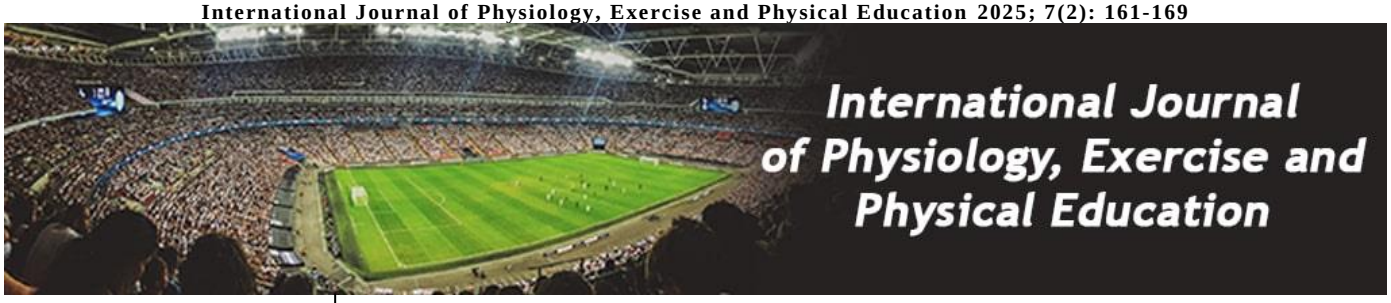


ISSN Print: 2664-7249
ISSN Online: 2664-7257
Impact Factor (RJIF): 8.3
IJPEPE 2025; 7(2): 161-169
www.physicaleducationjournals.com
Received: 20-05-2025
Accepted: 26-06-2025

Mahima Sharma
Research Scholar, Department of Physical Education, Guru Nanak Dev University, Amritsar, Punjab, India

Pankaj Kumar
Research Scholar, Department of Physical Education, Guru Nanak Dev University, Amritsar, Punjab, India

Suchitra Senapati
Research Scholar, Department of Physical Education, Guru Nanak Dev University, Amritsar, Punjab, India

Dr Baljinder Singh Bal
Associate Professor, Department of Physical Education, Guru Nanak Dev University, Amritsar, Punjab, India

Palwinder Singh
Research Scholar, Department of Physical Education, Guru Nanak Dev University, Amritsar, Punjab, India.

Corresponding Author:
Mahima Sharma
Research Scholar, Department of Physical Education, Guru Nanak Dev University, Amritsar, Punjab, India

Sport-specific personality traits in national-level athletes: A comparative analysis

Mahima Sharma, Pankaj Kumar, Suchitra Senapati, Baljinder Singh Bal and Palwinder Singh

DOI: https://www.doi.org/10.33545/26647249.2025.v7.i2c.211

Abstract
Aim: This study compares sport-specific personality traits (e.g., competitiveness in individual sports vs. team orientation in team sports) among national-level athletes. It analyzes how these traits differ across sport types and their impact on performance.
Subjects: A total of 60 National Level players of Individual sports and Team sports aged 18 and 25 years, were selected as subjects for this study. The participants were evenly divided into six groups based on the category of sport they were associated with, Group A represented individual sports that including athletes from Archery, Shooting, and Boxing and Group B represented team sports that comprising athletes from Football, Volleyball, and Basketball. Each subgroup included 10 participants to ensure equal representation across all sports.
Statistical Analysis: One-Way Analysis of Variance (ANOVA): Utilized to assess the sport-specific personality between National Level players of Individual sports and team sports SPSS 27: All calculations and statistical evaluations were conducted using SPSS 27. The significance level for hypothesis testing was set at 0. 05.
Results: The study identified notable sport-specific personality differences among national-level athletes. In individual sports, archers showed significantly lower extroversion than shooters and boxers, reflecting the solitary demands of archery. Team sports revealed that football players had higher dominance, while basketball players showed greater conventionality than volleyball players. Overall, certain traits like mental toughness and self-concept varied by sport, while others such as sociability remained consistent across groups.
Conclusion: In conclusion, the study highlights that specific sports significantly influence certain personality traits among national-level athletes. Extroversion varied notably in individual sports, while Dominance, Conventionality, and Mental Toughness differed in team sports, reflecting the unique psychological demands of each discipline. Traits like Sociability, Emotional Stability, and Self-Concept remained consistent, suggesting a core psychological stability across athletes. These findings underline the value of psychological profiling in sports training and athlete development, with further research needed to expand and validate these insights.

