



Psychological Attributes of Ethiopian Handball Premier League Players: An Assessment of Mental Toughness, Self-Confidence, and Mental Imagery

Haileyesus Gedefaw¹, Gashaw Tesema², Melese Ebabu³, Sultan Nuri⁴,

^{1,2,3} Sport Academy, Bahir Dar University, Ethiopia

⁴Sport Science Department, Worabe University, Ethiopia

Corresponding Author: MeleseEbabu (zmelie99@gmail.com)

Abstract

Received in Sep.2025 Revised from Sep-Nov.2025 Accepted: Dec, 2025 Ethiopian Journal of Sport Science (EJSS), Volume VI, and Issue I, Published by Ethiopian Sport Academy 2025

Keywords: Psychological attributes mental toughness, self-confidence, mental imagery, Ethiopian handball

Understanding the psychological attributes of athletes is important for maximizing performance in competitive sports. This study was conducted to investigate the level of mental toughness, self-confidence, and mental imagery in Ethiopian Handball Premier League. A descriptive quantitative survey research design was implemented standardized instruments are utilized. Data of 105 players were analyzed with the help of the statistical program (SPSS version 26), and descriptive statistics (mean, standard deviation, frequencies) were used to summarize the data. One-way analysis of variance with post-hoc Tukey comparisons was used to test the differences between the clubs. Results showed medium levels of mental toughness, high self-confidence and medium mental imagery. While there were no significant differences in toughness and confidence across clubs, there were significant differences in mental imagery, which may reflect inequity in integrating and fidelity of instruction for psychological skills training. These findings highlight the need to develop structured PST programs in Ethiopian handball and create a basis for future research and policy development aimed at improving athlete performance.



1. Background of the Study

In the modern sport, the preparation for achieving success is influenced not only by physical preparation, tactical awareness and technical skill but also by such important psychological attributes. Research in sport psychology places a strong focus on the fact that for athletes to achieve high levels of success, they will need to develop resiliency, emotional regulation, and mental skills (Hanin, 2000; Reza, Hossein, & Zahra, 2020). Athletes that couple physical readiness with those that possess high psychological qualities demonstrate greater consistency and adaptability in both preparation and competition (Itoh 2020). Among these psychological skills, mental toughness, self-confidence, and mental imagery are well known as a psychological factor contributing to competitive success (Bull, Shambrook, James, & Brooks, 2005; Cowden, 2017). Mental toughness helps with focus, composure, and strength in the face of pressure (Clough, Earle, & Sewell, 2002). Self-confidence or belief in one's performance ability influences performance motivation, persistence and risk taking (Vealey, 1986; Kuloor & Kumar, 2020). Mental imagery is also known to further improve performance as it enables athletes to mentally rehearse technique and tactics before performing them (Morris, Spittle, & Watt, 2005; Bianca, Paolo, & Luca, 2020). These attributes

in particular are relevant in team sports like handball where these attributes like decision making, pressure management, and coordination affect performance (Bilge, 2012). Handball athletes are required to perform fast tactical and technical actions - passing, dribbling, shooting - in demanding situations. Strong psychological skills assist players to deal with stress, recover from their errors and remain concentrated throughout the competition (Vinter & Martin, 1984; Sajjan, 2018). In spite of this recognized importance, empirical research in Ethiopia is still limited. Psychological preparation is not commonly understood or utilized by coaches and athletes, limiting its use in training programs (Gee, 2010). Furthermore, there have been no systematic studies done on the psychological profile of Ethiopian Handball Premier League players. It is important to understand their levels of mental toughness, self-confidence, and mental imagery to develop evidence-based psychological skills training. This study therefore tries to address this gap by making an assessment of these attributes among Premier League players. The findings are anticipated to support the incorporation of psychological skills training to athlete development, improvement of performance, and also to benefit from sport science advancement in Ethiopia.



2. Statement of the Problem

Sport performance is the result of the interaction of physical, technical, tactical and psychological element. Although physical conditioning and tactical preparation have traditionally been given priority, research has clearly shown that psychological attributes have an equally essential role to play in the development of performances, especially at the elite and professional level of handball (Hanin, 2000; Thelwell & Greenlees, 2001). According to studies conducted on high level players of handball, mental toughness, self-confidence and mental imagery are related to enhanced decision-making speed, lower performance anxiety, and higher success rates in position specific actions including goal keeping reactions, shooting accuracy of backcourt and fast break execution of wing players (Molinero et al., 2012; Ruiz & Arruza, 2005). Athletes with these psychological strengths tend to be better able to deal with the stress of competition, are more able to keep focused during pressure, and are quicker to recover from their mistakes (Clough, Earle, & Sewell, 2002; Gucciardi, 2017).

