



# A Comparative Study on Psychological Profiles of Under-18 Male & Female Kho Kho Players

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**Authors' Contribution:** A- Study Design, B- Data Collection, C- Statistical Analysis, D- Manuscript Preparation

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## ABSTRACT

**Objective:** This study focused on three main areas: stress, mental toughness, and anxiety in order to examine the psychological profiles of male and female Kho Kho players under the age of 18.

**Material & Method:** At the 2025 Khelo India Youth Games in Bihar, 150 young athletes—75 male and 75 females—participated in the study. The researchers used established instruments, such as the Perceived Stress Scale (PSS), Goldberg's Mental Toughness Questionnaire, and the Sports Competition Anxiety Test (SCAT), to evaluate their psychological states.

**Findings:** Some significant gender differences were found in the results. Statistical analysis confirmed that female players reported significantly higher levels of stress and anxiety than their male counterparts ( $p < 0.05$ ). It's interesting to note that, despite both males and females scoring relatively low in this category, there were no discernible differences between the two groups when it came to mental toughness. Both male and female athletes showed average levels of anxiety, moderate levels of stress, and low levels of mental toughness when compared to normative data.

**Conclusions:** These observations highlight the necessity of gender-sensitive psychological instruction and support networks in young athletes. We can improve performance in Kho Kho and better support mental health by addressing these psychological factors, which will ultimately create a healthier athletic environment for all young athletes.

**Keywords:** Anxiety; Stress; Mental Toughness; Psychological Profile; Kho Kho.

## INTRODUCTION

Kho Kho is a traditional Indian sport that demands agility, speed, strategic thinking, and teamwork. It has evolved from a rural pastime into a competitive discipline recognised at national and international levels, including platforms like the Khelo India Youth Games and the Ultimate Kho Kho League (Sarkar & Bandyopadhyay, 2019). As a physically intense and fast-paced game, Kho Kho challenges players not only physically but also psychologically. Especially among adolescents, the competitive nature of the sport often intersects with developmental changes, requiring a comprehensive understanding of their psychological attributes.

Anxiety is a prevalent psychological factor in competitive sports and is especially common among youth athletes. It can be categorised into cognitive and somatic anxiety, both of which influence performance in different ways (Martens et al., 1990). While a moderate level of anxiety can enhance alertness and readiness, excessive anxiety may impair decision-making, reduce focus, and hinder overall performance (Craft et al., 2003). In Kho Kho, where split-second decisions and rapid reactions are crucial, anxiety can significantly affect a player's efficacy during both "Attack" and "Defence" components of the game.

Another essential psychological quality in child sports is mental toughness, which is the capacity to continuously perform at the highest level of one's potential and skill regardless of competing conditions (Jones et al., 2007). It encompasses confidence, control, commitment, and challenge qualities that are instrumental in maintaining optimal performance under pressure. Kho Kho players often encounter high-pressure scenarios such as sudden chases, surprise attacks, or prolonged defensive phases, all of which test and build mental toughness.

Stress, both acute and chronic, is another significant psychological variable that influences athletes' behavior and outcomes. It stems from various sources including competition, coaching expectations, peer comparison, and academic pressures (Lazarus & Folkman, 1984). Among under-18 players, stress can manifest in physiological symptoms such as fatigue and tension, as well as psychological symptoms such as irritability or lack of motivation (Gould et al., 1993). The high-speed nature and tactical demands of Kho Kho may exacerbate stress levels, thereby influencing performance if not properly managed.

The interplay between anxiety, stress, and mental toughness can have profound implications on the performance of Kho Kho players. These psychological factors not only affect immediate game outcomes but also shape long-term development, injury risk, and continued participation in sport (Hanton et al., 2004). Understanding the psychological profiles of under-18 Kho Kho players is therefore vital for coaches, psychologists, and sports scientists to design tailored mental training interventions. By identifying the levels and impacts of these variables, stakeholders can foster resilience and enhance the overall athletic experience for adolescent players.

