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## A Comparative Study of Achievement Motivation and Self-Esteem among Archers with Reference to Gender and Category of Archery

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### Abstract

Psychological characteristics of athletes significantly influence sports performance, particularly in precision sports such as archery. This comparative study examined achievement motivation and self-esteem among archers with respect to gender (male and female) and category of archery (recurve and compound). A sample of 200 competitive archers (100 males and 100 females) with minimum two years of competitive experience participated in this study, with equal representation from both recurve and compound categories. Achievement motivation was assessed using the Sports Achievement Motivation Test (Kamlesh), and self-esteem was measured using the Rosenberg Self-Esteem Scale. Descriptive statistics and two-way analysis of variance (ANOVA) were employed for data analysis. Results revealed no significant differences in achievement motivation based on gender ( $F = 0.000, p = .987$ ), category of archery ( $F = 0.022, p = .881$ ), or their interaction ( $F = 0.062, p = .803$ ). However, a statistically significant gender difference was found in self-esteem ( $F = 166.575, p < .001$ ), with male archers demonstrating higher self-esteem ( $M = 35.99, SD = 2.38$ ) than female archers ( $M = 30.97, SD = 3.06$ ). No significant differences were observed for self-esteem based on category of archery ( $F = 0.169, p = .681$ ) or interaction effects ( $F = 0.003, p = .959$ ). These findings suggest that while male and female archers are equally motivated to achieve success, male archers possess significantly higher self-esteem. The study highlights the importance of implementing targeted psychological support programs and interventions aimed at enhancing self-esteem among female archers, potentially improving their confidence and competitive performance.

**Keywords:** achievement motivation, self-esteem, gender differences, archery, precision sports, sports psychology, competitive athletes

### 1. Introduction

In contemporary sports science, psychological factors have emerged as essential contributors to athletic performance and success at competitive levels. Beyond physical fitness and technical skill acquisition, athletes' psychological attributes including motivation, confidence, emotional regulation, and self-perception significantly influence their ability to perform consistently under competitive pressure and adversity (Weinberg & Gould, 2019). This reality is particularly evident in precision sports such as archery, where success depends critically on sustained concentration, emotional control, psychological

confidence, and mental stability (Hodges & Franks, 2002). Achievement motivation, conceptualized as an individual's drive to strive for excellence, overcome challenges, and attain success in performance tasks, represents a fundamental psychological construct in sports contexts (McClelland et al., 1953). In sports environments, achievement motivation encourages athletes to establish and pursue high performance goals, persist in challenging training regimens, and develop effective coping mechanisms to address competitive demands and performance pressures (Ryan & Deci, 2000; Deci & Ryan, 2012). Research has consistently demonstrated that athletes with higher

levels of achievement motivation display greater dedication to training, enhanced resilience in face of setbacks, and improved capacity for sustained effort all critical components for success in high-level competition (Lonsdale et al., 2011).

Self-esteem, defined as an individual's overall evaluation of self-worth and personal value, represents another crucial psychological construct in sports contexts (Rosenberg, 1965; Pyszczynski et al., 2004). In sports settings, self-esteem significantly influences athlete confidence, emotional regulation capacity, and psychological responses to success experiences and competitive failures (Andrew et al., 2012). Athletes with higher self-esteem tend to demonstrate greater confidence in their abilities, enhanced emotional stability, and improved capacity for effective performance in high-pressure competitive situations (Harter & Whitesell, 2003). Archery, as a precision sport, is typically categorized into two main competitive disciplines: recurve and compound archery. Although these categories differ substantially in equipment design, technological complexity, and technical requirements, both disciplines demand similar psychological skills and mental attributes, including sustained focus, unwavering confidence, emotional control, and resilience (Harmison, 2011). Extensive research examining gender differences in psychological variables, particularly self-esteem, has documented patterns across various sports contexts, with male athletes frequently demonstrating higher self-esteem than female athletes (Slutzky & Simpkins, 2009; Hogue et al., 2013). However, limited empirical research has comprehensively examined achievement motivation and self-esteem simultaneously among competitive archers while systematically considering both gender and category of archery as independent variables. Therefore, the present study was designed to examine and compare achievement motivation and self-esteem among archers with specific reference to gender differences and archery category differences, contributing to the broader understanding of psychological characteristics influencing performance in this precision sport. This investigation addresses a significant gap in the sports psychology literature regarding the psychological profiles of archery athletes and provides evidence-based insights for developing targeted psychological interventions and support programs.

