



Mental Training Strategies for Enhancing Self-Confidence in Table Tennis Athletes: A Systematic Literature Review

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ABSTRACT

Table tennis is a sport with a fast tempo, high demands for accuracy, and the need for split-second decision-making. These conditions place psychological aspects, particularly self-confidence, as a crucial determinant of athlete performance. However, table tennis coaching in Indonesia still places the mental aspect as a less structured component compared to technical and physical aspects. This study aimed to analyse various mental training strategies that are effective in improving the self-confidence of table tennis athletes through a Systematic Literature Review (SLR). Literature searches were conducted in international and national databases following PRISMA 2020 guidelines across the 2010–2024 period. From 309 identified articles, 14 studies met the inclusion criteria and were reviewed. Most included studies employed experimental or quasi-experimental designs and involved adolescent to young adult athletes. The synthesis revealed that mental training techniques such as self-talk, imagery, goal setting, mindfulness, relaxation, pre-performance routines, and psychological skill training consistently improved the athlete self-confidence, emotional regulation, focus, and mental readiness. Integrated PST and multi-technique interventions demonstrated stronger effects than single-technique approaches. However, national studies remain limited, particularly in terms of small sample sizes and short intervention durations, which restrict generalizability. These findings highlight the need for systematic integrations of mental trainings within athlete development programs in Indonesia. Future research is recommended to employ larger samples, longer intervention durations, validated psychological instruments, and sport-specific mental training models tailored to the technical and cognitive demands of table tennis.

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INTRODUCTION

Table tennis is a sport characterized by fast rallies, high demands for accuracy, and the need for quick decision-making. At the elite competitive level, athlete performance is influenced by a combination of technical, physical, and psychological aspects. Data from the International Table Tennis Federation show that the average rally at the international level lasts only 3.5 seconds, with ball speeds reaching 112 km/h, indicating high cognitive and motor demands (International Table Tennis Federation, 2023). Research on youth table tennis athletes also indicates that psychological characteristics and performance-related competencies are important determinants of performance level alongside technical skills (Martinent et al., 2018).

Studies on elite and competitive table tennis athletes further show that personality traits, motivational orientation, and psychological readiness play essential roles in performance quality and sustained competitive engagement (Lopez & Santelices, 2012; Marchese et al., 2022). Psychological profiling research has also identified variations in mental toughness, anxiety regulation, and concentration across athlete groups, indicating that performance is closely linked to psychological structure and adaptive capacity (Zhao et al., 2025). Moreover, mental toughness has been shown to enhance performance resilience, enabling athletes to maintain stability under pressure and recover from performance setbacks (Guo & Chang, 2024).

Within training contexts, psychosocial factors such as motivational climate, perceived support, and training compliance also influence athlete development and engagement (Marpaung et al., 2024). Longitudinal research in youth table tennis further indicates reciprocal relationships between motivation and burnout, suggesting that psychological processes dynamically influence long-term athlete development and performance sustainability (Martinent et al., 2014). These findings collectively confirm that psychological functioning is not merely a supportive factor but a central determinant of competitive readiness in table tennis.

In Indonesia, participation in national-level competitions such as the Pre-PON increased substantially between 2016 and 2023; however, systematic development of psychological competencies has not progressed at a comparable rate (PB PTMSI, 2023). Existing national research demonstrates that self-confidence, cognitive speed, and kinesthetic perception significantly predict table tennis performance, reinforcing the role of psychological determinants in competitive outcomes (Haryanto et al., 2024; Akbar & Hasan, 2025). Nevertheless, intervention-based psychological training studies within Indonesian table tennis remain limited in scope and methodological rigor.

Self-confidence represents one of the most influential psychological determinants of athletic performance. Athletes with higher confidence levels demonstrate greater performance consistency, adaptive decision-making, and emotional stability under competitive pressure (Weinberg & Gould, 2019). Conversely, low confidence is associated with attentional disruption, performance anxiety, and unstable technical execution (Craft et al., 2003). In table tennis specifically, confidence interacts with cognitive processing abilities and psychological regulation to influence performance quality (Haryanto et al., 2024; Akbar & Hasan, 2025).