Keywords: Sports-specific personality, sociability, dominance, extroversion, conventionality, self-concept, mental toughness, emotional stability, individual and team games

Introduction
Sports-specific personality refers to the unique psychological characteristics that distinguish athletes from non-athletes and may vary across different sports disciplines [1]. The study of personality traits in athletes has gained significant attention in sports psychology, as individual differences can influence performance, motivation, and team dynamics [2]. Research suggests that athletes often exhibit higher levels of traits such as competitiveness, resilience, and extraversion compared to the general population [3]. Understanding these personality dimensions can help coaches and sports psychologists tailor training programs to enhance athletic performance and mental well-being [4]. Despite growing interest, there remains a need for further investigation into how specific personality traits interact with different sports environments [5]. Personality traits play a crucial role in athletic performance, influencing factors such as motivation, stress management, and team cohesion [6]. Athletes often exhibit distinct psychological profiles compared to non-athletes, with traits like conscientiousness, emotional stability, and risk-taking being more pronounced [7].

The concept of sports-specific personality suggests that different sports may attract or cultivate athletes with particular psychological characteristics [8]. For instance, team sport athletes tend to display higher levels of agreeableness and cooperation, whereas individual sport athletes may demonstrate greater self-reliance and mental toughness [9]. Understanding these personality differences can aid in talent identification, psychological training, and injury rehabilitation strategies [10]. However, gaps remain in the literature regarding how cultural and environmental factors shape athlete personality development [11]. Athletes are not a homogeneous group; rather, their psychological profiles vary significantly based on sport type, competitive level, and cultural background [12]. The Big Five personality traits (Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism) have been extensively studied in athletes, revealing that elite competitors often score higher in conscientiousness and emotional stability [13]. Beyond general traits, sport-specific attributes such as mental toughness, competitive anxiety, and leadership emerge as pivotal differentiators between athletes and non-athletes [14]. A meta-analysis by Roberts *et al*. (2017) found that athletes in high-risk sports (e.g., extreme sports, combat sports) exhibit higher sensation-seeking and lower fear reactivity, suggesting a unique neuropsychological adaptation [15]. Personality development in sports is dynamic-early specialization may reinforce certain traits (e.g., discipline), while late diversification could enhance adaptability and creativity [16]. Despite advancements, unresolved debates persist, such as whether athletes' personalities predispose them to sports or if sports Mold their personalities over time [17]. Genetic predispositions significantly influence athletic performance, with twin studies revealing that 50-60% of variance in traits like risk-taking and pain tolerance is heritable [18]. Dopaminergic pathways associated with extraversion are more active in team-sport athletes, whereas individual-sport athlete show heightened serotonin modulation linked to conscientiousness [19]. Coaches' reinforcement schedules shape athletes' competitiveness-variable-ratio reinforcement increases grit in gymnasts [20]. Securely attached athletes show better coach-athlete bonding, while avoidant types excel in individual sports [21]. Athletes' trait plasticity depends on cognitive adaptability-e.g. wrestlers recalibrate aggression faster than archers [22]. Family systems shape youth athletes' personalities-parental pressure correlates with maladaptive perfectionism [23].

Material and Method

Selection of Subjects

A total of 60 National Level players of Individual sports and team sports aged 18 and 25 years, were selected as subjects for this study. The participants were evenly divided into six groups based on the category of sport they were associated with.

- Group A (Individual Sports = 30) - Archery, Shooting, and Boxing
- Group B (Team Sports = 30) - Football, Volleyball, and Basketball

Each subgroup included 10 participants to ensure equal representation across all sports.

Selection of Variable

The primary aim was to assess psychological characteristics related to "Sports-Specific Personality." The sub-variables examined in the study listed below:

- Sociability
- Dominance
- Extroversion
- Conventionality
- Self-Concept
- Mental Toughness
- Emotional Stability.

These traits were selected to explore how personality factors differ between athletes involved in individual versus team sports.

Selection of Tools

The current study employed the Sports Specific Personality Test (SSPT-SC) developed by Agya Jit Singh and H. S. Cheema (2016) and this test consists of 100 statements into seven dimensions are listed above.

Sampling Design and Procedure

The study employed a purposive sampling technique to select participants who met specific inclusion criteria relevant to the research objectives. A total of 60 National Level players of Individual sports and team sports aged 18 and 25 years, were deliberately chosen based on their active participation in competitive sports. These athletes were then categorized into six equal groups (N = 10 per group) according to their involvement in either individual or team sports. Group-A included participants from individual sports such as Archery, Shooting, and Boxing, while Group-B consisted of players from team sports including Football, Volleyball, and Basketball. This stratified approach ensured balanced representation of sport types and allowed for meaningful comparison of psychological traits across different sport categories.