## PURPOSE OF THE STUDY

The primary objective of this study was to compare the stress, anxiety, and mental toughness levels of male and female Kho Kho players under the age of eighteen in order to assess their psychological profiles. In order to identify any gender-based differences and understand how these psychological factors affect athletic performance, the study plans to look into them. The findings will help coaches, trainers, and sports psychologists develop targeted mental conditioning programs that will enhance players' performance, well-being, and long-term participation in Kho Kho.

## MATERIAL AND METHODS

### Selection of Subjects

Data were gathered from 150 Kho Kho players (N = 150) who competed in the Khelo India Youth Games 2025 in Bihar, 75 of whom were male and 75 of whom were female, in order to meet the study's objectives. Ten teams—five male and five female—out of the sixteen teams—eight male and eight female—that competed in the tournament were chosen for the study using a convenience sampling technique. Teams were chosen based on their willingness to participate during the data collection period and their accessibility.

### Selection of Variables

In order to evaluate and compare the psychological profiles of male and female Kho Kho players under the age of 18, this study concentrated on three important psychological variables: stress, mental toughness, and anxiety. To guarantee the accuracy and consistency of the data, standardized and extensively validated instruments were used to measure each variable.

1. **Anxiety Measurement Tool:** Martens's (1977) Sports Competition Anxiety Test (SCAT) was used to gauge the participants' levels of competitive anxiety. This tool, which is specifically designed for use with athletes, evaluates an athlete's inclination to perceive competitive situations as hazardous.
2. **Mental Toughness Measurement Tool:** The participants' psychological resilience, which includes qualities like confidence, focus, emotional control, and the capacity to function well under pressure, was assessed using the Mental Toughness Questionnaire, which was created by Dr. Alan Goldberg in 2004.
3. **Stress Measurement Tool:** The reported Stress Scale (PSS), developed by Cohen, Kamarck, and Mermelstein (1983), was used to gauge participants' reported stress levels. A global stress assessment tool, the PSS measures how unpredictable, uncontrollable, and burdened people feel in their day-to-day lives.

In this study, gender was regarded as the independent variable, and stress, anxiety, and mental toughness were the dependent variables. The objective was to investigate psychological variations based on gender and comprehend how they affect competitive Kho Kho performance at the under-18 level.

## Statistical Analysis

For both male and female Kho Kho players, the mean and standard deviation of descriptive statistics were calculated separately for each of the three psychological variables—stress, mental toughness, and anxiety. Gender differences in these variables were examined using independent samples t-tests. These tests were used to determine whether the mean differences between males and females were statistically significant. The significance of the observed differences was evaluated at a significance level of  $p < 0.05$  in order to determine whether gender-based differences in psychological profiles are statistically significant.

## RESULTS

### Anxiety levels:

**Table 1: Comparison of Anxiety Levels Between Under-18 Male & Female Kho Kho Players**

| Dependent Variable | Independent Variable | N  | Mean  | Standard Deviation | Standard Error | t-value | p-value | df  |
|--------------------|----------------------|----|-------|--------------------|----------------|---------|---------|-----|
| Anxiety            | Males                | 75 | 18.13 | 2.67               | 0.52           | -5.90   | <0.05   | 148 |
|                    | Females              | 75 | 21.21 | 3.58               |                |         |         |     |

The results demonstrated a statistically significant difference in anxiety levels between male and female Kho Kho players under the age of 18. Compared to their male counterparts ( $M = 18.13$ ,  $SD = 2.67$ ), female players experienced significantly higher levels of anxiety ( $M = 21.21$ ,  $SD = 3.58$ ). The independent samples t-test result of  $t(148) = -5.90$ ,  $p < 0.05$ , showed that this difference was statistically significant. However, when compared to standardized normative values, the competitive anxiety levels of both groups fell within the average range.