The construct of self-confidence is conceptually linked to self-efficacy, defined as an individual's belief in their capacity to execute actions required to achieve specific performance outcomes (Bandura, 1997). In competitive sport settings, this belief influences perception of challenge, emotional regulation, and attentional control. Research in table tennis further indicates that motivational orientation and psychological regulation are

significantly associated with competitive anxiety and subjective vitality among athletes (Chu et al., 2018; Naz et al., 2025). Additionally, self-reflection and resilience have been shown to reduce pre-competition anxiety in adolescent table tennis athletes, emphasizing the regulatory function of psychological resources in performance preparation (Wang, 2023).

To enhance psychological readiness, mental training has become an integral component of contemporary sport science. Mental training encompasses structured psychological strategies designed to strengthen emotional regulation, attentional control, and performance confidence (Vealey, 2007). Evidence across performance-based sports demonstrates that psychological skills training effectively reduces competitive anxiety and enhances confidence and performance stability (Tod et al., 2011). In table tennis, emerging approaches such as technology-supported psychological training systems have shown potential for improving performance outcomes, reflecting the growing integration of psychological methods in athlete development (Peng & Kim, 2023).

Several mental training techniques have received strong empirical support. Self-talk enhances confidence and reduces anxiety (Tod et al., 2011). Imagery strengthens perceived competence and motor execution through cognitive simulation (Cumming & Williams, 2013; Weinberg & Gould, 2019). Goal setting improves self-regulation and performance outcomes (Locke & Latham, 2002). Mindfulness enhances attentional control and emotional regulation in competitive contexts (Baltzell & Akhtar, 2014). Pre-performance routines stabilize attentional focus and confidence prior to performance (Cotterill, 2010).

Although international evidence consistently demonstrates the effectiveness of mental training, research focusing on structured psychological interventions among Indonesian table tennis athletes remains limited and fragmented. National studies primarily emphasize correlational relationships between psychological variables and performance, while comprehensive synthesis of effective intervention strategies is still lacking (Akbar & Hasan, 2025; Haryanto et al., 2024). Consequently, there remains a clear gap between strong global evidence supporting mental training and the limited systematic implementation of psychological development within Indonesian table tennis.

Based on this condition, there exists a clear research gap between: (1) the strong international evidence on the effectiveness of mental training and (2) the limited quantity, methodological rigor, and structured implementation of psychological interventions in Indonesian table tennis athletes. In addition, there is still no comprehensive synthesis that identifies which mental training strategies are most effective and relevant within the Indonesian sports context.

Therefore, this study aims to systematically collect, analyze, and synthesize empirical evidence regarding mental training strategies proven effective in enhancing self-confidence among table tennis athletes and to identify the most consistently supported approaches across studies. The findings are expected to serve as a scientific foundation for developing structured, evidence-based psychological training models to strengthen athlete development systems in Indonesia, ensuring that psychological preparation becomes an integral component alongside technical and physical training

METHODS

This study employed a systematic literature review (SLR) design, adhering to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guidelines to ensure the data identification, selection, and synthesis process was transparent, structured, and replicable. A literature search was conducted in various international databases such as Scopus, Web of Science, PubMed, PsycINFO, SpringerLink, and

ScienceDirect, as well as national databases such as SINTA, Garuda, Neliti, and curated Google Scholar, with publications spanning 2010–2025 to ensure relevance to the development of modern mental training interventions.

Participants

The population of this review consisted of scientific articles examining athletes, specifically table tennis players or athletes from other sports with similar psychological demands, ranging from adolescents to adults. The psychological demands considered included rapid decision-making, emotional regulation, focus, and competitive readiness.

Sampling Procedures

Article selection followed the PICOS framework. Inclusion criteria were articles that:

- (1) discussed mental training strategies,
- (2) involved an athlete population,
- (3) directly measured self-confidence or self-efficacy,
- (4) applied a credible scientific research design, and
- (5) were available in full-text form.

Exclusion criteria included conceptual papers without empirical data, studies that did not use mental training as a primary variable, articles without extractable data, and studies that did not involve athletes. The methodological quality of the selected studies was assessed using the JBI Critical Appraisal Checklist, adjusted to each study design, to ensure internal validity and data credibility.

