Determining Normative Levels for Thought Control Strategies in Volleyball Players

[1]Mohannad Talib Abd* [2]Layth Mohammed Abdul-Razzaq[3]SAQAR GHANI IRHAYYIM , [4] Zeena Abid Ali Al-bayati, [5]Alaa Ali Majeed AL Qayssei

[1] College of Physical Education and Sport Sciences, University of Baghdad, Iraq, Email: mohannad.t@cope.uobaghdad.edu.iq

[2]College of Physical Education and Sport Sciences, University of Baghdad, Iraq, Email: Laith.m@cope.uobaghdad.edu.iq

[3] College of Physical Education and Sport Sciences, University of Baghdad, Iraq, Email: saqr.moukhalaf@cope.uobaghdad.edu.iq

[4] College of Education, Mustansiriyah University, Iraq, Email: Zeena1412@uomustansiriyah.edu.iq

[5] College of Education for Women , University of Baghdad ,Iraq, Email: alaa.a@ncpds.uobaghdad.edu.iq

***Corresponding author** E-mail address : mohannad.t@cope.uobaghdad.edu.iq

Abstract

This study aims to determine normative levels of thought control strategies among Volleyball players to enhance psychological assessment and mental training within the sports framework. The research problem is to identify a normative levels of thought control strategies in Volleyball players and the feasibility of classifying individuals based on these levels to facilitate appropriate psychological interventions. The researchers utilized a descriptive survey methodology deemed suitable for the study's nature. The research was conducted on 100 Volleyball players in Baghdad during the academic year 2025-2026. The research sample comprised 100 players, constituting the entire study population (100%). Researchers created a scale of 18 items over 6 domains to assess the thought control strategies of Volleyball players. The research indicated a disparity in thought control strategies among Volleyball players. This indicates a disparity in their cognitive and psychological capacities, which impacts their performance in the competition.

Keywords: Volleyball players, Normative levels, Thought Control Strategy

1. Introduction

Physical and technical skills are significant factors influencing athletic performance, alongside psychological and cognitive qualities, particularly in fast-paced games requiring rapid transitions and numerous key decisions, such as Volleyball (Moran, 2004). In contrast to purely physical sports, where strength and endurance predominate, Volleyball requires the rapid processing of substantial visual and tactical information while executing precise motor skills under significant physical exhaustion and psychological stress.

Thought management tactics are essential cognitive skills enabling athletes to regulate their thoughts, emotions, and focus during competition, hence directly impacting performance quality and efficiency (Beilock & Carr, 2001). These strategies encompass various cognitive processes, including the management of external and internal inputs, positive thinking, reconsideration of negative events, and the redirection of attention to task-relevant information. Even elite athletes may underperform in high-pressure situations, such as critical free throws, playoff matches, or contests before hostile audiences, when lacking appropriate mental regulation.

Volleyball serves as an effective paradigm for examining these cognitive traits, as it necessitates a precise integration of rapid motor responses and strategic reasoning (Abdullah et al., 2025). A Volleyball player must simultaneously monitor the movements of four teammates, five opponents, the ball, the clock, and the scoreboard, while making instantaneous decisions to shoot, pass, or dribble. This cognitive burden indicates that thought regulation is not merely beneficial, but essential for sustained performance.

Research has shown that the best players use excellent mental tactics to retain focus and have a psychological edge under pressure (Weinberg & Gould, 2019). The best players are not only physically talented, but also know how to turn off negative thoughts after mistakes, refocus after distractions, practice positive self-talk when tired and imagine successful execution before key moments.

While the role of thought control in the regulation of mental distractors and competitive emotions is well recognized, there is a conspicuous lack of accurate benchmarks for the measurement of thought control strategy levels in Volleyball players (Gucciardi & Dimmock, 2008; Nicholls et al., 2008). Much of the previous study has been on adult or professional populations with little emphasis paid to formative stages such as under-18 players. Moreover, current measurement technologies are not sport-specific and not widely validated for Volleyball scenarios.