## Literature Review

**Achievement Motivation in Sports Contexts:** Achievement motivation has been extensively studied and systematized within sports psychology research over the past several decades (Atkinson & Feather, 1966; McClelland, 1961). The foundational work of McClelland and colleagues established achievement motivation as a stable personality characteristic reflecting individuals' disposition to compete against standards of excellence and to derive satisfaction from successful achievement (McClelland et al., 1953). In sports contexts specifically, Ryan and Deci (2000) emphasized that motivation, particularly intrinsic motivation defined as participation driven by inherent enjoyment and personal satisfaction plays a vital and often decisive role in sustained participation, skill development, and performance in sports activities. Kamlesh (1990) contributed significantly to the Indian sports psychology literature by highlighting achievement motivation as a key psychological factor directly influencing athletic success, especially in highly competitive sports environments where performers encounter substantial pressure and demand for consistent excellence. Contemporary research has demonstrated that achievement motivation predicts various important outcomes including training adherence, competitive persistence, goal setting behavior, and ultimately competitive performance (Lonsdale et al., 2011; Pelletier et al., 2013).

**Gender Differences in Achievement Motivation:** Research examining gender differences in achievement motivation has produced somewhat mixed and nuanced findings across different sports contexts. Some studies have reported minimal or no significant differences between male and female athletes, particularly at higher levels of competition, where motivation levels tend to be uniformly high and competitive selection processes may create homogeneity in motivational profiles (Koivula, 1999). This finding suggests that competitive sports environments, with their selective recruitment of dedicated athletes and emphasis on excellence, may substantially reduce or eliminate gender-based differences in achievement motivation levels. Conversely, other research has identified modest gender differences in achievement motivation patterns, with some studies suggesting that males may exhibit higher motivation to avoid failure, while females may be relatively more motivated by intrinsic factors and affiliative concerns (Eccles & Harold, 1991). However, these patterns appear less pronounced in elite and competitive athletic populations compared to recreational sports participants. The preponderance of evidence suggests that at the competitive level examined in this study,

gender differences in achievement motivation would be minimal.

**Self-Esteem and Sports Performance:** Self-esteem has been extensively explored in relation to sports participation, performance outcomes, and psychological well-being in athletic contexts (Rosenberg, 1965; Harter & Whitesell, 2003; Andrew et al., 2012). Rosenberg's (1965) foundational conceptualization defines self-esteem as a stable sense of personal worth that influences behavioral choices, emotional responses, and social interactions. In sports contexts specifically, self-esteem functions as a critical psychological factor influencing athlete confidence, emotional regulation capacity, motivation maintenance, and responses to competitive successes and failures (Hogue et al., 2013). Extensive research demonstrates that athletes with higher self-esteem exhibit greater confidence in their abilities, more effective emotional regulation, faster recovery from competitive disappointments, and superior psychological performance under pressure conditions (Fox, 2000). Conversely, athletes with lower self-esteem may experience heightened anxiety, reduced confidence, impaired focus, and difficulty executing learned skills effectively during competitive performance (Stanaway et al., 2012).

**Gender Differences in Self-Esteem:** Gender differences in self-esteem, documented across numerous populations and contexts, have been consistently demonstrated in sports populations as well. Slutzky and Simpkins (2009) reported in a comprehensive examination that male athletes generally exhibit significantly higher self-esteem than female athletes, a pattern that has been corroborated by subsequent research (Hogue et al., 2013). Multiple factors contribute to these gender-based differences, including differential socialization processes related to athletic participation and competition (Fredricks & Eccles, 2005), gendered media representations and public acknowledgment of athletic achievement (Cooky et al., 2015), differential access to athletic opportunities and resources (Women's Sports Foundation, 2017), and internalized gender stereotypes regarding athletic capability and competence (Krane et al., 2004). In the specific context of archery, Hosseini et al. (2012) found that male archers demonstrated higher self-confidence than female archers, supporting the general notion of gender differences in self-related psychological constructs among archers. These findings underscore the importance of investigating gender-based psychological differences in archer populations specifically.

**Psychological Demands of Archery Categories:** While substantial research has examined achievement

motivation and self-esteem as independent constructs in various sports, research specifically comparing these psychological variables across different archery categories remains limited in the scientific literature. Existing evidence and theoretical analysis suggest that recurve and compound archers face similar fundamental psychological demands despite differences in equipment and technical factors. Both categories require sustained concentration and attentional focus, emotional regulation and anxiety management, consistent confidence levels across multiple competition attempts, and resilience when confronted with performance failures (Harrison, 2011; Weinberg & Gould, 2019). This similarity in psychological demands suggests that achievement motivation and self-esteem levels may be comparable between recurve and compound archers, as both groups require similar psychological competencies for successful performance. However, this remains an empirical question requiring systematic investigation.