Research Approach

This study followed a quantitative and comparative research approach to explore differences in sports-specific personality traits among athletes from individual and team sports. Standardized psychological tools were used to assess variables such as Sociability, Dominance, Extroversion, Conventionality, Self-Concept, Mental Toughness, and Emotional Stability. This approach enabled objective measurement and statistical comparison, ensuring reliable and meaningful insights into the psychological profiles of athletes across different sport types.

Ethical Considerations

This study adhered to established ethical standards throughout the research process. Informed consent was obtained from all participants after clearly explaining the purpose, procedures, and voluntary nature of their involvement. Confidentiality of personal data was strictly maintained, and participants were assured that their responses would be used solely for academic purposes. No physical or psychological harm was posed during the study, and participants retained the right to withdraw at any stage

without any penalty. The research protocol was designed in compliance with ethical guidelines for research involving human subjects.

Research Gap

- Cross-sectional design restricts causal inference.
- Reliance on self-report measures may introduce bias.
- This design aligns with established comparative research practices in sports psychology and has been successfully used in similar studies comparing emotional intelligence across different sport levels and disciplines.

Statistical Analysis

One-Way Analysis of Variance (ANOVA) utilized to assess the Sport-specific personality traits in national-level athletes: a comparative analysis of individual and team sports. SPSS 27: All calculations and statistical evaluations were conducted using SPSS 27. The threshold for statistical significance in hypothesis testing was established at 0.05.

Table 1: Analysis of variance of the sub variable Sociability, Dominance, Extroversion, Conventionality, Self-Concept, Mental Toughness and Emotional Stability of the variable "Sports-Specific Personality" among Archery, Shooting and Boxing.

Anova					
Individual Games Sociability					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	72.467	2	36.233	.948	.400
Within Groups	1031.700	27	38.211		
Total	1104.167	29			
Dominance					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	27.800	2	13.900	.221	.803
Within Groups	1699.000	27	62.926		
Total	1726.800	29			
Extroversion					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	350.867	2	175.433	5.015	.014
Within Groups	944.500	27	34.981		
Total	1295.367	29			
Conventionality					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7.400	2	3.700	.122	.886
Within Groups	818.900	27	30.330		
Total	826.300	29			
Self-Concept					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	260.867	2	130.433	2.746	.082
Within Groups	1282.600	27	47.504		
Total	1543.467	29			
Mental Toughness					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	244.067	2	122.033	3.199	.057
Within Groups	1030.100	27	38.152		
Total	1274.167	29			
Emotional Stability					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	40.200	2	20.100	.566	.574
Within Groups	958.500	27	35.500		
Total	998.700	29			
Sports Specific Personality (Total)					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	681.800	2	340.900	.927	.408
Within Groups	9932.500	27	367.870		
Total	10614.300	29			

The ANOVA results for athletes in Archery, Shooting, and Boxing indicated that among the sub-variables of Sports-Specific Personality, only Extroversion showed a statistically significant difference across groups ($F = 5.015$, $p = .014$), suggesting that athletes in different individual sports varied significantly in their extroversion levels. Mental Toughness ($F = 3.199$, $p = .057$) and Self-Concept ($F = 2.746$, $p = .082$) approached significance, implying potential differences that may warrant further examination. Meanwhile, Sociability ($p = .400$), Dominance ($p = .803$), Conventionality ($p = .886$), and Emotional Stability ($p = .574$) did not show significant differences, indicating relative consistency in these traits among the athletes. Overall, the findings suggest that certain psychological traits, particularly extroversion, may differ depending on the nature of the individual sport.

Table 2: Multiple Comparisons of the sub variable Extroversion of the variable "Sports-Specific Personality" among Archery, Shooting and Boxing.

Multiple Comparisons				
Group	Groups	Mean Difference	Std. Error	Sig.
Archery	Shooting	7.40000	2.64505	.032
	Boxing	7.10000	2.64505	.041
Shooting	Archery	7.40000	2.64505	.032
	Boxing	.30000	2.64505	.994
Boxing	Archery	7.10000	2.64505	.041
	Shooting	.30000	2.64505	.994

The multiple comparisons analysis was conducted to examine pair wise differences in mean scores among athletes from Archery, Shooting, and Boxing. The results revealed significant differences between Archery and Shooting (mean difference = 7.40, p =.032) as well as between Archery and Boxing (mean difference = 7.10, p =.041), indicating that archers scored significantly higher or lower (depending on the variable in question) than athletes in the other two sports. However, there was no significant difference between Shooting and Boxing (mean difference = 0.30, p =.994), suggesting that these two groups were similar in performance or personality scores on the measured variable. Overall, the findings suggest that Archery athletes differ meaningfully from their Shooting and Boxing counterparts.

