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Aggression, Self-Esteem, and Competitive Levels in Women Cricket: Evidence from Pakistan

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Abstract
The present study investigates aggression and self-esteem among women Cricketers of Pakistan. A total of 114 female cricketers participated in the study, comprising 57 elites and 57 non-elite athletes. Aggression was measured using the Buss Perry Aggression Questionnaire (BPAQ; Buss & Perry, 1992) and self-esteem was assessed using the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965). Results revealed that elite women cricketers reported significantly higher levels of aggression compared to non-elite athletes (t *(78.28)* = -5.46, $p < .001$, d = 1.06). No significant difference in self-esteem was found between the two groups (t *(112)* = 1.57, p = .119, d = 0.31). A strong positive and statistically significant relationship was found between aggression and self-esteem among both elite (r = .979. $p < .001$) and non-elite (r = .989, $p < .001$) women cricketers. These findings contribute original empirical evidence to the sports psychology literature and highlight the importance of culturally sensitive psychological support programs for female athletes in sporting environments.

Key words*:* Aggression, Self-esteem, Elite, Non-elite, Sports Psychology, Women Cricketers

Introduction
Sports Psychology has increasingly recognized that psychological factors are as critical to athletic performance as physical conditioning and technical skills. Among the various psychological constructs examined in competitive sport, aggression and self-esteem have emerged as particularly influential variables that shape how athletes think, behave, and perform under competitive pressure (Kowalski et al., 2018; Rydzik, 2022). While both constructs have been studies independently across a range of athlete's population, their simultaneous examination, particularly among female athletes in culturally conservative, non-western environments, remains notable limited in the existing literature (McCarthy, 2011). The present study addresses this gap by investigating aggression and self-esteem among women cricketer sin Pakistan, with a specific focus on comparing elite and non-elite athletes.

Aggression in sports is broadly defines as intentional behavior directed toward causing physical or psychological harm to another individual (; Bushman & Anderson, 2002; Mickelsson, 2020). Aggression is generally understood in two ways, the first is instrumental aggression, which refers

to assertive, goal-directed behavior used to gain a competitive advantage without any intention to harm others. The send is hostile aggression, which involves emotionally charged behavior intended to hurt or intimidate an opponent (Bushman & Anderson, 2002; Fauzi et al., 2023). The frustration-aggression hypothesis (Berkowitz, 1989) and social learning theory (Bandura, 1973) remain two of the most applied theoretical frameworks for understanding sport-related aggression, suggesting that both situational frustration and socially modeled behavior contribute to aggressive responses in competitive environments (Wang et al., 2025).

Self-esteem refers to how positively or negatively a person evaluates his own worth, in other words, how much they believe in their own value and capabilities (Hoeven et al., 2024; Roserberg, 1965). Research consistently demonstrates that higher self-esteem is associated with greater competitive resilience, more effective coping with failures, strong intrinsic motivation, and superior performance under pressure (Crocket et al., 2003). Sonstroem and Morgan's (1989) Exercise and Self-Esteem model provides a well-established theoretical basis for understanding how sport experiences shape athletes' self-perceptions over time.

Women's cricket in Pakistan has experienced considerable development over the past decade, yet female athletes face a unique set of challenges that go beyond the physical and technical demands of the game. They often have to deal with social and cultural pressures, including rigid gender expectations, limited institutional support, family related barriers to sports participation, and a lack of public recognition compared to male counterparts (Bari & Kiani, 2020; Jawad & Ahmed, 2021).

The present study aims to fulfill this gap by measuring levels of aggression and self-esteem among competitive women cricketers in Pakistan and exploring the relationship between these two variables among elite and non-elite women cricketers. The findings of the study are expected to make a meaningful contribution to the sports psychology literature by extending theoretical framework to women cricket population. On a practical level, the results can help coaches, sports psychologists, and cricket administrators in Pakistan design targeted psychological support programs that address the specific mental health and performance needs of women cricketers, ultimately supporting both their athletic development and overall well-being.

Objectives of the Study

The present study was designed with the following objectives:

1. To assess and compare the levels of aggression among elite and non-elite women cricketers in Pakistan.
2. To assess and compare the level of self-esteem among elite and non-elite women cricketers in Pakistan
3. To examine the relationship between aggression and self-esteem among women cricketers in Pakistan.