#### **Research Gaps and Study Rationale**

Despite the extensive literature examining achievement motivation and self-esteem separately in sports contexts, and the documented gender differences in self-esteem across sports populations, research simultaneously examining both constructs among archery competitors while considering both gender and archery category remains sparse. This study addresses this important gap by providing empirical data on achievement motivation and self-esteem profiles of competitive archers, thereby contributing to enhanced understanding of psychological characteristics in precision sports and informing the development of evidence-based psychological interventions for archer populations.

## **2. Methodology**

### **Research Design**

The present investigation employed a descriptive and comparative research design to systematically examine differences and relationships in achievement motivation and self-esteem among archers. This design was selected to allow examination of multiple independent variables (gender and archery category) and their effects on dependent variables (achievement motivation and self-esteem) without manipulating conditions or imposing experimental interventions.

### **Participants**

The study sample consisted of 200 competitive archers, including 100 male participants and 100 female participants, all with minimum competitive experience of two years. To ensure systematic representation, each gender group included 50 recurve archers and 50 compound archers, creating a balanced 2 × 2 factorial design. Participants were recruited from established archery clubs and competitive

associations, ensuring access to archers actively engaged in regular competitive participation. Inclusion criteria required participants to be actively competing at regional or national levels with documented competitive experience.

**Instruments and Measures**

**Achievement Motivation Assessment.** Achievement motivation was assessed using the Sports Achievement Motivation Test developed by Kamlesh (1990). This instrument measures the level of achievement motivation among athletes through comprehensive items assessing desire for success, persistence in training and competition, and goal-directed behavior. The test yields a total score reflecting overall achievement motivation, with higher scores indicating higher levels of achievement motivation. The instrument demonstrates adequate reliability and validity for Indian athlete populations.

**Self-Esteem Assessment.** Self-esteem was measured using the Rosenberg Self-Esteem Scale (Rosenberg, 1965), a widely used 10-item unidimensional instrument assessing global self-esteem and personal sense of self-worth. The scale contains positively worded and negatively worded items, scored on a four-point Likert scale ranging from strongly disagree to strongly agree. Total scores range from 10 to 40, with higher scores indicating higher self-esteem. The Rosenberg Self-Esteem Scale demonstrates excellent psychometric properties, including strong internal consistency (Cronbach's  $\alpha$  typically ranges from .77 to .88) and good test-retest reliability, with extensive cross-cultural validity evidence.

**Procedure**

Data collection was conducted under standardized conditions to minimize procedural variability. Participants completed both assessment instruments individually after being fully informed about the study purpose, procedures, and their right to withdraw participation at any time. Confidentiality and data security were emphasized during all interactions. Participants provided informed consent prior to

completing the instruments. All responses were scored according to the published manuals for the respective assessment tools, with scoring conducted by trained research personnel following standardized scoring protocols.

**Statistical Analysis**

Descriptive statistics including means, standard deviations, and distributions were calculated for all variables across groups. Two-way analysis of variance (ANOVA) was employed to examine the main effects of gender and archery category on achievement motivation and self-esteem, as well as their interaction effects. Prior to conducting the analysis, assumptions of normality (tested through Shapiro-Wilk tests) and homogeneity of variance (tested through Levene's test) were examined and confirmed as satisfied, justifying the use of parametric ANOVA procedures. Statistical significance was established at  $\alpha = .05$ . All statistical analyses were conducted using standard statistical software.

**3. Results**

**Descriptive Statistics for Achievement Motivation:**

Descriptive statistics for achievement motivation across gender and archery category are presented in Table 1. The results indicated that mean scores of achievement motivation were notably similar for male and female archers across both recurve and compound categories. Specifically, male recurve archers demonstrated a mean achievement motivation score of 31.86 ( $SD = 4.16$ ), while female recurve archers achieved a mean score of 32.02 ( $SD = 4.03$ ). Among compound archers, males obtained a mean score of 31.92 ( $SD = 4.49$ ) and females 31.78 ( $SD = 4.29$ ). Overall mean achievement motivation scores were nearly identical, with males averaging 31.89 ( $SD = 4.30$ ) and females averaging 31.90 ( $SD = 4.14$ ). These descriptive findings suggest remarkably similar levels of achievement motivation across all demographic subgroups examined.