Handball's high-intensity nature demands the player to make quick tactical decisions, have emotional control and be resilient during constant shifts from offense to defense and vice versa (Bilge, 2012). Performance is not only dependent upon execution skills such as shooting, blocking, passing and dribbling, but

also upon psychological readiness. For instance, goalkeepers need high confidence and the ability to use imagery to predict shots; backcourt players rely on mental toughness a lot to keep going through physical pressure, and pivots need high emotional control in dealing with physical contact near the goal area (Vinter & Martin, 1984; Sajjan, 2018). Without proper psychological preparation, players do not always perform consistently, even though they may be physically and technically competent.

Despite global evidence on associations between psychological attributes and performance in handball, these factors have been undermined in global evidence in Ethiopia. Local coaching practices overwhelmingly focus on physical conditioning and tactical drills, with little attention given to structured psychological skills training. Existing studies on sport in Ethiopia barely discuss topics related to mental toughness, self confidence, or imagery; there are really large gaps in the understanding of athletes' psychological readiness. Informal observations from both national competitions and coaching reports reflect inconsistent performance under pressure, lack of confidence for away games, and little use of mental rehearsal techniques. However, these concerns have not been supported by empirical verification because no systematic research has been conducted to evaluate the psychological attributes of Ethiopian Handball Premier League players.



Additionally, there is a great variation among the Ethiopian handball clubs in terms of resources, coaching expertise, and training organization. These differences may affect the psychological preparation of athletes. For example, clubs with experienced coaches, or better training environments, may develop greater confidence or more advanced imagery practice. Yet, these assumptions are still speculative because of a lack of comparative information across teams.

3. Objectives of the Study

3.1.General Objective

The aim of this study was to assess the psychological attributes of Ethiopian Handball Premier League players.

3.2.Specific Objectives

More specifically the objective of this study was:

- To assess the level of mental toughness among players.
- To assess players' self-confidence levels.
- To evaluate players' mental imagery experience.
- To examine differences in psychological attributes across different clubs.

Therefore, the purpose of this study is to address this critical issue by systematically studying the mental toughness, self-confidence and mental imagery of the players in Ethiopian Handball Premier Leagues. Assessing these attributes and comparing them between clubs will offer crucial information regarding the psychological assets and liabilities of athletes. The findings are expected to support the integration of psychological skills training in handball development programs, and inform evidence-based sport psychology practices in Ethiopia.

4. Research Questions

- What is the level of mental toughness among Ethiopian handball players?
- What is the level of self-confidence among players?
- What is the extent of mental imagery among players?
- Are there significant differences in psychological attributes across clubs?

5. Significance of the Study

The findings of this study have great value to various stakeholders in the Ethiopian sport context and beyond. For athletes, being knowledgeable of their mental toughness, self-confidence, and mental imagery is a form of awareness of their psychological strength and weakness to guide their personal training and performance improvement. For coaches and sport psychologists, the study provides evidence



to include psychological training in handball programs, such as confidence-building activities and systematic mental imagery training. For sport administrators and policymakers, the results can provide information to guide evidence-based approaches to athlete support such as resource distribution and the development of psychological skills programs. For the academic and research community the study fills a knowledge gap in the Ethiopian sport science. At a more macro level, it adds to the body of literature on sport psychology in the global context through the access to insights from an underrepresented African context.

6. Methodology

6.1.Study Area

The study was conducted in Ethiopia, centering on the Ethiopian Handball Premier League (EHPL), the highest level of organized handball game in the country. Clubs differ in terms of resources, facilities and coaching approach and this offers a relevant background to investigate and examine psychological attributes in the players. Given the fast paced nature of handball, which requires both physical endurance and psychological readiness, EHPL was a good place to conduct this research.

6.2.Study Design

The descriptive survey design using qualitative method was used. This was a design which could be used to examine existing levels of

mental toughness, self-confidence and mental imagery without the need to manipulate variables. Surveys enable efficient data collection of standardized information from large groups of participants, which enables comparisons between clubs.