Materials and Apparatus

The materials consisted of peer-reviewed journal articles retrieved from the selected databases. All retrieved references were managed using Mendeley software to facilitate organization and eliminate duplicate records. The search strategy used keywords such as mental training, self-confidence, table tennis athletes, sport psychology, imagery, self-talk, goal setting, mindfulness, and pre-performance routine, combined with Boolean operators (AND, OR, NOT).

Procedures

The initial database search identified 309 articles. After removing 74 duplicate records, 235 articles remained for title and abstract screening, during which 193 articles were excluded for irrelevance. A total of 42 articles proceeded to full-text screening, and 28 articles were excluded because they did not directly measure self-confidence or because mental training was not the primary variable. Consequently, 14 articles met the inclusion criteria and were included in the final analysis.

Data Analysis

Data analysis was conducted using two complementary approaches: descriptive analysis and narrative synthesis. Descriptive analysis summarized publication year distribution, research designs, participant characteristics, and psychological variables examined across studies. The included studies employed quantitative correlational, cross-sectional, longitudinal, descriptive, comparative, and experimental designs investigating psychological determinants of table tennis performance.

Narrative synthesis followed a systematic multi-step process. First, each study was thematically analyzed to identify psychological constructs, research design, population characteristics, and key findings related to performance and competitive readiness. Second, findings were grouped into five conceptual categories:

- (1) self-confidence and cognitive performance factors,
- (2) motivation and personality characteristics,

- (3) mental toughness, resilience, and anxiety regulation,
- (4) psychosocial and training-related psychological factors, and
- (5) structured psychological training interventions.

Third, findings were compared within each category to identify patterns, inconsistencies, and contextual differences across athlete populations and competition levels. Cross-study patterns were then integrated through interpretative synthesis to identify general trends and inform evidence-based psychological preparation models for table tennis athletes in Indonesia.

Ethical Considerations

This study exclusively analyzed published secondary data and did not involve direct interaction with human participants. Therefore, formal ethical approval was not required. However, ethical principles of academic integrity were strictly upheld by ensuring accurate citation, proper attribution of original sources, and transparent reporting in accordance with PRISMA guidelines.

RESULTS

A search was conducted in four major databases: Scopus, Web of Science, ScienceDirect, and Google Scholar, using the keywords "table tennis," "mental training," "confidence," and "sport confidence." The initial search yielded 309 articles.

After deduplication ($n = 74$ or 23,9%), 235 articles were screened for titles and abstracts. In the next stage, 193 articles (82,1%) were excluded because they did not explicitly examine mental training and did not use table tennis athletes as subjects. A total of 42 articles (17,8%) were retrieved for full-text review. After full-text screening, 28 articles (66,7%) were excluded because they did not directly measure self-confidence or mental training was not a primary variable. Thus, 14 articles (4,5% of the initial total) met the inclusion criteria and were analyzed in this review.

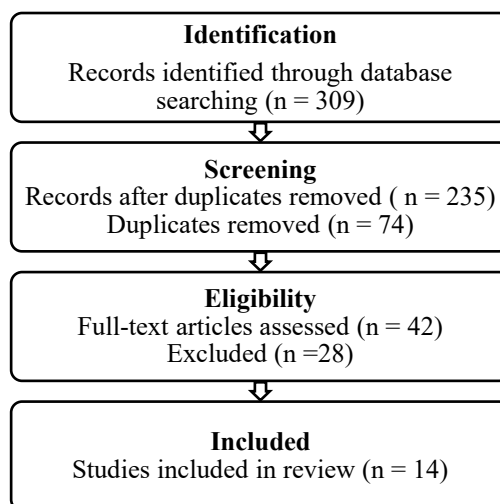


Figure 1. PRISMA Flowchart

Based on an analysis of 14 empirical studies examining psychological characteristics and mental training in table tennis athletes, the evidence consistently indicates that psychological factors play a critical role in performance outcomes, competitive readiness, and long-term athlete development. The included studies comprised cross-sectional, correlational, longitudinal, comparative, descriptive, and experimental designs and examined key variables including self-confidence, cognitive processing speed, motivation, personality

traits, psychosocial factors, mental toughness, resilience, anxiety regulation, and psychological training interventions.