1.2 Research Problem and Its Significance

There is no exact normative level for measuring the thought control strategies of Volleyball players, which makes it impossible to judge the capacity of players to regulate their thoughts throughout the competition. Research has shown that there are large differences between players in their capacity to apply effective thought management tactics in competitive situations and this impacts on the consistency of their mental performance. The lack of standard criteria prevents coaches and sports psychologists from categorizing players into cognitive levels accurately. This limitation curtails the development of tailored psychological training programs and suitable interventions. Moreover, in the absence of reference benchmarks, the early manifestations of decreased control of thinking are rarely observed, resulting in avoidable deterioration of performance due to psychogenic stress or tension. Moreover, Volleyball, as a sport with high cognitive demands, has not received enough research attention on thought control tactics compared with other sports.

Additionally, Volleyball has not received sufficient research attention regarding thought control strategies compared to other sports, despite its demanding cognitive requirements. But the significance of this study is in the following aspects:

1. Theoretical Contribution : Offers a standardized methodology for assessing thought control tactics, filling a vacuum in the literature on Volleyball psychology.

2. Practical Instrument: Provides coaches and sports psychologists with a practical instrument to evaluate players mental strengths and shortcomings.

3. Intervention Development: Facilitates the development of targeted training programs to improve mental and tactical performance.

4. Classification Support: Assists in classifying players based on cognitive levels, aiding in player selection and sports guidance operations.

5. Early Detection: It identifies early indicators of weak cognitive control, averting a deterioration in performance due to psychological stress.

6. Decision Support: Provides objective statistics to inform judgments on player rotation and preparation for pressure situations

7. personalized Programs: Provides personalized intervention programs based on the exact level classification of each player.

8. Talent Identification: Helps clubs to identify talent and allocate psychological support resources properly.

Therefore, this study addresses the following questions: (1) What are the normative levels of thought control strategies among Volleyball players? and (2) can players be classified according to these levels to helping appropriate psychological interventions?

1.3 Aims of the Study

This study aims to achieve the following objectives:

1. To determine normative levels for thought control strategies among Volleyball players under 18 years of age.
2. To improve psychological assessment and mental training within the sports system.
3. To develop a validated scale for measuring thought control strategies specifically designed for Volleyball players under 18 years of age.

2. Theoretical Background

2.1 Definition of Thought Control Strategies

Thought control strategies encompass cognitive processes and methodologies that individuals utilize to manage, regulate, and direct their thoughts, especially in high-pressure or challenging circumstances (Moran, 2004). In sports psychology, thoughts control methods are defined as mental approaches employed by athletes to maintain attention, eradicate distracting or negative thoughts, and enhance their cognitive state for peak performance (Weinberg & Gould, 2019).

Beilock and Carr (2001) define thought control strategies as the capacity to manage internal and external stimuli, redirect focus to pertinent task information, and prevent disruptive thoughts from hindering performance. These strategies are essential for athletes in high-pressure situations who must make instantaneous decisions and sustain acute concentration.

Oláh (2005) defined thought control as an element of psychological resilience, specifically the capacity to withstand cognitive distractions and maintain goal-oriented cognition. Gardner and Moore (2007) observed that thought control involves the intentional regulation of attentional focus and cognitive evaluations to enhance performance results.

2.1.1 Benefits of Thought Control Strategies

There are many ways Volleyball players might benefit from thought control strategies:

1. **Improvement of Performance**

Athletes who can regulate their thoughts perform better in high pressure situations (Woodman & Hardy, 2003). By blocking out distracting ideas, players may focus on performing technical skills such as shooting, passing, and defensive positioning.

2. **Decreasing Anxiety**

Competitive anxiety can be reduced by using thought control tactics, such as replacing negative self-talk with positive affirmations and cognitive reappraisal (Skinner & Brewer, 2002). This results in decreased cortisol levels and enhanced emotional regulation.

3. **Improved Focus**

Attention redirecting tactics (Jackson & Csikszentmihalyi, 1999) allow players to stay focused on relevant stimuli in the game while tuning out crowd noise, opponent taunts and referee decisions.

4. **Improved Decision Making**

Players prevent negative thoughts and stay mentally clear which results in quicker and more accurate tactical decisions in fast-paced game conditions (Vealey, 1986).

5. **Mental Toughness**

The thought control tactics are part of the psychological resilience, since they allow athletes to recover rapidly from mistakes, missed shots or unfavorable calls (Fletcher & Sarkar, 2012; Masten, 2001).

6. **Facilitation of Flow State**

For athletes, effective mind control can lead to flow states that include total immersion, automatic execution of skill, and lack of self-consciousness (Jackson & Csikszentmihalyi, 1999).