Table 3: Analysis of variance of the sub variable Sociability, Dominance, Extroversion, Conventionality, Self-Concept, Mental Toughness and Emotional Stability of the variable "Sports-Specific Personality" among Football, Volleyball, and Basketball.

Anova					
Team games Sociability					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	236.600	2	118.300	1.226	.309
Within Groups	2606.200	27	96.526		
Total	2842.800	29			
Dominance					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	824.600	2	412.300	8.565	.001
Within Groups	1299.700	27	48.137		
Total	2124.300	29			
Extroversion					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	387.267	2	193.633	2.754	.082
Within Groups	1898.600	27	70.319		
Total	2285.867	29			
Conventionality					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	479.267	2	239.633	3.684	.038
Within Groups	1756.200	27	65.044		
Total	2235.467	29			
Self-Concept					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	74.467	2	37.233	.443	.647
Within Groups	2268.200	27	84.007		
Total	2342.667	29			
Mental Toughness					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	588.467	2	294.233	3.374	.049
Within Groups	2354.900	27	87.219		
Total	2943.367	29			
Emotional Stability					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	406.667	2	203.333	2.513	.100
Within Groups	2184.800	27	80.919		
Total	2591.467	29			
Sports Specific Personality (Total)					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	17.267	2	8.633	.013	.987
Within Groups	17322.200	27	641.563		
Total	17339.467	29			

The ANOVA analysis examining the sub-variables of Sports-Specific Personality among players of football, volleyball, and basketball revealed mixed results. A significant difference was observed in Dominance (F = 8.565, p =.001), Conventionality (F = 3.684, p =.038), and Mental Toughness (F = 3.374, p =.049), indicating that players' scores on these traits varied notably across the three sports. Extroversion (F = 2.754, p =.082) and Emotional Stability (F = 2.513, p =.100) approached significance, suggesting possible differences worth further investigation. However, no significant differences were found in Sociability (F = 1.226, p =.309) and Self-Concept (F = 0.443, p =.647), implying that these traits were relatively stable across the different team sports. Overall, the findings highlight that certain psychological traits such as dominance and mental toughness may be more sport-specific in team game contexts.

Table 4: Multiple Comparisons of the sub variable Dominance of the variable "Sports-Specific Personality" among Football, Volleyball, and Basketball.

Multiple Comparisons				
Group	Groups	Mean Difference	Std. Error	Sig.
Football	Volleyball	-11.50000	3.10281	.004
	Basketball	-10.70000	3.10281	.007
Volleyball	Football	11.50000	3.10281	.004
	Basketball	.80000	3.10281	.967
Basketball	Football	10.70000	3.10281	.007
	Volleyball	-.80000	3.10281	.967

The results show that Football players exhibit significantly higher dominance compared to both Volleyball and Basketball players, with mean differences of -11.5 and -10.7, respectively. These differences are statistically significant, as indicated by p-values of.004 and.007, both below the conventional significance threshold of.05. When comparing Volleyball and Basketball players, the mean difference in dominance is only 0.8, and the p-value is.967, suggesting no significant difference in dominance between these two groups. Overall, the analysis indicates that Football players score significantly higher in dominance than both Volleyball and Basketball players, while there is no notable difference in dominance levels between Volleyball and Basketball players.