First, self-confidence emerged as a central predictor of performance in table tennis. Quantitative correlational evidence demonstrates that self-confidence significantly predicts table tennis performance both independently and in combination with cognitive-related abilities such as reaction speed and cognitive processing speed (Akbar & Hasan, 2025; Haryanto et al., 2024). These findings indicate that confidence functions as a core performance-enabling resource supporting technical execution, accuracy, and stability under competitive pressure.

Second, motivational and personality-related factors were consistently associated with athlete engagement and behavioral orientation in sport. Motivational profiles were found to relate to performance anxiety and subjective vitality, indicating that motivation influences both emotional states and psychological well-being in competition (Chu et al., 2018; Naz et al., 2025). Personality characteristics of elite table tennis athletes reflect competitive orientation and emotional stability, while broader personality traits are associated with sport-related motives (Lopez & Santelices, 2012; Marchese et al., 2022). Descriptive evidence further indicates that intrinsic motivation plays a central role in participation in table tennis contexts (Furjan-Mandić et al., 2010). Longitudinal findings also reveal reciprocal relationships between motivation and burnout among youth athletes, highlighting the dynamic influence of motivation on long-term development (Martinent et al., 2014).

Third, psychological resilience, mental toughness, and emotional regulation were identified as key determinants of competitive readiness. Mental toughness was found to enhance performance resilience, enabling athletes to maintain functional performance under pressure (Guo & Chang, 2024). Self-reflection and resilience were associated with reduced pre-competition anxiety among adolescent national-level athletes (Wang, 2023). Comparative profiling studies further demonstrate that mental toughness, anxiety regulation, and concentration differentiate psychological characteristics across athlete groups (Zhao et al., 2025). Together, these findings underscore the role of adaptive psychological capacities in sustaining performance stability.

Fourth, psychosocial and contextual factors within training environments were shown to influence motivation and training adherence. Evidence indicates that psychosocial support and training-related psychological factors contribute positively to athlete motivation and compliance with training programs (Marpaung et al., 2024). In addition, longitudinal evidence confirms that broader psychological characteristics predict participation and competitive success in table tennis over time (Martinent et al., 2018).

Finally, intervention-based evidence supports the effectiveness of structured psychological training in enhancing performance-related outcomes. Experimental research demonstrates that technology-assisted psychological training approaches can improve psychological readiness and performance in competitive table tennis athletes (Peng & Kim, 2023). Collectively, the reviewed studies indicate that performance and development in table tennis are shaped by an integrated psychological system consisting of confidence, cognitive readiness, motivation, personality structure, emotional regulation, and structured psychological training. These findings support the view that psychological preparation constitutes a foundational component of athlete development alongside technical and physical training.

Table 1 summarizes the methodological characteristics, psychological variables, and principal findings of the 14 included studies.

Table 1. Summary of the 14 Selected Articles

Author & Year	Article Title	Method	Sample	Variable	Result
Akbar & Hasan (2025)	Contribution of Self-Confidence, Reaction Speed, and Kinesthetic Perception to Table Tennis Performance	Quantitative correlational	Competitive table tennis athletes	Self-confidence, reaction speed, kinesthetic perception, performance	Self-confidence significantly predicts table tennis performance
Chu et al. (2018)	Motivational Profiles in Table Tennis Players: Relations with Performance Anxiety and Subjective Vitality	Cross-sectional	Table tennis players	Motivation, performance anxiety, subjective vitality	Motivational profiles relate to anxiety and subjective vitality
Furjan-Mandić et al. (2010)	Sports Students' Motivation for Participating in Table Tennis at the Faculty of Kinesiology in Zagreb	Descriptive survey	Kinesiology students	Motivation	Participation driven by intrinsic motivation and sport interest
Guo & Chang (2025)	Unveiling the Mental Toughness and Performance Resilience of Table Tennis Athletes	Quantitative	Table tennis athletes	Mental toughness, performance resilience	Mental toughness enhances performance resilience
Haryanto et al. (2024)	Self-Confidence and Cognitive Speed as Predictors of Performance in Competitive Table Tennis	Quantitative correlational	Competitive table tennis athletes	Self-confidence, cognitive speed, performance	Both variables significantly predict performance
Lopez & Santelices (2012)	Personality Characteristics of Elite Table Tennis Athletes of the Philippines: Basis for a Proposed Recruitment Program	Descriptive comparative	Elite table tennis athletes	Personality traits	Elite athletes show competitive and emotionally stable profiles
Marchese et al. (2022)	Personality Traits and Motives in Table Tennis Players	Quantitative	Table tennis players	Personality traits, motivation	Personality traits associated with sport motives