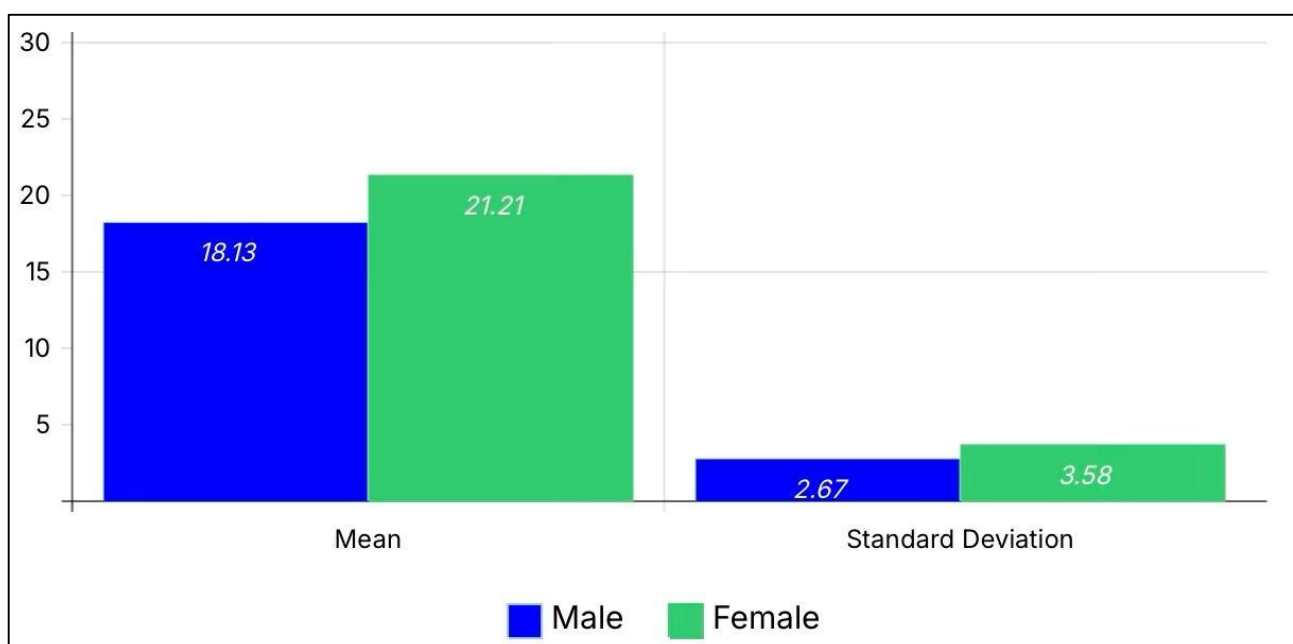
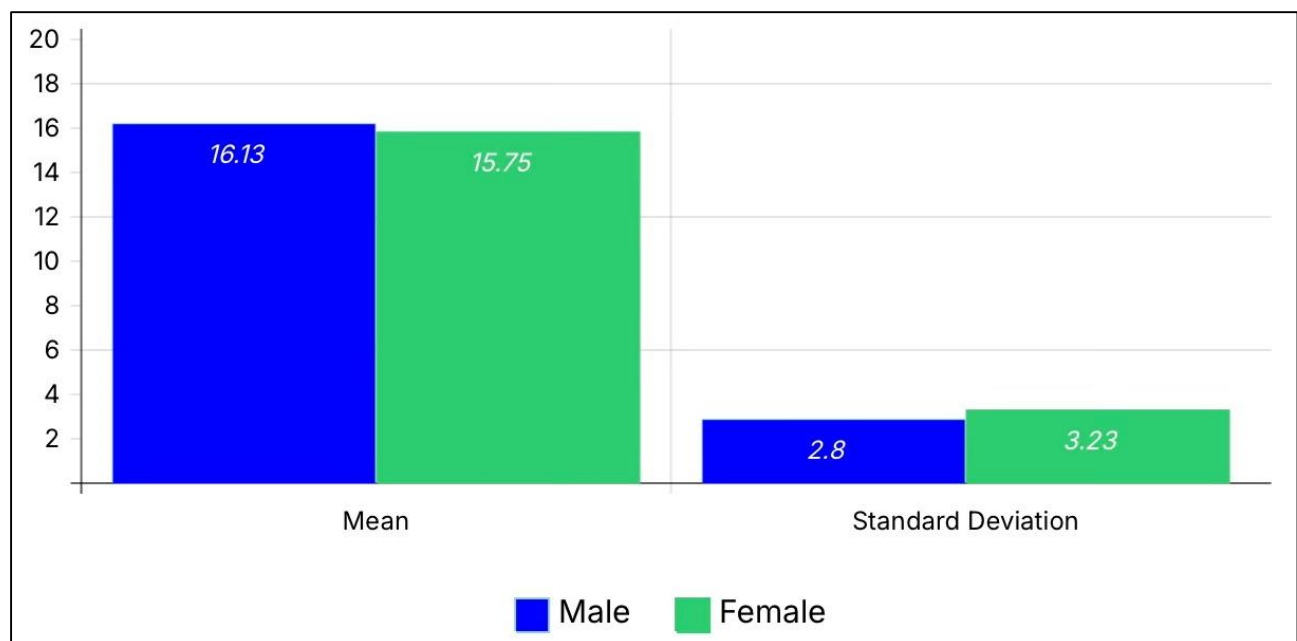