**Table 1 Descriptive Statistics for Achievement Motivation by Gender and Archery Category**

Category	Gender	N	M	SD
Recurve	Male	50	31.86	4.16
Recurve	Female	50	32.02	4.03
Recurve	Total	100	31.94	4.08
Compound	Male	50	31.92	4.49
Compound	Female	50	31.78	4.29
Compound	Total	100	31.85	4.37

Category	Gender	N	M	SD
Overall	Male	100	31.89	4.30
Overall	Female	100	31.90	4.14

**Descriptive Statistics for Self-Esteem:** In contrast to the findings for achievement motivation, descriptive statistics for self-esteem (Table 2) revealed notable differences across gender, though not across archery category. Male recurve archers demonstrated a mean self-esteem score of 36.08 ( $SD = 2.49$ ), compared to female recurve archers who obtained a mean score of 31.04 ( $SD = 3.12$ ). Among compound archers, males achieved a mean self-esteem score of 35.90 ( $SD = 2.28$ ) and females 30.90 ( $SD = 3.03$ ). The overall mean self-esteem score for male archers was 35.99 ( $SD = 2.38$ ), substantially higher than the overall mean for female archers of 30.97 ( $SD = 3.06$ ), representing a difference of approximately 5 points on the scale. These descriptive findings suggest a substantial and consistent gender difference in self-esteem across both archery categories.

**Table 2 Descriptive Statistics for Self-Esteem by Gender and Archery Category**

Category	Gender	N	M	SD
Recurve	Male	50	36.08	2.49
Recurve	Female	50	31.04	3.12
Recurve	Total	100	33.56	3.78
Compound	Male	50	35.90	2.28
Compound	Female	50	30.90	3.03
Compound	Total	100	33.40	3.66
Overall	Male	100	35.99	2.38
Overall	Female	100	30.97	3.06

**Two-Way ANOVA Results for Achievement Motivation:** Two-way analysis of variance examining the effects of gender and archery category on achievement motivation yielded non-significant results for all effects tested (Table 3). The main effect of gender on achievement motivation was not statistically significant,  $F(1, 196) = 0.000, p = .987$ . The main effect of archery category on achievement motivation was also non-significant,  $F(1, 196) = 0.022, p = .881$ . Furthermore, the interaction effect between gender and archery category was not significant,  $F(1, 196) = 0.062, p = .803$ . These findings collectively indicate that achievement motivation does not differ significantly based on gender, archery category, or the combined effect of these variables.

**Table 3 Two-Way ANOVA Results for Achievement Motivation**

Source	SS	df	MS	F	p
Gender	0.005	1	0.005	0.000	.987
Category of Archery	0.405	1	0.405	0.022	.881
Gender × Category	1.125	1	1.125	0.062	.803

Source	SS	df	MS	F	p
Error	3531.260	196	18.017		

**Two-Way ANOVA Results for Self-Esteem:** In marked contrast to the achievement motivation findings, two-way analysis of variance examining the effects of gender and archery category on self-esteem revealed a statistically significant main effect of gender (Table 4). The main effect of gender on self-esteem was highly significant,  $F(1, 196) = 166.575, p < .001$ , with male archers demonstrating substantially higher self-esteem than female archers. The effect size (partial  $\eta^2 = .460$ ) indicates that gender accounts for a substantial proportion of the variance in self-esteem scores. In contrast, the main effect of archery category was not statistically significant,  $F(1, 196) = 0.169, p = .681$ . The interaction effect between gender and archery category was also non-significant,  $F(1, 196) = 0.003, p = .959$ , indicating that the gender difference in self-esteem remained consistent across both archery categories.

**Table 4 Two-Way ANOVA Results for Self-Esteem**

Source	SS	df	MS	F	p	Partial $\eta^2$
Gender	1260.020	1	1260.020	166.575	<.001	.460
Category of Archery	1.280	1	1.280	0.169	.681	.001
Gender × Category	0.020	1	0.020	0.003	.959	.000
Error	1482.600	196	7.564			

The present study examined achievement motivation and self-esteem among competitive archers with systematic consideration of gender differences and archery category differences. The findings reveal distinct patterns across these two important psychological constructs.

The results demonstrated that achievement motivation was uniformly high among all archers examined in this study, regardless of gender or archery category. This finding is theoretically consistent with previous research indicating minimal gender differences in achievement motivation among athletes at competitive levels (Koivula, 1999; Ryan & Deci, 2000). The absence of significant gender differences in achievement motivation aligns with theoretical and empirical evidence suggesting that competitive sports environments, with their demanding selection processes and emphasis on excellence, tend to recruit and retain athletes with similarly high levels of motivation across gender groups. Competitive athletes, who have invested substantial time and effort in skill development and have demonstrated commitment through participation in competitive structures, likely represent a relatively homogeneous population with respect to motivation levels.