Hypotheses

H_1: Elite women cricketers will report significantly higher levels of aggression compared to non-elite women cricketers.

H_2: Elite women cricketers will report significantly higher levels of aggression in self-esteem compared to non-elite women cricketers.

H_3 : There will be a significant positive relationship between aggression and self-esteem among women cricketers in Pakistan.

Literature Review

Theoretical Foundations of Aggression in Sport

Aggression has been extensively studied in sports psychology due to its significant implications for athlete behavior and competitive performance. In sports contexts, aggression is defined as

intentional behavior directed towards causing physical or psychological arm to another individual (Lafuente et al., 2021). Three foundational theoretical frameworks have shaped the understanding of sports-related aggression. The frustration- aggression hypothesis (Dollard et al., 1939; revised by Berkowitz, 1989) proposed that aggression emerges when an athlete's goal-directed behavior is blocked, a situation inherently common in competitive sport. Social learning theory (Bandura, 1973) argues that aggressive behavior is also acquired through observation and reinforcement of role models within the sporting environment. The general aggression mode (Anderson & Bushman, 2002) further integrates personal characteristics, situational triggers, and emotional states into a unified explanatory framework, suggesting that aggression in sport reflects a complex interaction of individual and contextual variables.

Sports psychologists distinguish between two primary forms of aggression. Instrumental aggression is goal-directed behavior in which harm to an opponent is incidental to achieving a competitive objective, while hostile aggression in emotionally driven and specifically intended to cause harm (Bushman & Anderson, 2002). Empirical measurement of aggression in sport has been predominantly conducted using Buss-Perry Aggression Questionnaires (BPAQ; Buss & Perry, 1992), which assesses the physical aggression, verbal aggression, anger, and hostility, and has demonstrated robust psychometric properties across diverse athletic populations (Maxwell, 2004).

Aggression among Female Athletes and Competitive Level Differences

Historically, research on sport aggression focuses predominantly on male athletes, reflecting the assumption that aggression was largely a male phenomenon (Moore et al., 2020). However, accumulating evidence has established that female athletes exhibit meaningful levels of both instrumental and hostile aggression, particularly as competitive intensity increases (Bushman & Anderson, 2002). Steyn (2009) reported that female athletes were more likely to endorse aggressive behavior when team norms and coaching attitudes were perceived as tolerant of such conduct, highlighting the critical role of the social environment in shaping female athlete aggression.

Self-Esteem in Sports: Theory and Evidence

Self-esteem defined as an individual's global evaluation of their own worth and competence (Rosenberg, 1965), is widely regarded as fundamental psychological resource for athletic performance. Sonstroen and Morgan's (1989) exercise and self-esteem model proposes that sports participation influences global self-esteem through physical competence appraisals, where positive mastery experiences contribute to enhances self-worth while chronic failure and negative social evaluation progressively undermine it (Gabrys & Wontorczyk, 2023; Kalsoom et al., 2025; Kowalski et al., 2004; Wang et al., 2025).

The Relationship between Aggression and Self-Esteem

The relationship between aggression and self-esteem has been debated extensively in the psychological literature. Baumeister et al. (1996) proposed a model that explains that high but unstable self-esteem more reliably predicts aggression when an individual's self-esteem is challenged or threatened. Kowalski (2018) confirmed that self-esteem significantly predicted reactive aggression in team sports athletes.

Women's Cricket in Pakistan: Context and Research Gap

Women's cricket in Pakistan has grown considerably in recent years, yet psychological research targeting this population remains virtually absent from the literature. Female cricketers in Pakistan navigate a uniquely challenging socio-cultural environment characterized by gender

norms, social pressure, and family related challenges to athletic development (Bari & Kiani, 2020; Jawad & Ahmed, 2021). No published study to date has systematically examined aggression and self-esteem in a competitive elite versus non-elite framework within this population, representing the significant gap that present study directly addresses.

Research Model

The present study employed a quantitative, cross sectional, and comparative research design. This design was considered most appropriate given the study's primary aim of comparing psychological variables between two clearly defined groups of athletes, at a single point in time (Thomas et al., 2015).