**Figure 1: Graphical Representation of Mean & Standard Deviation of Anxiety Scores of Under-18 Male & Female Kho Kho players**

**Mental Toughness:****Table 2: Comparison of Mental Toughness Levels Between Under-18 Male & Female Kho Kho Players**

| Dependent Variable | Independent Variable | N  | Mean  | Standard Deviation | Standard Error | t-value | p-value | df  |
|--------------------|----------------------|----|-------|--------------------|----------------|---------|---------|-----|
| Mental Toughness   | Males                | 75 | 16.13 | 2.80               | 0.49           | 0.77    | >0.05   | 148 |
|                    | Females              | 75 | 15.75 | 3.23               |                |         |         |     |

The analysis found no statistically significant difference in mental toughness between male and female Kho Kho players under the age of 18. The male and female mean scores ( $M = 16.13$ ,  $SD = 2.80$  and  $M = 15.75$ ,  $SD = 3.23$ , respectively) did not differ significantly, according to the independent samples t-test [ $t(148) = 0.77$ ,  $p > 0.05$ ]. This suggests that male and female Kho Kho players possess comparable levels of mental toughness, indicating a comparable capacity to manage psychological stress and competitive demands. However, when measured against standardized normative standards, mental toughness was low in both groups.

**Figure 2: Graphical Representation of Mean & Standard Deviation of Scores of Mental Toughness of Under-18 Male & Female Kho Kho players**

**Stress:****Table 3: Comparison of Stress Levels Between Under-18 Male & Female Kho Kho Players**

| Dependent Variable | Independent Variable | N  | Mean  | Standard Deviation | Standard Error | t-value | p-value | df  |
|--------------------|----------------------|----|-------|--------------------|----------------|---------|---------|-----|
| Stress             | Male                 | 75 | 19.01 | 4.56               | 0.73           | -2.70   | <0.05   | 148 |
|                    | Females              | 75 | 20.99 | 4.42               |                |         |         |     |

The analysis found a statistically significant difference in stress levels between male and female Kho Kho players under the age of 18. Female players (M = 20.99, SD = 4.42) reported feeling more stress than male players (M = 19.01, SD = 4.56). The independent samples t-test showed a significant difference with  $t(148) = -2.70$ ,  $p < 0.05$ , indicating that the observed gender difference in stress was statistically significant. These findings suggest that in the competitive environment of Kho Kho, female players are more likely than their male counterparts to experience psychological stress. Both groups were categorized as moderately stressed when measured against predetermined criteria.