6.3.Population and Sampling

The target group consisted of all registered male and female athletes of the 2023/24 EHPL season (around 210 players). Using stratified random sampling 105 players (50%) were proportionally selected from each club to insure representativeness. Stratification took into consideration that psychological attributes might differ because of the club culture, resources and location. Inclusion criteria included participating at least one complete season, injured or unavailable athletes were excluded

6.4.Instruments for Data Collection

Three standardized psychological instruments used were Mental Toughness Questionnaire (MTQ-18), Trait Sport Confidence Inventory (TSCI) and Sport Imagery Ability Questionnaire (SIAQ).

Mental Toughness Questionnaire (MTQ-18) - Made by Clough et al, (2002), the tool which measures confidence, constancy and control. It has been widely used in sport psychology research and validated in different uses. The MTQ-18 measures on a Likert Scale from strongly disagree (1) to strongly agree (5).



Trait Sport Confidence Inventory (TSCI) - Created by Vealey (1986), the TSCI measures the confidence the athlete has in themselves to be successful in sport. It uses a 9 point Likert scale, with higher scores indicating higher confidence. Sport Imagery Ability Questionnaire (SIAQ) - Developed by Williams and Cumming (2011), the SIAQ is a questionnaire that assesses the vividness and controllability of mental imagery by athletes in various sport situations. It uses a 7-point Likert scale; the higher the number, the better one is at using imagery skills. The instruments were adjusted slightly to the Ethiopian context by being translated into the Amharic language and being pre-tested for clarity. Back translation has been done to ensure accuracy. A pilot test was carried out for 15 players outside of the sample which gave a result of Cronbach's alpha (0.81) confirming the reliability of the instruments.

6.5.Data Collection Procedures

Permission was first sought from the Ethiopian Handball Federation, and respective clubs. Players were approached at their training venues and informed consent was obtained before participation. The questionnaires were self-administered, with supervision of the researcher and trained assistants in order to ensure consistency, and to minimize response bias. Participants were assured of confidentiality and voluntary participation in the study. Data collection was performed over a 4-week period

during the regular season, in order to ensure the responses were based on the active competitive experiences of the athletes.

6.6.Data Analysis

Completed questionnaires were coded and entered into the statistical software package of the International Business Machines, IBM-SPSS software version 26 for analysis. Data were cleaned and tested for completeness before statistical procedures were run. Descriptive statistics (mean, standard deviation, frequencies and percentage) were conducted to summarize the levels of psychological attributes. In order to see if there were significant differences between players from different clubs, one-way tests of analysis of variance (ANOVA) were performed. Post-hoc comparisons (Tukey's test) were conducted if there were significant differences according to the results of a univariate analysis of variance. The level of significance was .05. Reliability analysis was also performed and all instruments were found to show acceptable internal consistency (Cronbach's alpha \geq .70).

6.7.Ethical Considerations

Ethical clearance was obtained from the research ethics committee, Bahir Dar University. Permission was taken from Ethiopian Handball federation and respective clubs. Players were made aware of the purpose of the study, their right to withdraw at any stage of the process and the confidentiality of their response. Data was



stored safely and was only used for academic purposes.

7. Results

Table 1. Descriptive Statistics of Mental Toughness (N = 105)

Item	Mean (M)	Std. Dev. (SD)	Interpretation
Unshakable self-belief	3.95	1.04	Agree
Inner arrogance to achieve anything	4.35	0.82	Strongly agree
Love the pressure of competition	3.92	1.07	Agree
Bounce back from mistakes/errors	4.17	0.81	Agree
Believe in “it’s not over until it’s over”	4.28	0.99	Strongly agree
I can achieve my goals in sport	4.46	0.65	Strongly agree
Total mean score	4.04	0.44	Moderate–High

Table 2. Comparative Analysis of Mental Toughness Across Clubs (ANOVA)

Item	F-value	Sig.	Interpretation
Unshakable self-belief	1.22	0.303	Not significant
Love pressure of competition	2.20	0.049	Significant
Celebrate success & focus	2.41	0.032	Significant
Switch on/off from handball	2.98	0.010	Significant
It’s not over until it’s over	3.82	0.002	Significant
Achieve long-term goals	1.04	0.406	Not significant
Cumulative mean	1.87	0.094	Not significant

7.1. Mental Toughness



The overall mean mental toughness score was found to be $M = 4.04$ ($SD = 0.44$) that represents a moderate to high level among players. Most athletes expressed confidence in dealing with pressure, perseverance from mistakes and continuing on to achieve goals. Variability existed with coping with loss which may reflect

differences in resiliency. Comparative ANOVA has shown that some items differed significantly between clubs (eg, 'love pressure of competition', 'switch on/off from handball'), but that the cumulative mean difference was not significant ($F=1.87$, $p=0.094$), showing the teams to be similar in overall toughness.