Participants

The target population of the present study comprised 160 registered female cricketers in Pakistan, consisting of 80 elites and 80 non-elite athletes. The elite athletes were operationally defined as players who had represented Pakistan at National level, or who were currently registered with Pakistan Cricket Board and competing in the Senior National Women Cricket Championships. Non-elite athletes consisted of players participating in the Junior/U-19 National Cricket Championship. The total population of each group was 80 players. The sample size was determined using Yamane's (1967) formula for finite population sampling at a 95% confidence level and 5% margin of error, which provide a required sample of 114 participants. The inclusion criteria required participants to be a female, currently active in competitive cricket, have a minimum of one year of competitive cricket experience, and aged between 16-32 years. All participants provided written consent prior to data collection.

$n = N / 1 + N (e)^2$

$n = 160 / 1 + 160 (.05)^2$

$n = 160 / 1 + 160 (0.0025)$

$n = 160 / 1 + 0.40$

$n = 160 / 1.40$

$n =$ **$114.28 \approx 114$ Participants**

A stratified random sampling technique was employed, with the total population divided into two mutually exclusive strata based on competitive level. Fifty seven participants were randomly selected from each stratum, yielding a final sample of 114 women cricketers. The inclusion criteria required participants to be female, currently active in competitive cricket, have a minimum of one year of competitive experience, and be aged between 16 to 32 years. All participants provided written informed consent prior to data collection.

Measures

Aggression

The Buss-Perry Aggressive Questionnaire (Buss & Perry, 1992) was used to assess aggression. It consists of 29 items covering Physical Aggression (9 items), Verbal Aggression (5 items), Anger (7 items), and Hostility (8 items), rated on a five-point Likert scale starting from 1 (extremely uncharacteristic) to 5 (extremely characteristic). The BPAQ has demonstrated strong validity and reliability across diverse population and sport contexts, with Cronbach's alpha coefficients ranging from .72 to .89 (Buss & Perry, 1992). Internal consistency in the present study was acceptable ($\alpha = .95$)

Self-Esteem

The Rosenberg Self-Esteem Scale (Rosenberg, 1965) was used to measure self-esteem. It is a 10-item scale rated on a 4-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree).

The scale has consistently demonstrated strong psychometric properties across diverse population with Cronbach's alpha coefficients typically ranging from .77 to .88 (Schmitt & Allik, 20025). The internal consistency in the present study was acceptable (α= .83).

Data Collection Procedure

After obtaining prior permission from the authorities, participants were briefed about the purpose, voluntary nature, and confidentiality of the study, and informed consent was obtained from all participants. Study questionnaires were administered individually under supervised conditions during training camps and championships. After completion, all questionnaires were collected for data analysis.

Statistical Analysis

All statistical analyses were conducted using IBM SPSS version 23.0. Descriptive statistics including means, standard deviations, and frequency distributions were computed for all study variables and demographic characteristics. An independent sample t-test was applied to examine group differences between elite and non-elite women cricketers, with Cohen's d calculated to assess practical significance. Pearson product-moment correlation coefficients were computed to examine relationships between variables. The significance level was set at $p < .05$.

Results

Demographic Characteristics

All non-elite athletes fell within 16-19 years' bracket (100%), whereas elite athletes were considerable older, with the majority aged between 24-27 years (52%). This pattern reflects the expected trajectory of cricket development in Pakistan, whereby younger athletes typically compete at non-elite levels before progressing to elite competition. Regarding the educational qualification, the most common level in the total sample was intermediate (46%). With respect to playing experience, the majority of non-elite reported 1-3 years of playing experience (79%), in contrast, elite athletes demonstrated considerably greater playing experience, with the majority reporting 7-9 years of experience (60%).