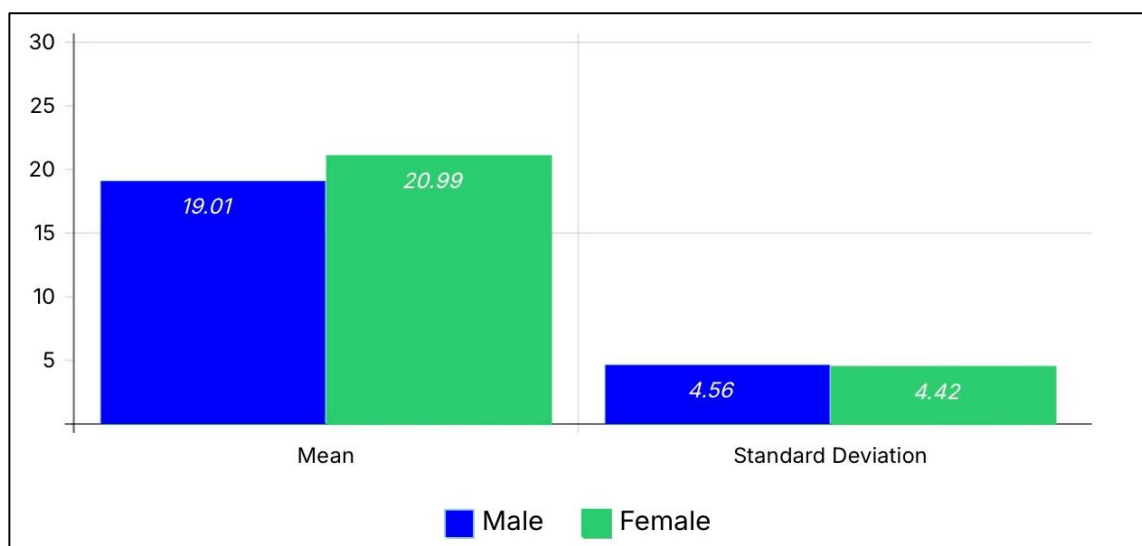


**Figure 3: Graphical Representation of Mean & Standard Deviation of Stress Scores of Under-18 Male & Female Kho Kho players**

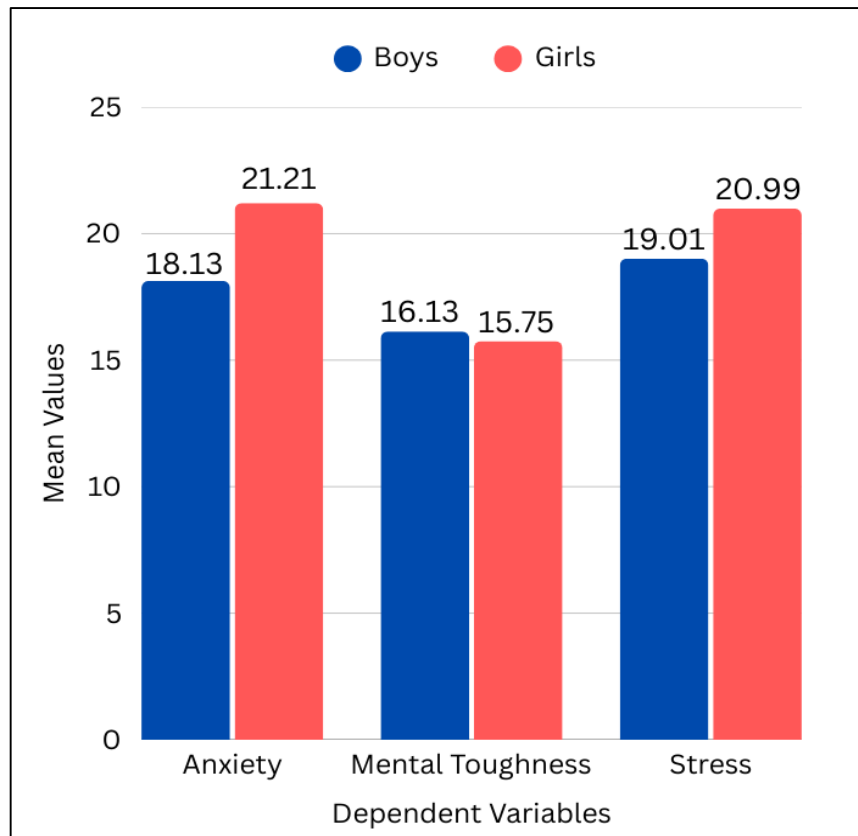


**Figure 4: Graphical Representation of Mean Scores of Anxiety, Mental Toughness, and Stress Levels of Under-18 Male and Female Kho Kho Players**