The absence of significant differences between recurve and compound archers in achievement motivation further supports the notion that

motivational demands and psychological requirements are indeed similar across these archery categories. Despite the technical and equipment differences between these archery forms, both require similar levels of psychological commitment, persistence in training, and motivation to succeed. This finding has practical implications, suggesting that coaching and psychological preparation programs related to achievement motivation can be effectively applied to archers across both categories without need for substantial category-specific modifications.

In marked contrast to the achievement motivation results, the study documented a substantial and highly significant gender difference in self-esteem, with male archers demonstrating considerably higher self-esteem than female archers. The magnitude of this difference (approximately 5 points on a 40-point scale) represents a substantial psychological difference that may have meaningful implications for confidence, emotional regulation, and competitive performance.

This finding is consistent with extensive previous research documenting gender differences in self-esteem across sports populations (Slutzky & Simpkins, 2009) and specifically in archery contexts (Hosseini et al., 2012). The consistency of this gender difference across both recurve and compound categories, as evidenced by the non-significant interaction effect, suggests that the gender difference

in self-esteem is robust and generalizable across the different forms of competitive archery.

Multiple theoretical and empirical frameworks help explain these gender differences in self-esteem among archers. Socialization processes beginning in childhood and extending through adolescence have been documented as creating differential patterns of self-evaluation between males and females in athletic contexts (Fredricks & Eccles, 2005). Cultural narratives and media representations have been shown to systematically represent male athletic achievement with greater prominence, recognition, and positive valuation than female athletic achievement (Cooky et al., 2015). Additionally, differential access to athletic opportunities, coaching quality, and competitive structures may contribute to differential development of self-esteem and confidence in athletic populations (Women's Sports Foundation, 2017).

Gender stereotypes specific to precision sports and mathematical-technical activities, which are culturally associated with masculinity, may also contribute to lower self-esteem among female archers (Krane et al., 2004). These stereotypes may create performance anxiety and underestimation of capabilities among female athletes, even when objective performance levels are equal to male counterparts.

The absence of differences in achievement motivation but presence of substantial differences in self-esteem has important practical implications for archery coaching and psychological support programs. These findings suggest that male and female archers possess comparable levels of dedication, motivation to succeed, and commitment to training and competition. However, female archers may experience psychological barriers related to self-worth and confidence that are independent of their motivational levels.

Psychological interventions aimed at enhancing self-esteem and confidence specifically among female archers may be particularly valuable. Such interventions might include cognitive-behavioral approaches addressing self-doubt and performance anxiety, mentoring programs connecting female archers with successful role models, and organizational initiatives recognizing and celebrating female athletic achievement equally with male achievement.

#### 4. Conclusion

The findings of this comparative study provide evidence that achievement motivation among competitive archers is uniformly high and does not differ significantly between male and female archers or between recurve and compound archers. This indicates that archers at the competitive level, regardless of demographic characteristics, are equally

motivated to achieve excellence in their sport and demonstrate similar commitment to training and competitive success.

In contrast, self-esteem was found to differ significantly based on gender, with male archers demonstrating substantially higher self-esteem than female archers across both archery categories. This substantial psychological disparity may influence athlete confidence, emotional responses to competitive pressure, and ultimately competitive performance, representing an important area for psychological intervention and support.

These findings highlight that while achievement motivation represents a psychological strength across the archer population, self-esteem—particularly among female athletes—remains a critical psychological factor requiring targeted attention and evidence-based intervention. The study underscores the importance of implementing comprehensive psychological support programs and interventions specifically designed to enhance self-esteem, confidence, and self-efficacy among female archers, potentially improving their psychological well-being and competitive performance outcomes.

#### Future Research

Future research should employ longitudinal research designs to examine changes in achievement motivation and self-esteem over time and across different stages of athletic development from recreational through elite levels. Additional research should investigate psychological variables including anxiety, mental toughness, self-efficacy, perfectionism, and attentional focus to develop more comprehensive understanding of psychological characteristics influencing archery performance. Intervention-based research evaluating the effectiveness of psychological support programs specifically designed to enhance self-esteem among female archers would provide valuable empirical evidence regarding approaches to improving psychological well-being and performance outcomes. Additionally, research examining the mechanisms and mediating factors contributing to gender differences in self-esteem would deepen theoretical understanding and inform development of more targeted interventions.

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