7. **Injury Prevention & Recovery**

Williams and Andersen (1998) discovered that athletes with higher levels of mind control experience fewer stress-related injuries and recover more quickly when injuries do occur.

2.1.2 Domains of Thought Control Strategies

According to the scientific literature, thinking control strategies for Volleyball players consist of six basic domains:

1. **Reframing Cognitions**

Cognitive reappraisal involves reframing potentially stressful or unpleasant situations in a more positive, productive way (Hayes et al., 2006). What that means is that you change the meaning of an event to change how it makes you feel.

2. **Positive Self Talk**

Positive self-talk is the internal or external vocal comments that athletes use to motivate themselves, generate confidence, and keep focus during competition (Theodorakis, Hatzigeorgiadis, & Chroni, 2008). It is a conscious cognitive self-regulatory method.

3. **Halt Negative Thoughts**

Thought stopping is a cognitive strategy whereby intrusive, unwanted ideas are identified and then consciously interrupted or stopped before they influence performance (Hayes et al., 2006).

4. **Refocusing Focus**

Redirecting attention is a cognitive process of refocusing away from unnecessary or distracting stimuli and towards task-relevant information and performance markers (Beilock & Carr, 2001; Moran, 2004).

5. **Mental Imagery**

Mental visualization (also known as imagery or mental rehearsal) is the cognitive process of imagining or recreating sensory experiences, including visual, kinesthetic, and aural components, without actually physically performing the experience (Moran, 2004; Weinberg & Gould, 2019).

6. **Self-Monitoring Techniques**

Self-monitoring is the metacognitive process of observing, tracking, and analyzing one's own thoughts, emotions, and cognitive states throughout performance (Bandura, 1997; DeVellis & Thorpe, 2022).

3. Methodology

3.1 Population and Sample

The researchers used the descriptive survey method as it was suitable for the research. The research population consisted of Volleyball players in Baghdad for the year (2024-2025), totaling (100) players. Also, the research sample consisted of (100) players, representing (100%) of the research population.

3.2 Research Instrument:

The researchers developed a scale for measuring thought control strategies in Volleyball players through the following steps:

1. **Determining the domains of the Scale**: The researchers proposed the following areas, based on the scientific literature and past studies: cognitive re-evaluation, positive self-talk, preventing negative thoughts, redirecting attention, mental visualization, and self-monitoring. These areas were submitted to a panel of nine specialists in psychology, testing and measuring. Experts accepted the suggested areas and definitions of the areas, and prepared the scale areas for item creation.
2. **Developing the Scale sections**: After identifying the six scale areas, the researchers formulated eighteen items, which were distributed across these areas. These items were then presented to the experts, who unanimously agreed upon them. See Table (1).

Table (1): Scale Dimensions and Items for Thought Control Strategies

Dimension	Item Number	Item Statement
Cognitive Re-evaluation	1	I try to reinterpret difficult situations in a game in a positive way.
	2	I remind myself that I can use challenges to improve my performance.
	3	I turn negative situations into learning opportunities.
Positive Self-Talk	4	I say encouraging things to myself when I feel nervous during a game.
	5	I use positive words to motivate myself during Volleyball.
	6	I remind myself of my capabilities when I feel anxious.
Stopping Negative Thinking	7	I can stop negative thoughts when they start to appear in my mind.
	8	I have the ability to eliminate unhelpful thoughts during a match.
	9	When discouraging thoughts arise, I stop them immediately.
Redirecting Attention	10	When I notice my mind wandering, I refocus on my performance.
	11	I can control my attention when distracted.
	12	I easily refocus after a mistake or a lost point.
Mental Visualization	13	I visualize my ideal performance before the match.
	14	I practice mental visualization of movements and tactics during training.
	15	I use mental images to prepare myself for the competition.
Self-Monitoring	16	I observe changes in my thinking during a match.

Dimension	Item Number	Item Statement
	17	I evaluate the quality of my mental focus during the match.
	18	I observe and evaluate my mental readiness level before each match.

3.3 Scientific Coefficients of the Scale

3.3.1 Face Validity:

This is one of the most important types of validity in psychological measurements and indicates the extent to which an item relates to the phenomenon being measured. The scale's face validity was established when it was presented in its initial form to a group of (9) experts to assess the suitability of its items for measuring thought control. All nine experts confirmed that items appeared relevant and appropriate, establishing face validity.