**Table 4: Normative Comparison of Anxiety, Mental Toughness & Stress Levels of Under-18 Male & Female Kho Kho Players**

| Gender | Anxiety | Mental Toughness | Stress   |
|--------|---------|------------------|----------|
| Male   | Average | Low              | Moderate |
| Female | Average | Low              | Moderate |

Based on test results compared to predetermined standard norms, Table 4 presents a normative assessment of the psychological variables—such as stress, anxiety, and mental toughness—among male and female Kho Kho players under the age of 18. This comparison provides a better understanding of how these young athletes' psychological profiles match the average levels anticipated in adolescent sports populations. The table highlights important areas where psychological strengths exist or where developmental support may be required by classifying scores into normative ranges like low, average, or moderate. Coaches, psychologists, and trainers can use this information to understand the findings' practical implications and create focused mental training or intervention programs that enhance athletes' psychological toughness and performance.



**Figure 5: Graphical Representation of Normative Analysis of Scores of Anxiety, Mental Toughness & Stress of Under 18 Male & Female Kho Kho Players**

## DISCUSSION OF FINDINGS

This study aimed to examine gender-based differences in three key psychological variables (anxiety, mental toughness, and stress) among under-18 male and female Kho Kho players. The findings revealed significant gender differences in anxiety and stress levels, while no significant difference was observed in mental toughness. Additionally, normative comparisons indicated that both groups demonstrated average levels of anxiety, low levels of mental toughness & moderate levels of stress.

Female players exhibited significantly higher anxiety than their male counterparts. This finding aligns with previous research suggesting that adolescent females tend to experience more competitive anxiety than male due to various psychosocial and developmental factors (Craft et al., 2003; Kais & Raudsepp, 2005). Factors such as heightened self-consciousness, fear of negative evaluation, and lower perceived competence may contribute to increased anxiety among female athletes (Jones et al., 2002). Although females scored significantly higher, both male and females fell within the average range of anxiety according to standardised norms, indicating that their levels were not excessively elevated for their age and sport context.

In contrast, no statistically significant difference was observed in mental toughness scores between male and females. This suggests that both genders demonstrate comparable levels of resilience, confidence, and coping ability in competitive situations, which is consistent with earlier findings that mental toughness may be more strongly influenced by experience, training exposure, and psychological skill development rather than gender alone (Gucciardi et al., 2009; Sheard & Golby, 2006). However, when benchmarked against normative values, both groups were found to fall into the low mental toughness category, highlighting a potential area for psychological intervention. This could reflect a lack of structured mental skills training at the grassroots level in Kho Kho, particularly in adolescent players.

With respect to stress, female athletes also reported significantly higher levels of perceived stress than males. This observation supports findings by Nicholls et al. (2009), who noted that female athletes tend to experience greater stress due to internal pressures, social expectations, and multitasking demands, especially in the context of adolescence. However, despite the statistical difference, both male and females fell within the moderate stress range according to the Perceived Stress Scale (Cohen et al., 1983), suggesting that while competition induces stress, it remains within a manageable level for most players.

Taken together, these results highlight the need for integrating psychological support and mental skills training in youth Kho Kho programs. Enhancing mental toughness and managing anxiety and stress more effectively could contribute to improved performance, athlete well-being, and sustained participation in the sport. Coaches, trainers, and sports psychologists should consider implementing gender-sensitive mental conditioning programs to address the unique psychological needs of adolescent athletes.

## CONCLUSION

This study revealed significant gender-based psychological differences among under-18 Kho Kho players, with female athletes exhibiting higher levels of anxiety and stress compared to males. No significant difference was found in mental toughness; however, both groups demonstrated average level of anxiety, low level of mental toughness & moderate level of stress relative to normative standards. These findings underscore the importance of integrating psychological training into youth sports programs, particularly targeting anxiety management, stress reduction, and mental toughness development to enhance performance and athlete well-being in Kho Kho.

## ACKNOWLEDGEMENT

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## CONFLICT OF INTEREST

The authors declare no conflict of interest.

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