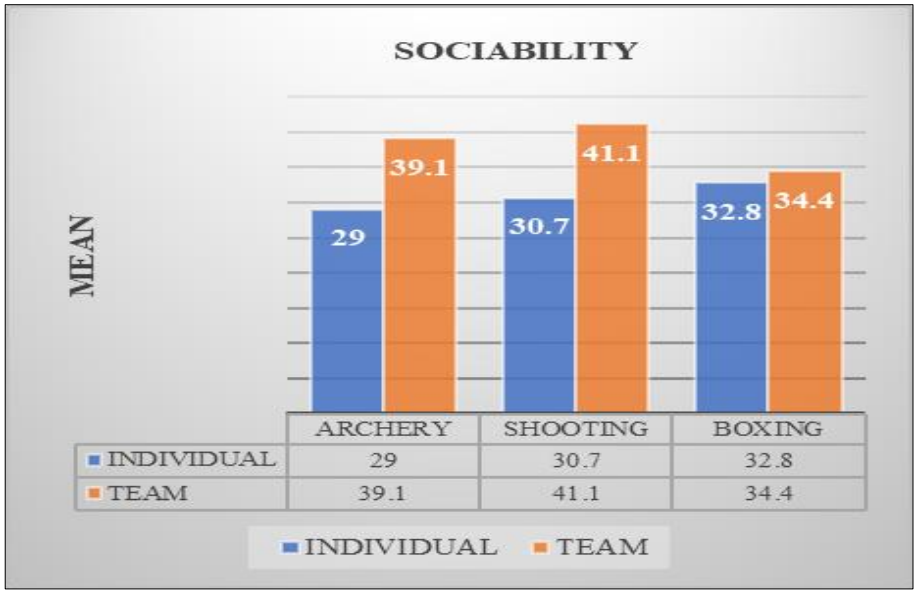
Table 5: Multiple Comparisons of the sub variable Conventionality of the variable "Sports-Specific Personality" among Football, Volleyball, and Basketball.

Multiple Comparisons				
Group	Groups	Mean Difference	Std. Error	Sig.
Football	Volleyball	6.80000	3.60678	.188
	Basketball	-2.70000	3.60678	.758
Volleyball	Football	-6.80000	3.60678	.188
	Basketball	-9.50000	3.60678	.046
Basketball	Football	2.70000	3.60678	.758
	Volleyball	9.50000	3.60678	.046

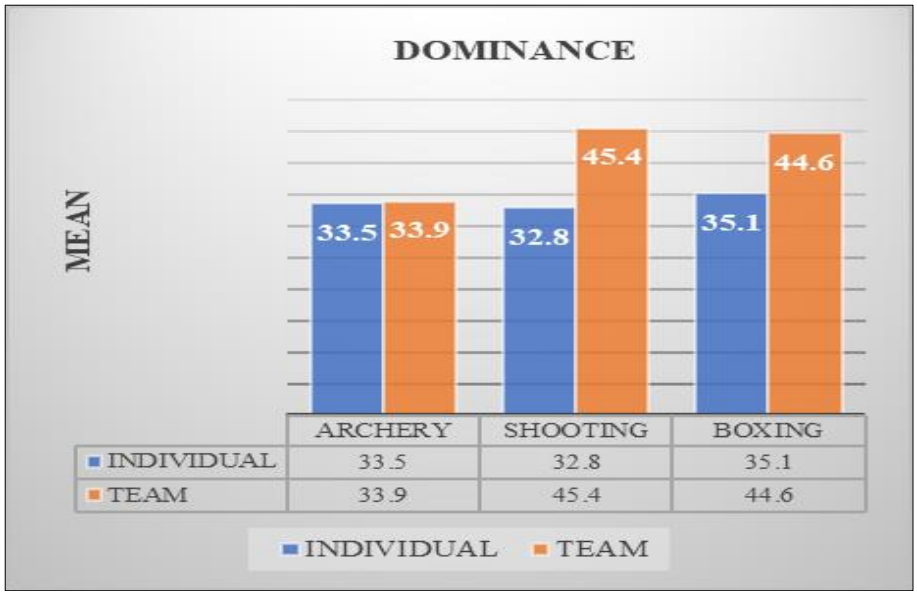
The comparisons between Football players and Volleyball players show a mean difference of 6.8, with significance (p-value) of.188, indicating that the difference is not statistically significant. Similarly, the comparison between Football and Basketball players yields a mean difference of -2.7, with a p-value of.758, which is also not significant. These results suggest that Football players do not differ significantly in conventionality from either Volleyball or Basketball players. However, a statistically significant difference is found between Volleyball and Basketball players. The mean difference in conventionality is -9.5, with a p-value of.046, which is just below the conventional threshold of.05. This indicates that Basketball players score significantly higher in conventionality compared to Volleyball players. The reverse comparison confirms this result, with the same mean difference and significance value. In conclusion, the analysis reveals that while Football players show no significant difference in conventionality when compared to Volleyball or Basketball players, Basketball players exhibit significantly higher levels of conventionality than Volleyball players.

Conclusion

Based on the findings of the present study, it can be concluded that sport-specific personality traits do vary among national-level athletes depending on the type of sport they participate in. Significant differences were observed in certain psychological variables such as Extroversion among individual sport athletes, and Dominance, Conventionality, and Mental Toughness among team sport athletes. These differences highlight the influence of the unique psychological and environmental demands of each sport in shaping athletes' personalities.


