahmad et al. (2021).	Quantitative Method	The mental toughness between athletes from the 2017 SEA Games and the 2017 ASEAN Para Games was compared, and no significant difference was found between the two groups.
9.	Scopus	Mental Toughness: An Investigation Study on Paralympian and Non-Paralympian Throwers of India Singh et al. (2022)	Quantitative Method	Investigates mental toughness in Indian Paralympian and non-Paralympian throwers, showing higher motivation levels in Paralympians but no significant differences in other traits.
10.	ResearchGate	'Find a sport and carry on': Posttraumatic growth and achievement in British Paralympic athletes. Kampman & Hefferon (2020)	Qualitative Method	Examines how elite sports help Paralympic athletes with acquired disabilities achieve posttraumatic growth and develop new identities.
11.	Google Scholar	A pilot randomised controlled trial to enhance the well-being and performance of athletes in para-sports Macdougall et al. (2019).	Quantitative Method	Assesses the impact of a mindfulness-acceptance-commitment program on well-being for elite athletes with physical impairments, finding improvements in well-being and reductions in pain perceptions.
12.	Google Scholar	Psychological characteristics of Iranian para-athletes Mousavi et al. (2021)	Qualitative Method	Describes the unique psychological strengths and challenges Iranian para-athletes face, emphasising the need for comprehensive psychological support.
13.	ResearchGate	Comparative research investigation on different dominions of aggressiveness among professional Indian para throwers Singh et al. (2023).	Quantitative Method	Investigates the psychological and physical challenges faced by professional Indian para-throwers and the need for mental toughness training.

Discussion

Research on mental toughness among para-athletes highlights diverse psychological and contextual factors influencing their resilience and performance. Rathi and Singh (2017) found no discernible differences in mental toughness and aggressiveness between para-athletes and national-level para-swimmers, indicating that the nature of the sport may not have a fundamental impact on these qualities. Jannah et al. (2023) found that Emotional management was an important promoter of mental

toughness in para-athletes, demonstrating a significant relationship between emotion regulation and psychological resilience. Kumar and Dhapola (2020) highlighted the unique obstacles para-athletes encounter, including social attitudes and physical limitations, which set them apart from athletes with able-bodied mental toughness. They also expressed the need for strategies to help para-athletes become more resilient. Moreover, by highlighting critical experiences, cognitive techniques, and helpful resources as crucial aides, Powell and Myers (2017)

provided a clearer understanding of the growth aspects of mental toughness. They described how overcoming obstacles shapes the psychological resilience of paralympic athletes.

Participating in elite sports and posttraumatic growth were linked by Kampman and Hefferon (2020) to explore the holistic nature of resilience further. They demonstrated how the interplay of psychological and physical factors promotes mental toughness. Similarly, Macdougall et al. (2019) paraded the productivity of mindfulness-based interventions in amplifying well-being, recounting significant optimisation in life satisfaction and self-growth among para-athletes, and bolsters the functional benefits of psychological tools in sports. In contrast, Meena and Sheoran (2024) underscore the vaster implications of mental toughness by tying it to societal beliefs and inclusivity, spotlighting its contribution to arduous stereotypes and remodelling attitudes towards disability. Singh et al. (2022) probed mental toughness among elite Indian para-throwers. They detected significant differences between standing and seated athletes, implying that both groups boast comparable levels of psychological resilience vital for high-level competition. Similarly, Ahmad et al. (2021) uncovered that while both paralympic and conventional athletes portrayed high mental toughness, paralympic athletes illustrated slightly higher scores, mirroring their ability to accommodate and underperform under strenuous situations. These insights synch with Mousavi et al. (2021), who pinpointed key psycho-social elements, such as athletic identity, self-awareness and a strong social support system, as crucial to intensifying mental toughness. Their study accentuated the essence of confronting performance-related stress and encouraging healthy relationships to endorse resilience among para-athletes. These findings unveiled a complex grasp of mental toughness in para-athletes, accentuating its intricate nature and obligation to emotional regulation, intellectual strategies, assistance from external resources, and public perceptions.