Author & Year	Article Title	Method	Sample	Variable	Result
Marpaung et al. (2024)	The Influence of Psychosocial Factors on Motivation and Compliance in Table Tennis Training	Quantitative	Table tennis athletes	Psychosocial factors, motivation, compliance	Psychosocial factors improve training motivation and adherence
Martinent et al. (2014)	A Reciprocal Effects Model of the Temporal Ordering of Motivation and Burnout Among Youth Table Tennis Players in an Intensive Training Setting	Longitudinal model	Youth table tennis players	Motivation, burnout	Motivation and burnout show reciprocal effects
Naz et al. (2025)	Martinent et al. (2018)	The Prognostic Relevance of Psychological Factors with Regard to Participation and Success in Table Tennis	Longitudinal	Table tennis athletes	Psychological factors, participation, success. Psychological factors predict participation and achievement
Peng & Kim (2023)	Psychological Training Method for Table Tennis Players Using Deep Learning	Experimental	Table tennis athletes	Psychological training, performance	AI-based psychological training improves performance
Wang (2023)	How Self-Reflection and Resilience Can Affect Pre-Competition Anxiety? Evidence from National Competitive Table Tennis in Adolescent Players	Quantitative	Adolescent national-level players	Self-reflection, resilience, anxiety	Resilience reduces pre-competition anxiety
Zhao et al. (2025)	Psychological Profiling of Table Tennis Players: A Comparative Study of Mental Toughness, Anxiety, and Concentration in Perak and Yinchuan	Comparative	Table tennis athletes	Mental toughness, anxiety, concentration	Psychological profiles differ across regions

DISCUSSION

The synthesis of the 14 selected studies demonstrates that psychological factors consistently play a central role in shaping self-confidence and competitive readiness among table tennis athletes. Across the reviewed literature, confidence is not positioned as an isolated psychological trait but as an outcome of interacting cognitive, emotional, and motivational processes that influence performance stability under competitive pressure. This interpretation aligns with contemporary sport psychology frameworks, which conceptualize sport confidence as a determinant of performance appraisal, attentional control, and behavioral regulation in high-demand environments (Vealey & Chase, 2008; Weinberg & Gould, 2019). Within the context of table tennis—characterized by rapid perceptual–motor processing, precision-based execution, and continuous decision-making—psychological readiness functions as a key mechanism supporting technical consistency and adaptive performance responses (Martinent et al., 2018).

Evidence synthesized from the selected studies indicates that multiple psychological dimensions contribute to confidence development in table tennis athletes. Empirical findings show that self-confidence is positively associated with technical performance quality, cognitive processing efficiency, and competitive readiness (Akbar & Hasan, 2025; Haryanto et al., 2024; Wang, 2023). Complementary research further demonstrates that motivational orientation, personality characteristics, and psychosocial training factors shape athletes' perceived competence and engagement in performance contexts (Chu et al., 2018; Furjan-Mandić et al., 2010; Marchese et al., 2022; Lopez & Santelices, 2012). Additionally, studies examining psychological regulation processes indicate that anxiety management, emotional control, and mental toughness function as stabilizing mechanisms that protect performance quality under pressure (Martinent et al., 2014; Martinent et al., 2018; Naz et al., 2025). Collectively, these findings support the self-efficacy perspective, which posits that confidence emerges through mastery experience, emotional regulation, and interpretation of physiological states during performance situations (Bandura, 1997).