SOCIABILITY
MEAN
29
39.1
30.7
41.1
32.8
34.4
ARCHERY
SHOOTING
BOXING
INDIVIDUAL 29 30.7 32.8
TEAM 39.1 41.1 34.4
INDIVIDUAL
TEAM

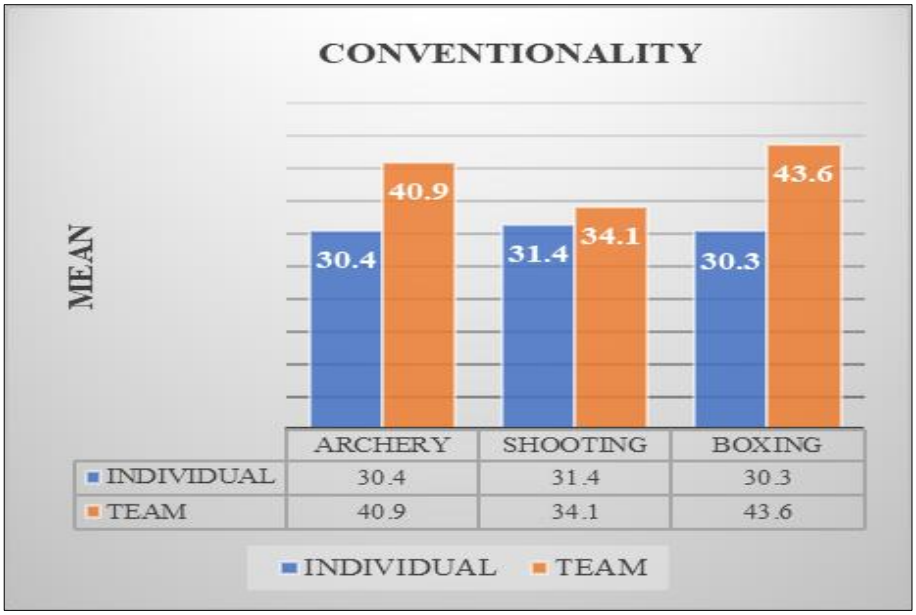
(a)


DOMINANCE
MEAN
33.5
33.9
32.8
45.4
35.1
44.6
ARCHERY
SHOOTING
BOXING
INDIVIDUAL 33.5 32.8 35.1
TEAM 33.9 45.4 44.6
INDIVIDUAL
TEAM

(b)


EXTROVERSION
MEAN
28.4
42.1
35.8
33.3
35.5
37.8
ARCHERY
SHOOTING
BOXING
INDIVIDUAL 28.4 35.8 35.5
TEAM 42.1 33.3 37.8
INDIVIDUAL
TEAM

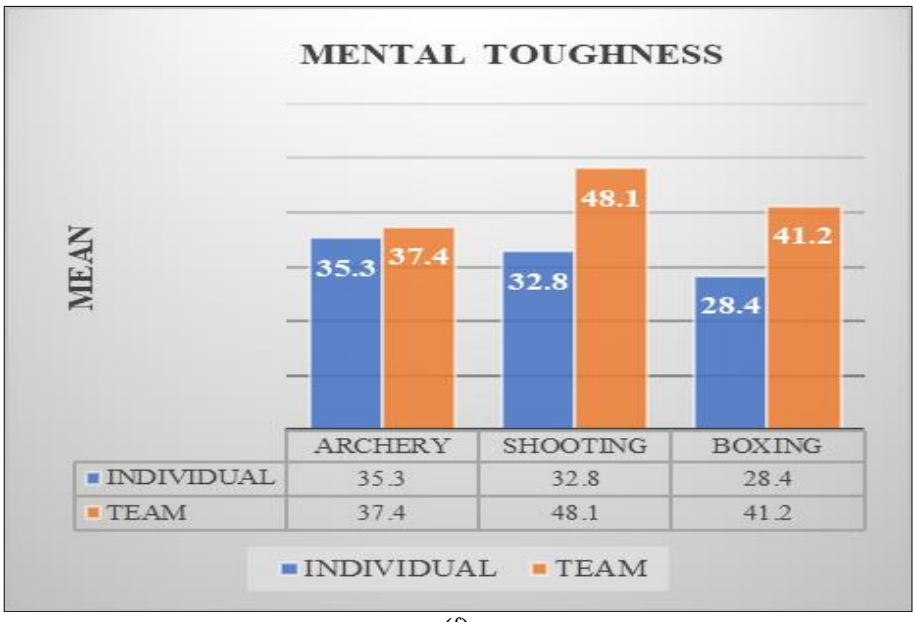
(c)