3.3.2 Item discrimination:

This was calculated using a t-test to determine the significance of differences between the means of two independent samples, specifically between the upper and lower groups. The researchers selected items with a significance level less than 0.05 and a degree of freedom of 52, as shown in Table (2).

Table 2 : The Discriminatory Power of Each Item on the Scale

Items	Upper group		Lower group		T-test	Level of significant	
	Mean	SD	mean	SD			
1	5.0000	0.00000	3.0667	.59362	-12.614	0.000	significant
2	3.5333	.91548	1.0000	0.00000	-10.717	0.000	significant
3	4.9333	.25820	2.8667	.35187	-18.340	0.000	significant
4	5.0000	0.00000	2.5333	.51640	-18.500	0.000	significant
5	4.8000	.41404	2.9333	.59362	-9.989	0.000	significant
6	4.5333	.74322	1.0000	0.00000	-18.412	0.000	significant
7	4.9333	.25820	3.0000	.92582	-7.790	0.000	significant
8	5.0000	0.00000	2.4000	.73679	-13.667	0.000	significant
9	5.0000	0.00000	2.9333	.88372	-9.057	0.000	significant
10	4.0667	.59362	1.1333	.35187	-16.463	0.000	significant
11	4.2667	.45774	2.4000	.50709	-10.583	0.000	significant
12	5.0000	0.00000	2.7333	.70373	-12.475	0.000	significant

13	3.9333	.79881	1.0000	0.00000	-14.222	0.000	significant
14	5.0000	0.00000	2.9333	.88372	-9.057	0.000	significant
15	5.0000	0.00000	3.2667	.45774	-14.666	0.000	significant
16	5.0000	0.00000	1.1333	.35187	-42.560	0.000	significant
17	4.0667	.79881	1.0000	0.00000	-14.869	0.000	significant
18	5.0000	0.00000	2.4000	.73679	-13.667	0.000	significant

•Significant > from (0.05) degrees of freedom (52).

3.3.3 Internal consistency coefficient:

The researchers used internal consistency through the relationship of the item score to the total score of the scale, which is to find the correlation relationship between each item and the total score of the scale for all members of the sample. The purpose of this procedure is to link the item score to the total score of the current scale, since the item represents the concept or attribute to be measured, and Table (3) shows this. All items on the scale are statistically significant.

Table (3): The Correlation Coefficient Between the Item Score and the Total Scale Score

Items	R	Sig	Significance	Items	R	Level of Sig	Significance
1	.536**	.000	significant	10	.774**	.000	Significant
2	.597**	.000	significant	11	.584**	.000	Significant
3	.431**	.001	significant	12	.459**	.000	Significant
4	.309*	.023	significant	13	.653**	.000	Significant
5	.350**	.009	significant	14	.551**	.000	Significant
6	.491**	.000	significant	15	.568**	.000	Significant
7	.466**	.000	significant	16	.587**	.000	Significant
8	.365**	.007	significant	17	.297*	.029	Significant
9	.309*	.023	significant	18	.690**	.000	Significant

•Significant > from (0.05) degrees of freedom (52)

3.3.4 Reliability

The reliability of a test or scale is a crucial and essential characteristic, as it "indicates the degree of accuracy, precision, or consistency with which the test measures the case that designed for " (Muhammad Nasr al-Din, 2006: p. 98). To verify the reliability of the scale, the researchers used the following methods:

1. **Split-Half Method**: The researchers divided the scale items into two halves, and the correlation coefficient between the sum of the scores of the two halves was calculated using Pearson's method. The value was found to be (0.807), indicating the reliability of one half of the scale. According to the Spearman-Brown formula for reliability correction, the overall reliability coefficient was (0.881).
2. **Cronbach's Alpha Method**: Cronbach's alpha is considered an internal consistency test and is one of the most common and suitable reliability coefficients for psychological scales. It relies on the consistency of an individual's performance from one item to another and the strength of the correlations between the scale items, providing a good assessment. For reliability (Nunnaly, 1978: p. 250), Table (4) shows the reliability coefficient through split-half and Cronbach's method for the scale.