Importantly, the patterns identified across international studies converge with the psychological profiling of table tennis athletes competing in the Pekan Olahraga Provinsi Jawa Timur, which highlighted emotional regulation capacity, mental toughness, and sport anxiety as key determinants of competitive readiness. This convergence suggests that psychological functioning in table tennis athletes reflects a multidimensional regulatory system integrating cognition, affect, and perceived competence. Furthermore, evidence from structured psychological training approaches indicates that targeted mental interventions can strengthen these mechanisms by enhancing attentional control, performance expectation, and tactical preparedness (Peng & Kim, 2023). Consequently, psychological training in table tennis should be conceptualized not merely as a performance enhancement supplement but as a foundational component of athlete development in high-speed precision sports.

To provide a structured interpretation of the evidence, the discussion is organized according to the dominant psychological mechanisms identified across the reviewed studies. Based on thematic synthesis of the findings presented in Table 1, the literature can be classified into six interrelated domains: (1) cognitive regulation and perceived control, (2) competence perception and psychological profiling, (3) goal-directed motivational processes, (4) emotional regulation and anxiety management, (5) psychological readiness under competitive pressure, and (6) integrated psychological determinants of performance in table tennis.

Self-Confidence and Cognitive Performance in Table Tennis

The synthesis indicates that self-confidence is closely associated with performance stability and cognitive processing efficiency in table tennis athletes. Confidence enhances attentional focus, reduces cognitive interference, and facilitates motor execution control in high-speed rally situations. This interpretation is consistent with sport confidence theory, which positions self-belief as a primary determinant of performance quality and behavioral regulation in competitive environments (Vealey & Chase, 2008; Weinberg & Gould, 2019).

Empirical findings demonstrate a direct association between self-confidence and table tennis performance outcomes. Self-confidence has been shown to predict technical skill execution, cognitive processing speed, and competitive readiness (Akbar & Hasan, 2025; Haryanto et al., 2024; Wang, 2023; see Table 1). From a self-efficacy perspective, belief in one's capability enhances persistence, attentional control, and action regulation under pressure (Bandura, 1997). This pattern is consistent with psychological profiling data of table tennis athletes in East Java, which identified perceived competence and emotional regulation as key determinants of competitive performance consistency.

Motivation and Personality Characteristics as Psychological Foundations of Performance

The synthesis further indicates that achievement-oriented motivation and adaptive personality characteristics contribute to the development of self-confidence and competitive readiness. Athletes with stronger intrinsic motivation demonstrate greater engagement in structured training processes, thereby accumulating mastery experiences that serve as primary sources of self-efficacy development (Bandura, 1997; Locke & Latham, 2002).

Evidence presented in Table 1 shows that motivational profiles are associated with subjective vitality and performance anxiety, both of which influence athletes' confidence and performance readiness (Chu et al., 2018; Naz et al., 2025). Research on personality characteristics of elite table tennis athletes further indicates that adaptive personality patterns are associated with competitive orientation and psychological readiness (Lopez & Santelices, 2012; Marchese et al., 2022). These findings support the conceptual view that self-confidence develops through the interaction between dispositional characteristics and repeated performance experiences within structured training environments.

Mental Toughness, Resilience, and Anxiety Regulation Under Competitive Pressure

The synthesis demonstrates that mental toughness, resilience, and anxiety regulation function as key mechanisms supporting performance stability under competitive pressure. Athletes with stronger emotional control maintain attentional focus and interpret physiological activation as performance readiness rather than threat. This interpretation is consistent with emotion regulation models in sport psychology, which emphasize cognitive appraisal processes in managing competitive stress (Martinent et al., 2014; Martinent et al., 2018).

In addition, research on psychological profiling of table tennis athletes indicates that mental toughness and concentration represent critical components of competitive readiness that differentiate performance levels across competitive contexts (Guo & Chang, 2024; Zhao et al., 2025; see Table 1). These findings reinforce the perspective that emotional stability and cognitive control function as protective mechanisms that preserve self-confidence in high-pressure performance situations.

Empirical evidence further indicates that performance anxiety is closely associated with motivational dynamics and psychological readiness in table tennis athletes (Chu et al., 2018; Wang, 2023). The relationship between emotional regulation and competitive

readiness is also reflected in psychological mapping findings among East Java table tennis athletes, where sport anxiety and mental toughness were identified as key differentiating factors of performance level. The convergence of international and national evidence strengthens the conclusion that emotional stability constitutes a foundational component of sport confidence in high-speed precision sports.