Abdoshahi and Babaei (2022) revealed the protective role of mental toughness against burnout, identifying it as a significant predictor of reduced emotional exhaustion and stress among para-athletes. This synthesis not only underscores the resilience of para-athletes but also calls for comprehensive frameworks to support their psychological well-being and athletic development.

The review emphasises the value of mental toughness in parasports, emphasizing how it can promote resilience, self-assurance, control, dedication, and challenge while improving performance and overall well-being.

One of the study's results (Rathi & Singh, 2017) shows no difference in aggression or mental toughness between para-swimming and para-athletics. While previous research indicates that these features

differ significantly between both sports, this study suggests that mental attributes or coping mechanisms common to para-swimmers and para-athletes may exist. Additionally, it implies that Para-athletes acquire mental toughness comparable to participants in other sports.

In their 2017 study, Rathi and Singh evaluated the mental toughness and aggression of para-athletes and para-swimmers and found no discernible differences. Singh et al. (2022) also found that para-throwers who were seated and those who were standing had comparable levels of mental toughness. These findings imply that para-athletes across various classifications can reliably develop mental toughness despite differences in physical conditions and activities. This implies that para-athletes' mental toughness can be transferable to other sports and physical limitations.

In athletes with physical disabilities, Jannah et al. (2023) discovered a strong correlation between mental toughness and emotional management, emphasizing the importance of emotion regulation in building mental resilience. Abdoshahi and Babaei (2022) found that mental toughness was a significant predictor of sports burnout, indicating the significance of mental toughness in controlling emotions and reducing stress. These findings highlight the critical role that emotional control plays in mental toughness development and its efficacy in lowering athlete burnout.

While Macdougall et al. (2019) showed that the MAC (Mindfulness, Acceptance, and Commitment) program significantly enhances mental toughness and overall well-being among para-athletes, Powell and Myers (2017) focused on the development of mental toughness through overcoming adversity, formative experiences, and coping strategies. To reinforce these results, Mousavi et al. (2021) found critical psychosocial elements necessary for mental resilience development and maintenance, including athletic identity, mental skills, and support networks. Taken as a whole, these studies demonstrate the innate mechanisms of developing mental toughness via individual struggles and the efficiency of planned interventions and nurturing settings in promoting mental resilience.

By carefully examining this research on the mental toughness of para-athletes, our study identifies important conclusions and essential gaps.

This study identified three primary themes: Comparison, Influence, Development and Enhancement of Mental Toughness. An exhaustive evaluation of research on mental toughness in para-athletes uncovers various psychosocial elements that impact their performance and overall health. These variables include resilience, aggressiveness, emotional control, and the impact of support networks. Mental toughness is a crucial psychological characteristic that unites the research and mediates how para-athletes adapt to the particular

difficulties presented by their sporting situations. Understanding these aspects is essential for developing therapies and interventions that enhance para-athletes' performance and well-being.

Research indicates that mental toughness substantially influences athletic performance, especially in parasports. It suggests that Mental toughness is crucial in helping para-athletes surmount various emotional and physical challenges. Research by Meggs et al. (2018) suggests that mental toughness, numerous dispositional flow subscales, and subjective performance evaluations have a substantial positive association, implying a more significant likelihood of dispositional flow in athletes with more robust mental toughness. Another study by Crust and Clough (2005) supports the previous study, which revealed a strong positive association between mental toughness and physical endurance. Only One study states that mental toughness and burnout are negatively correlated (Abdoshahi & Babaei, 2022). This gap explains that there is a high need to explore psychosocial variables like burnout, athletic identity, social perception, and Ableism, which play a significant role, especially in parasports.

Many studies took para-athletes as samples from a specific country, neglecting cross-cultural studies. Exploring cross-cultural studies will help us discover new insights into how different cultures and societal perceptions affect para-athletes. One other aspect which is neglected is the problems faced by para-female athletes, which calls for the need to explore how gender dynamics influence mental toughness. Furthermore, the current review primarily employs quantitative, which is valuable. However, it neglects the complexities of experiences faced by para-athletes, which tells us there is a need for qualitative and mixed-method studies.

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