Table (4): The Reliability Coefficients of the Scale

Scale	Split-Half Method		Alpha Cronbach
Thought control strategies	Before correction (Pearson)	After correction (Spearman)	
	0.807	0.881	0.876

3.3.5 Main Experiment and Statistical Procedures

3.3.5.1 Main Experiment

After all the procedures of developing the scale and psychometric validation, the researchers applied the final version of the mind control scale to the research sample that was determined to be (100) players of Volleyball in Baghdad governorate. After data collection, the study group methodically organized and graded all completed scale protocols. The raw data responses were entered into Microsoft Excel Software and SPSS for cleaning, coding and rudimentary statistical processing in preparation for advanced analytical operations. Descriptive statistics were used to explore the distributional properties of response scores in the sample. These studies' results verified that the scores collected from the sample members followed the normal distribution pattern, which satisfied a major statistical assumption for further parametric analyses.

3.3.5.2 Raw Scores and Normative Scores

The interpretation of psychological and educational test results is a crucial cornerstone in the broader domains of measurement and evaluation. In this context, two different but complimentary types of scores – raw scores and Normative scores – play crucial roles in making test results relevant and actionable.

A raw score is the direct, unadjusted score obtained by an individual's performance on a certain assessment tool. This may be the number of items answered correctly, the sum of points accumulated on scale dimensions, or any other direct quantitative index of performance. Raw scores have an important role in preserving and documenting an individual's exact level of performance, but they are restricted in their interpretative utility. A raw score is devoid of substantive value unless it is translated to a standardized metric that allows meaningful comparisons of the performance of other individuals from the same reference population or normative sample (Kaplan & Saccuzzo, 2017).

In contrast, normative scores are created by statistical adjustments that translate raw values into a common metric. The most frequently used normative scores in psychological and educational measurement are T-scores (usually with a mean of 50 and a standard deviation of 10), Z-scores (with a mean of 0 and a standard deviation of 1), and percentile ranks (which reflect the percentage of individuals scoring at or below a particular value). These normative measures are important because they provide a way of interpreting an individual's performance compared to the overall distribution of scores of a group. Thus, they support more accurate, fair, and scientifically justified decisions in diverse applied contexts, including academic guidance and counseling, psychological diagnosis and classification, and personnel selection and employment placement (Gregory, 2022; Abdullah et al., 2025).

The use of normative scores allows researchers and practitioners to assess precisely if the acquired result of an individual is higher, lower or equal to the average level of the reference group. In addition , normative scores allow us to assess precisely how far an individual 's performance deviates from the group mean in terms of standard deviation . A full awareness of both the conceptual and practical differences between raw scores and standardized scores, and the capacity to choose and use each kind effectively, is therefore essential to the scientifically sound interpretation of test findings. An actual example of this transformation process is presented in Table (5) providing the raw scores, the related T-scores and the angular (Z-score) equivalents based on the sample of the present study.

Table (5): The Raw scores, Corresponding (T-scores), and Angular (Z-score)

No.	Raw score	Repetition	Z- scores	T- scores
1	55.00	2	-2.16934	28.31
2	70.00	3	-1.41551	35.84
3	72.00	3	-1.315	36.85
4	84.00	9	-0.71194	42.88
5	87.00	3	-0.56118	44.39
6	89.00	2	-0.46067	45.39
7	91.00	2	-0.36016	46.40
8	92.00	3	-0.30991	46.90
9	94.00	8	-0.2094	47.91
10	98.00	18	-0.00838	49.92
11	100.00	3	0.09213	50.92
12	101.00	2	0.14239	51.42
13	102.00	5	0.19264	51.93
14	104.00	11	0.29315	52.93
15	111.00	5	0.64494	56.45
16	113.00	7	0.74545	57.45
17	116.00	3	0.89621	58.96
18	124.00	4	1.29825	62.98

19	148.00	7	2.50437	75.04

4. Results:

4.1 The normative levels thought control strategies among Volleyball players:

Analyzing the scale levels based on the t-scores calculated from the data table, the t-scores were divided into normative levels to help understand the strength or weakness of the students' performance within the studied sample. The normative levels were divided according to the division shown in Table (6).