Table 1

Demographic Characteristics of the Sample (N =114)

Demographic Variable	**Category**	**Elite (*n*=57) *f* (%)**	**Non-Elite (*n*=57) *f* (%)**	**Total (*N*=114) *f* (%)**
Age	16-19 years	Nil	57(100%)	57(50%)
	20-23 Years	13(23%)	Nil	13(10%)
	24-27 Years	30(52%)	Nil	30(27%)
	28 Years and above	14(25%)	Nil	14 (13%)
Education	Matriculation	7(12%)	33(58%)	40(36%)
	Intermediate	29(51%)	24(42%)	53(46%)
	Graduation	16(29%)	Nil	16(14%)
	Post-Graduation	5(8%)	Nil	5(4%)
Playing Experience	1-3 Years	2 (3%)	45 (79%)	47 (41%)
	4-6 Years	21 (37%)	12 (21%)	33 (29%)
	7-9 Years	34 (60%)	Nil	34 (30%)

Note. f= frequency, %= percentage. Nil indicates no participants in that category

Descriptive Statistics

As presented in table 2, elite women cricketers reported consistently higher mean scores on all aggression subscales and total aggression (M = 3.36, SD = 0.870) compared to non-elite athletes (M = 2.67, SD = 0.396). With respect to self-esteem, both groups reported comparable scores, with non-elite scoring marginally higher (M = 2.59, SD = 0.580) than elite athletes (M = 2.43, SD = 0.504).

Table 2

Descriptive Statistics for Aggression and Self-Esteem Scores by Competitive Level

		Elite (*n*=57)		**Non-elite (*n*=57)**		**Total Sample (*N*=114)**	
Variables	**Items**	***Mean***	***SD***	***Mean***	***SD***	***Mean***	***SD***
Physical Aggression	09	3.29	0.929	2.70	0.448	3.01	0.784
Verbal Aggression	05	3.30	0.904	2.62	0.559	2.96	0.823
Anger	07	3.39	0.912	2.66	0.490	3.03	0.816
Hostility	08	3.47	0.873	2.67	0.538	3.07	0.824
Aggression	29	3.36	0.870	2.67	0.396	3.02	0.757
Self-esteem	10	2.43	0.504	2.59	0.580	2.51	0.546

Note. M=Mean, SD=Standard Deviation

Group differences in Aggression and Self-Esteem

Table 3 presents the results of independent samples t-test, reporting a statistically significant difference in aggression between elite and non-elite women cricketers, Results revealed a statistically significant difference in aggression between the two groups (t (78.28) =-5.46, p < .001, mean difference = -o.70, d = 1.06, with elite athletes reporting significantly higher aggression compared to non-elite athletes. The larges effect size (d= 1.06) confirms the practical significance of this difference, supporting hypothesis 1. With respect to self-esteem, no statistically significant difference was found between both the study groups t (112) = 1.57, p = .119, Mean difference = 0.16, d = 0.31). The small effect size (d = 0.31) further confirmed the absence of any meaningful difference in self-esteem between competitive groups. The Mean difference (0.16) was small and the effect size was also small (Cohen's d = 0.31), indicating weak and non-significant group difference. Overall, the findings indicate suggest that group differences are meaningful for aggression but not for self-esteem.

Table 3

Independent Samples t-test for Aggression and Self-Esteem by Competitive Level

Variables	***t*-value**	***df***	***P***	**Mean difference**	**Cohen's d**
Aggression	-5.46	78.28	< .001	-0.70	1.06
Self-Esteem	1.57	112	.119	0.16	0.31

Relationship between Aggression and Self-Esteem

Table 4 presents Pearson product-moment correlation coefficients between aggression and self-esteem by competitive level. Results revealed a strong positive and statistically significant relationship between variables among elite (r = 0.979, p < .001) and non-elite women cricketers (r = .989, p < .001), supporting hypothesis 3. These findings indicate that women cricketers with higher levels of higher self-esteem also tend to report higher levels of aggression, and this pattern was consistently observed across both competitive groups.