Table 3. Descriptive Statistics of Self-Confidence (N = 105)

Item	Mean (M)	Std. (SD)	Dev.	Interpretation
Execute skills compared to most confident athlete	6.03	2.29		High
Perform under pressure	6.52	2.44		High
Execute successful strategy	7.02	2.16		High
Adapt to game situations	6.90	2.29		High
Achieve competitive goals	6.94	2.30		High
Total mean score	6.87	2.14		High

Table 4. Comparative Analysis of Self-Confidence Across Clubs (ANOVA)

Item	F-value	Sig.	Interpretation
Execute skills confidently	1.65	0.141	Not significant
Perform under pressure	1.82	0.103	Not significant
Execute strategy	0.89	0.512	Not significant
Adapt to situations	0.77	0.603	Not significant
Achieve competitive goals	1.22	0.310	Not significant
Cumulative mean	1.48	0.189	Not significant



7.2. Self-Confidence

Players indicated high self-confidence ($M = 6.87$, $SD = 2.14$) in reporting high confidence in the ability to execute strategies and in adapting to situations encountered in the game and in achieving the goals of the competitive situation. The results of the statistical comparisons

between the clubs showed no significant differences (cumulative $F = 1.48$, $p = 0.189$) indicating that confidence of the Ethiopian Premier League handball players is consistently high. High confidence is likely to be beneficial to performing under pressure, because it helps tactical execution and application of skills.

Table 5. Descriptive Statistics of Mental Imagery ($N = 105$)

Item	Mean (M)	Std. Dev. (SD)	Interpretation
Imagine executing skills	4.23	1.15	Moderate
Visualize strategies	4.31	1.10	Moderate
Create mental images of competition	4.45	1.12	Moderate
Imagine achieving performance goals	4.50	1.08	Moderate-High
Total mean score	4.37	1.11	Moderate

Table 6. Comparative Analysis of Mental Imagery Across Clubs (ANOVA)

Item	F-value	Sig.	Interpretation
Imagine executing skills	3.15	0.008	Significant
Visualize strategies	2.97	0.012	Significant
Create mental images of competition	3.42	0.005	Significant
Imagine achieving performance goals	2.64	0.020	Significant
Cumulative mean	3.08	0.009	Significant

7.3. Mental Imagery

The overall mean with mental imagery was moderate ($M = 4.37$, $SD = 1.11$). Players reported being able to imagine execution of skills and visualizing strategies, however, the imagery practice seems underutilized compared to confidence and toughness. Significant differences across clubs were

found for all of the items (e.g., "imagine executing skills" $F = 3.15$, $p = 0.008$) using the α of 0.05 level using $\alpha = 0.05$, $P = 0.001$, $df = 2$. This implies that psychological training is more emphasized at some clubs and this leads to variability in imagery skills. The results suggest that clubs that focus more on mental imagery may be more prepared for tactical decision-



making and visualization of performance in competitions.

and are not at the highest levels all the time.

7.4.Interpretation

Ethiopian handball players show moderate to high mental toughness, high self-confidence, and moderate mental imagery. The uniformity in toughness and confidence suggests general psychological readiness, whereas variability in imagery underscores the need for structured and consistent PST programs to enhance visualization and cognitive preparedness.

8. Discussion

The purpose of this study was to examine the psychological attributes of Ethiopian Handball Premier League players namely mental toughness, self-confidence and mental imagery. The results showed that players possessed moderate levels of mental toughness, high levels of self-confidence and moderate levels of mental imagery. While there were no significant difference between clubs in relation to toughness and confidence, there was a significant difference between teams in relation to mental imagery.