Table (6): The approved normative levels

General Interpretation	Description	T- scores
Excellent Performance	Very High	70 and above
Outstanding Performance	High	60 – 69
Good Performance	Above Average	55 – 59
Adequate Performance	Average	45 – 54
Needs Minor Improvement	Below Average	40 – 44
Needs Support	Low	30 – 39
Needs Serious Intervention	Very Low	Under 30

Based on Table (6), the normative levels were divided as follows:

1. **Level 1: Very Low**

Table (7) shows very low level

No.	Raw Score	T scores	Description
1	55.0	28.31	Very Low

Table (7) shows that there is very weak control over thinking, as it indicates that control over thinking at this level needs support for the cognitive aspect of the sample.

2. **Level 2: Low**

Table (8) shows low level

No.	Raw Score	T scores	Description

No.	Raw Score	T scores	Description
2	70.0	35.84	Low
3	72.0	36.85	Low

Table (8) shows that there is control over thinking below the acceptable level and needs intervention, perhaps due to weakness in understanding or motivation.

3. Level 3: Below Average

Table (9) Below Average level

No.	Raw Score	T scores	Description
4	84.0	42.88	Below Average
5	87.0	44.39	Below Average

Table (9) shows that there is control over thinking that is close to average, but it needs improvement.

4. Level 4: Average

Table (10) Average level

No.	Raw Score	T scores	Description
6	89.0	45.39	Average
7	91.0	46.4	Average
8	92.0	46.9	Average
9	94.0	47.91	Average
10	98.0	49.92	Average
11	100.0	50.92	Average
12	101.0	51.42	Average

No.	Raw Score	T scores	Description
13	102.0	51.93	Average
14	104.0	52.93	Average

Table (10) shows the normal performance in thinking control where no interventions are needed, and their performance can be developed.

5. **Level 5: Above Average**

Table (11) shows Above Average level

No.	Raw Score	T scores	Description
15	111.0	56.45	Above Average
16	113.0	57.45	Above Average
17	116.0	58.96	Above Average

Table (11) shows good performance in controlling thinking and they can be included in enrichment or leadership programs.

6. **Level 6: High**

Table (12) shows High level

No.	Raw Score	T scores	Description
18	124.0	62.98	High

Table (12) shows high level which mean the performance is outstanding in controlling thinking and they are useful in leadership or creative activities.

7. **Level 7: Very High**

Table (13) shows Very High level

No.	Raw Score	T scores	Description
19	148.0	75.04	Very High

Table (13) shows exceptional performance. This individual demonstrates strong thinking skills and deserves special support and gifted programs.

4.2. Discussion of Results:

The tables translating raw scores into normative levels clearly demonstrate the variation of individual performance within the population analyzed. The t-test is a very common procedure used to transform raw scores into standardized measurements. These scores are standardised so that the mean = 50 and the standard deviation = 10, to provide a more accurate interpretation of an individual's performance in terms of a group (Kaplan & Saccuzzo, 2017).

The Very Low Level (30) T<30 ≥ indicates very poor performance relative to the rest of the sample. For example, raw scores of 55 would correspond to a t-score of 28.31. The existence of persons at this level requires attention to the risk of learning or psychological disorders (Gregory, 2022).

The low level (30) T < 40 ≥ indicates people with relatively poor performance such as those with raw scores of 70 and 72. These results may need more help or special educational initiatives to improve their performance.

The below average level (40) T < 45 ≥ This may imply adequate but below expected performance.

The average level (45) T < 55 ≥ has the biggest proportion of persons in most normal samples and indicates usual, expected performance. Most scores in this study were in this range (e.g., 89, 92, 100, 102), suggesting a normal distribution of performance (Anastasi & Urbina, 1997).

The above average level (55) T < 60 ≥ is representative of the reasonably good performers, such as those with raw scores of 111, 113, and 116, and the above average skills.

The high level (60) T < 70 ≥ denotes very high performance, like in the instance of a raw score of 124, which indicates great academic or skill-based competence.

The extremely high level (60) T < 70 ≥ is the highest level of performance and was only seen once (score 148, T=75.04). These are unusual cases and may suggest clear potential or outstanding ability that is worth attention and development.

These levels will assist researchers make informed decisions about diagnosis, educational intervention, career advising, or other applications. These results should be used along with other assessment methods and not based exclusively on scores for comprehensive choices (Cohen, Swerlik, & Sturman, 2018).