Table 4

Pearson Correlation between aggression and self-esteem by competitive level

	Self-esteem			
	Elite		**Non-elite**	
Aggression	0.979**	<0.001	0.989**	<0.001

Note. ** *p < .001.Strong positive significant relationship found in both groups.*

Discussion

The present study investigated aggression and self-esteem level among elite and non-elite women cricketers in Pakistan and examine the relationship between these two psychological variables. Three principal findings emerged from the data. First, elite women cricketers reported significantly higher level of aggression compared to non-elite group (t *(78.28)* = -5.46, p <.001, d =1.06), with a large effect size confirming the practical significance of the difference. This finding is consistent with existing literature suggesting that elite athletes demonstrate higher levels of aggression due to the greater physical intensity, competitive pressure, and strategic demands associated with high performance sport (Fabio & Towey, 2018; Hoeven et al., 2024; Morvay-Sey et al., 2019). Within the framework of Social learning theory (Bandura, 1973), elite women cricketers may have internalized more aggressive competitive behavioral norms through prolonged exposure to high performance training environments, experienced coaches, and competitive role models who model and reinforce assertive aggressive conduct as part of elite sports culture. Furthermore, elite women cricketers in Pakistan, having successfully navigated significant gender-related barriers to reach the highest levels of game, may develop a stronger and more resilient athletic identity that manifests as greater competitive assertiveness and aggression on the field (Jawad & Ahmed, 2021). The greater experience of elite athletes, reflected on the demographic data showing 60% of elite athletes reported 7-9 years of playing experience, may further contribute to the development of more assertive and strategically aggressive competitive behaviors over time (Bari & Kiani, 2020). The larger effect size (d = 1.06) further underscores the practical significance of this difference.

The present study found no significant difference in global self-esteem between elite and non-elite women cricketers (t (112) = 1.57, p = .119, d = 0.31), with the small effect size further confirming the absence of any meaningful difference between the two groups. This finding is not aligned with western sports psychology literature that typically reports higher self-esteem among elite athletes as compared to non-elite athletes (Crocket et al., 2003; Kowalski et al., 2004). The absence of self-esteem differences may be explained by the pervasive socio-cultural uniformity faced by Pakistani women cricketers across both competitive levels, including gender discrimination, limited media representation, social resistance, and inadequate institutional support (Bari & Kiani, 2020).

A strong positive and statistically significant relationship between aggression and self-esteem among both elite (r = .979, p <.001) and non-elite (r = .989, p <.001) women cricketers in Pakistan, thereby supporting third hypothesis. These findings indicate that women cricketers with higher levels of self-esteem also tend to report higher levels of aggression, and this pattern was consistently observed across both competitive groups. The strong positive relationship between these variables is consistent with Baumeister at al. (1996) threatened egotism model, which proposed that individuals with higher self-esteem are more likely to display aggressive behavior when their self-image is challenged in competitive situations. In the context of competitive cricket, where performance is consistently evaluated and publically scrutinized, athletes with higher self-esteem may respond more assertively to protect their self-image and competitive standing. The findings also align with social learning theory (Bandura, 1973), which suggests that

athletes who develop stronger athletic identities and higher self-esteem through sport participation may simultaneously internalize more aggressive behavioral norms as part of their athletic identity.

Practical Implications

The findings of the present study carry important practical implications for coaches, sports psychologists, and cricket administrators in Pakistan. The significantly higher aggression observed among elite athletes suggests that psychological support programs focusing on channeling aggression constructively should be integrated into elite-level training environments. Mental skills training programs incorporating emotional regulation strategies, assertiveness training, and anger management techniques should be systematically implemented across both competitive levels.

Limitations

- The cross-sectional design was used which does not support cause-and-effect relationship between the groups.
- The study used self-reported questionnaires, so participants may not have answered honestly, especially on questions related to aggression.

Future Directions

- Future research should employ longitudinal designs, larger nationally representative samples, and objective behavioral measures of regression.
- The inclusion of additional variables such emotional regulation, competitive anxiety, and perceived social support would provide more comprehensive understanding of psychological profiles of Pakistani women cricketers and the factors that mediate the relationship between aggression and self-esteem in this population.

Conclusion

The present study provides the empirical examination of aggression and self-esteem among elite and non-elite women cricketers in Pakistan. Elite athletes reported significantly higher levels of aggression compared to non-elite athletes, while no meaningful difference in self-esteem was observed between competitive groups. A strong positive relationship between aggression and self-esteem was found consistently across both groups, suggesting that self-esteem and aggression are robustly linked psychological constructs among Pakistani women cricketers. These findings highlight the complex and culturally embedded psychological landscape navigated by Pakistani women cricketers and underscores the critical importance of developing culturally sensitive, evidence based psychological support programs for female athletes in developing countries.

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