Psychosocial and Training-Related Psychological Factors

The synthesis highlights the role of training environment, competitive experience, and psychosocial factors in shaping athletes' psychological readiness. Ecological perspectives in sport psychology conceptualize performance as the product of interactions between individual psychological characteristics and training context (Weinberg & Gould, 2019).

Evidence from the reviewed studies indicates that psychological characteristics of table tennis athletes develop through structured training processes and repeated competitive experiences (Furjan-Mandić et al., 2010; Marchese et al., 2022). Psychosocial support and structured training environments enhance perceived competence, which in turn strengthens self-confidence and performance engagement. These findings suggest that psychological development in table tennis cannot be separated from the quality of athlete development systems.

Effects of Structured Psychological Training Interventions

Studies examining structured psychological training indicate that mental training interventions enhance performance-related psychological outcomes in table tennis athletes. Psychological training approaches improve attentional control, emotional regulation, and perceived competence, which collectively support performance confidence (Cumming & Williams, 2013; Mesagno & Hill, 2013).

In table tennis-specific contexts, research integrating cognitive simulation and psychological training demonstrates improvements in tactical readiness and performance-related psychological functioning (Peng & Kim, 2023; see Table 1). These findings confirm that self-confidence represents a trainable psychological construct that can be systematically developed through structured psychological preparation programs.

Integrative Interpretation: Psychological Readiness as a Multidimensional System

Overall, the synthesis indicates that self-confidence in table tennis emerges from the interaction of cognitive regulation, emotional stability, and competence perception. This interpretation is consistent with multidimensional models of sport confidence that conceptualize confidence as a mediator between psychological characteristics and performance outcomes (Vealey & Chase, 2008).

From a self-efficacy perspective, the psychological factors identified across the reviewed studies—motivation, anxiety regulation, emotional control, and performance experience—represent multiple pathways through which efficacy beliefs are formed via mastery experience, cognitive appraisal, and physiological interpretation (Bandura, 1997). The convergence between international evidence and psychological profiling data of table tennis athletes in East Java further indicates that psychological readiness among Indonesian athletes follows similar theoretical patterns.

Therefore, athlete development in table tennis should integrate technical training and evidence-based psychological preparation within a unified performance development system. Psychological training should be conceptualized not as an auxiliary intervention but as a core component of long-term athlete development in high-speed precision sports.

This systematic review has several limitations that should be acknowledged. First, the number of included studies was relatively limited and heterogeneous in terms of research design, sample characteristics, and measurement approaches, which constrained the possibility of conducting a quantitative meta-analysis and limited the generalizability of findings across performance levels and cultural contexts. Second, most included studies employed cross-sectional or short-term intervention designs, restricting conclusions regarding the long-term sustainability of mental training effects on self-confidence and performance consistency. Third, evidence specific to Indonesian table tennis athletes remains scarce, with most national studies focusing on correlational relationships rather than structured intervention models.

Future research should therefore prioritize sport-specific experimental and longitudinal designs with larger and more diverse athlete samples, integrate multi-component psychological training programs, and examine implementation within real training systems in Indonesia to strengthen ecological validity and practical applicability.

CONCLUSION

This systematic review confirms that self-confidence in table tennis athletes is a multidimensional and trainable psychological capacity shaped by the interaction of cognitive regulation, emotional control, motivational processes, and structured mental training. Evidence synthesized from 14 empirical studies consistently demonstrates that mental training strategies—including self-talk, imagery, goal setting, mindfulness, relaxation, and pre-performance routines—enhance perceived competence, attentional stability, and competitive readiness, thereby supporting performance consistency in high-speed precision contexts. The convergence of international findings with psychological characteristics identified in Indonesian athletes underscores the importance of integrating evidence-based psychological preparation into athlete development systems. Consequently, psychological training should be positioned as a core component of long-term athlete development alongside technical and physical preparation to optimize competitive performance and athlete resilience.

AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. The authors confirmed that the paper was free of plagiarism.

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