8.1.Mental Toughness

The moderate levels of mental toughness that were found in this study indicates that the Ethiopian handball players have some levels of resilience, focus and believe in their ability to do

This is consistent with past studies showing that mental toughness is not a static trait and may fluctuate depending on training, exposure to competition, and support in the environment (Crust, 2007; Gucciardi, 2017). According to Clough et al. (2002), mental toughness allows athletes to persevere in adversity, stay focused and learn from errors - all of which are high demands in a sport like handball owing to its fast paced and physically challenging competitions. Similar results were found by Bull et al. (2005), who stressed the importance of mental toughness in making the difference between elite and sub-elite performers. The moderate scores in Ethiopia suggest that although players have a base level of toughness, systematic psychological training could be used to boost these levels to be at the elite level of international competition.

8.2.Self-Confidence

Self-confidence was the most identified psychological attribute across the clubs, with overall scores determined to be high for all clubs. Confidence has repeatedly been shown to be an important factor in determining the success of performance in sport (Vealey, 1986; Sheard, Golby, & van Wersch, 2009). Highly confirmed athletes will more likely risk taking, perseveration in the face of setbacks and performance under pressure (Jones & Hanton, 2001). The consistency of high confidence



across Ethiopian clubs indicates that players do believe in their capabilities and competitive goals. This is promising as sport confidence is found to positively predict motivation, resilience and team cohesion (Fransen et al., 2017). However, as competition continues for long seasons, it is necessary to help maintain confidence by reinforcing it through coaching approaches such as feedback, goals and mastery experiences (Beckmann & Elbe, 2013).

8.3. Mental Imagery

In contrast, players had moderate responses to mental imagery, with significant differences between clubs. This would imply some variability in the integration of psychological skills training into practice in clubs. Beyond the structural differences, it is also possible that the moderate imagery scores indicate limited instruction fidelity due to a lack of adaptive knowledge of the nuances of Psychological Skills Training (PST) cognitive procedures by coaches.

Mental imagery is widely recognized as an effective psychological tool when used to improve skill acquisition and tactical awareness, and help recover from injury (Morris et al., 2005; Williams & Cumming, 2011). Those who practice frequent, vivid and controlled imagery show gains in performance consistency and emotional control (Gregg, Hall, & Nederhof, 2005). The moderate level of use of imagery by Ethiopian players suggests that it is an untapped

potential and there is a possibility that some of the clubs put the exercise from time to time or without the cognitive attention required for optimal skill development. Studies in other areas indicate that systematic imagery training, with the right coach instruction, can dramatically improve results (Munroe-Chandler, Hall, & Fishburne, 2008).

8.4. Implications for Ethiopian (handball)

Taken together, these findings suggest that the Ethiopian handball players have a strong foundation of self-confidence, a moderate foundation of toughness, and an incipient use of imagery. While the results are promising, they also point to the need for incorporating structured psychological skills training in Ethiopians handball programs. International evidence demonstrates the positive influence that mental toughness and imagery can have on people through deliberate practice and intervention (Gucciardi, Hanton, & Fleming, 2016). Ethiopian sport psychologists and coaches should, therefore put the psychological training in sports first together with physical and tactical preparation, and ensure that it is consistent and instructional fidelity of PST techniques for best performance.

9. Limitations and Future Research

This study was restricted to the players at the Ethiopian Premier League to a single season and



thus there is a chance of having some limitations in generalizability. Additionally, there were only three psychological attributes which were evaluated but others such as motivation, anxiety control, and concentration were not answered. Furthermore, systemic and macro-level contextual factors within the Ethiopian sport ecosystem, such as poor governance, low strategic planning and inadequate institutional support may have limited the implementation and effectiveness in Psychological Skills Training (PST), affecting observed outcomes. Future studies might investigate longitudinal variations in psychological characteristics, compare Ethiopian with international athletes, and assess the effectiveness of structured psychological training interventions and consider these larger contextual influences.

10. Conclusion

Ethiopian handball players are moderately mentally tough, have high self-confidence and moderate mental imagery. While there is not a significant difference between clubs on toughness and confidence, there is a significant difference on mental imagery. Strengthening psychological skills training is suggested to develop the performance of players.¹⁰

Acknowledgement

The author extends sincere gratitude to Bahir Dar University, Ethiopian Handball federation, Handball Premier League Clubs for their support, and players for their participation.

11. Conflict of Interest

The author declares no conflict of interest.



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