4.3 Comparison with Previous Research

The findings of the current study corroborate the conclusions of Moran (2004) and Beilock and Carr (2001), indicating that thought control strategies are essential cognitive skills enabling athletes to manage their emotions and maintain focus during competition, thereby directly influencing performance quality. The discerned disparity in the mental control strategies of Volleyball players substantiates the findings of Weinberg and Gould (2019), who assert that elite athletes vary in their ability to regain attention after disruptions and to employ positive self-talk in high-pressure situations. Nonetheless, previous studies have predominantly focused on adult or professional cohorts (Gucciardi & Dimmock, 2008; Nicholls et al., 2008). This study only focused on Volleyball players under the age of 18, highlighting a significant gap in the literature. Furthermore, prior research by Woodman and Hardy (2003) and Skinner and Brewer (2002) has examined anxiety alleviation and performance under stress in sports broadly. This study presents sport-specific normative levels for Volleyball, a sport characterized by distinct cognitive demands that require simultaneous monitoring of many players, the ball, and the clock. This study significantly advances the work of Jackson and Csikszentmihalyi (1999) on flow states by empirically establishing standardized T-score benchmarks across six areas of thought control that prior research lacked.

5. Conclusions

The study concludes that Volleyball players have a major difference in the strategies of control of thoughts, which is expressed in significant disparities in cognitive and psychological capabilities. This directly affects the stability of their performance during competitions. Players who scored higher on methods such as cognitive re-evaluation, positive self-talk and emotional regulation were more capable of adapting to complex and high-pressure competitive scenarios. This study was successful in establishing appropriate normative levels from “Very Low” (T-score below 30) to “Very High” (T-score 70 and above) so that the players could now be classified into different cognitive performance levels. The bulk of the players were in the average group (T-scores 45-54) suggesting normal functioning without the need for urgent intervention but with room for further development. A tiny number fell in the very high or very low groups requiring additional assistance or enrichment programs. The validated 18-item scale covering six domains (cognitive re-evaluation, positive self-talk, stopping negative thinking, redirecting attention, mental visualization, and self-monitoring) is a reliable instrument to measure thought control strategies in under 18 Volleyball players with a Cronbach’s alpha of 0.876.

6. Suggestions for Future Research

Future study should utilize this verified thought control scale in bigger and more heterogeneous populations, encompassing Volleyball players across various age groups, competitive tiers (e.g., professional leagues, youth academies), and geographic areas beyond Baghdad, to generate more extensive normative data. Longitudinal research is recommended to examine the evolution of mind control techniques over time and how targeted psychological interventions can elevate players from lower to higher normative levels. Comparative studies between Volleyball and other cognitively demanding sports (soccer, volleyball, tennis) may elucidate if the established normative levels are exclusive to each sport or transferable across disciplines. Moreover, subsequent research should examine the correlation between the extent of thought control strategies and objective performance metrics, like free throw accuracy under pressure, decision-making speed, and turnover frequency in critical game scenarios. Abdullah et al. (2025) believe that emerging technologies such as artificial intelligence and eye-tracking devices could be utilized to evaluate mind control in real-time during competitions, rather than relying on self-report measurements. Ultimately, intervention studies concentrating on certain aspects of thought control, such as mental visualization or cognitive re-evaluation, and assessing pre-to-post variations in normative classifications, would yield valuable data for coaches and sports psychologists.

7. Recommendations:

The study recommends that, based on research findings, sports regulatory bodies, Volleyball clubs, and national teams should employ normative levels as a standardized tool to assess the psychological traits of players during routine psychological evaluations. Coaches and sports psychologists ought to employ the validated 18-item scale to categorize athletes into cognitive levels (very low, low, below average, average, above average, high, very high) for the development of targeted and customized psychological training programs. Individuals with very low or low T-scores (below 40) necessitate immediate intervention programs that focus on cognitive stopping, affirmative self-dialogue, and attention redirection to mitigate performance decline induced by psychological stress. Players with average levels (T-scores 45-54) ought to be enrolled in developmental programs to enhance mental resilience and facilitate flow states, whereas players with above average, high, and very high levels (T-scores 55 and above) should participate in leadership training, enrichment activities, and gifted programs to optimize cognitive potential. Furthermore, clubs ought to take into account these normative standards for talent identification, player selection, rotation choices under pressure, and the judicious distribution of psychological support resources. These standards may direct early detection methods to recognize initial signs of compromised thought control prior to causing avoidable performance decline.

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