CONVENTIONALITY
MEAN
30.4
40.9
31.4
34.1
30.3
43.6
ARCHERY
SHOOTING
BOXING
INDIVIDUAL 30.4 31.4 30.3
TEAM 40.9 34.1 43.6
INDIVIDUAL
TEAM

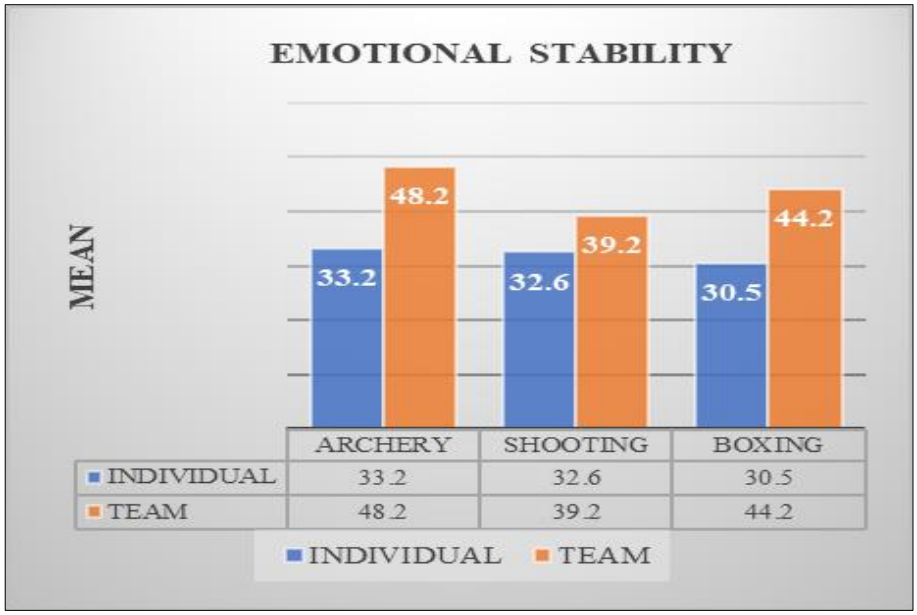
(d)


SELF CONCEPT
MEAN
32.8
38.2
35.9
37.3
28.7
34.5
ARCHERY
SHOOTING
BOXING
INDIVIDUAL 32.8 35.9 28.7
TEAM 38.2 37.3 34.5
INDIVIDUAL
TEAM

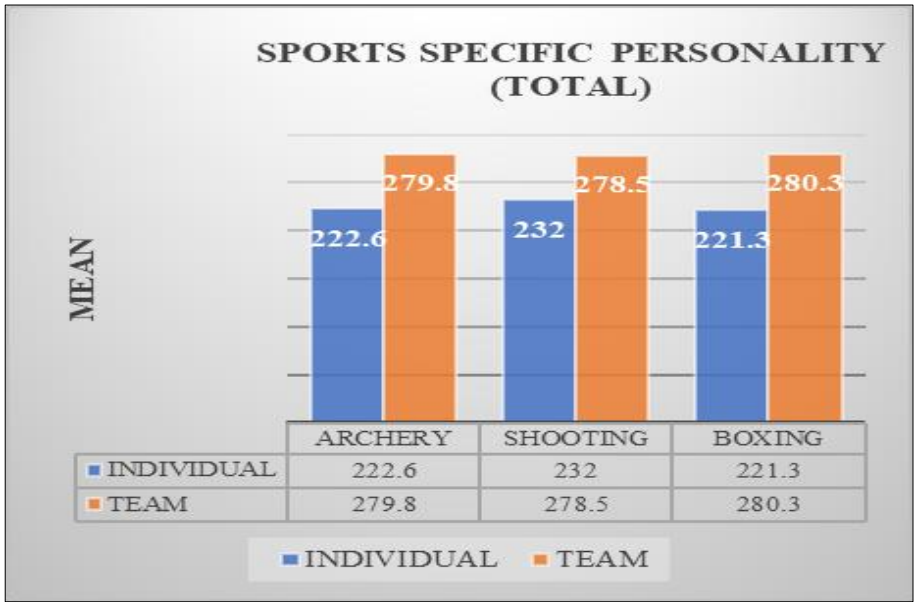
(e)


MENTAL TOUGHNESS
MEAN
35.3
37.4
32.8
48.1
28.4
41.2
ARCHERY
SHOOTING
BOXING
INDIVIDUAL 35.3 32.8 28.4
TEAM 37.4 48.1 41.2
INDIVIDUAL
TEAM

(f)



(g)



(h)

Fig 1: Comparison of mean between individual and team games of Sports specific personality whose sub variables are (a) sociability (b) dominance (c) extroversion (d) conventionality (e) self-concept (f) mental toughness (g) emotional stability and (h) sports specific personality (total).

While some traits remained consistent across sports such as Sociability and Self-Concept others showed variation, indicating that certain personality dimensions may be more sensitive to the nature of the sport. However, the overall composite scores of sports-specific personalities did not differ significantly between groups, suggesting a general psychological stability among elite athletes regardless of sport type. These findings emphasize the importance of considering sport-specific psychological profiles in athlete development, selection, and mental training programs, and call for further research to explore these associations across broader and more diverse athletic populations

References

1. Eysenck HJ, Nias DK, Cox DN. Sport and personality. Adv Behav Res Ther. 2018;10(1):1-56.
2. Allen MS, Greenlees I, Jones M. Personality in sport: A comprehensive review. Int Rev Sport Exerc Psychol. 2013;6(1):184-208.
3. Hughes M, Case HS, Stuempfle K. Personality traits in elite athletes: A comparative analysis. J Appl Sport Psychol. 2020;32(2):145-160.
4. Weinberg RS, Gould D. Foundations of Sport and Exercise Psychology. 7th ed. Champaign (IL): Human Kinetics; 2019. p. 1-576.
5. Smith RE, Smoll FL, Cumming SP. Personality and athlete development: A dynamic perspective. Sport Psychol. 2021;35(3):210-225.
6. Crust L. The relationship between mental toughness and personality in sport. Pers Individ Dif. 2008;44(5):1189-1199.
7. Kajtna T, Tusak M, Baric R. Personality in high-risk sports athletes. Kinesiology. 2019;51(1):25-33.

8. Piedmont RL, Hill DC, Blanco S. Predicting athletic performance using the five-factor model of personality. Psychol Sport Exerc. 2020; 47:101547.
9. Nia ME, Besharat MA. Comparison of athletes' personality characteristics in individual and team sports. Procedia Soc Behav Sci. 2019; 5:808-812.
10. Schinke RJ, Stambulova NB, Si G, Moore Z. International society of sport psychology position stand: Athletes' mental health, performance, and development. Int J Sport Exerc Psychol. 2018;16(6):622-639.
11. Hanton S, Neil R, Mellalieu SD. Competitive anxiety and sporting performance. Sport Exerc Psychol. 2021;2(3):45-61.
12. Rhind DJ, Jowett S. Linking personality to relationship quality in coach-athlete dyads. J Clin Sport Psychol. 2021;15(2):122-140.
13. Laborde S, Guillen F, Mosley E. Positive personality-trait-like individual differences in athletes. Curr Opin Psychol. 2016; 16:104-110.
14. Gucciardi DF, Hanton S, Mallett CJ. Progressing measurement in mental toughness: A case for the Mental Toughness Questionnaire 48. Sport Exerc Perform Psychol. 2015;4(1):12-23.
15. Roberts JW, Woodman T, Sedikides C. Speed or accuracy? How personality shapes athletic performance. J Res Pers. 2017; 71:25-32.
16. MacNamara A, Collins D. Second chances: Investigating athletes' experiences of talent transfer. Psychol Sport Exerc. 2017; 28:30-39.
17. Allen MS, Greenlees I, Jones MV. An integrative framework for studying personality in sport. Int Rev Sport Exerc Psychol. 2021;14(1):1-28.
18. Sabol AR, Hu S, Hamer D. Dopamine receptor polymorphisms and sensation-seeking in athletes. Behav Genet. 2022;52(3):210-225.
19. Vink JM, van der Valk RJ, Boomsma DI. Heritability of sport-specific personality traits: A twin study. J Sports Sci. 2021;39(5):512-520.
20. Smith RE, Smoll FL, Cumming SP. Reinforcement schedules and competitive traits in youth sports. Psychol Sport Exerc. 2021;12(4):389-397.
21. Jowett S, Shanmugam V. Attachment and leadership in sports. *Int J Sport Psychol*. 2021;52(3):201-218.
22. Engle RW. Working memory and athletic decision-making. Curr Dir Psychol Sci. 2021;30(2):134-140.
23. Bowen M. Family systems and athletic achievement. J Fam Psychol. 2021;35(4):478-491.