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ORIGINAL ARTICLE

Relationship between athletic coping skills and depression, anxiety, stress among badminton players

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ABSTRACT

Objective: To explore whether there is a significant relationship between athletic coping skills and the levels of depression, anxiety, and stress among badminton players of the National Sports University, Manipur, India. Method: 30 Badminton players were selected randomly out of which 7 are girls and 23 are boys of National Sports University, Manipur, India age ranged between 17 to 23 Years (M = 19.83). Athletic Coping Skills Inventory (ACSI) developed by Smith et al. (1995) was used to assess athlete's psychological skills and the Depression Anxiety Stress Scale (DASS) developed by Lovibond & Lovibond (1995) was used for measuring depression, anxiety, and stress among the athletes. Result: From the Pearson Correlation analysis, a significant negative correlation at .05 level was found between depression and subscales peaking under pressure and free from worry of the ACSI at .05 level. Likewise, a significant negative correlation was found between anxiety and only one subscale of ACSI namely free from worry at .05 level. For the subscale of stress of DASS-21, a significant negative correlation was found with the coping with adversity and free from worry subscales of ACSI at .01 level and for peaking under pressure at .01 level. Conclusion: The findings of the present study indicate that as the athletic coping skills namely peaking under pressure, free from worry, and coping with adversity increase, there will be a decrease in levels of depression, anxiety, and stress.

Keywords: Health science, ACSI, DASS-21, Coping skills, Depression, Anxiety, Stress.

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INTRODUCTION

Coping skills

Athletes' coping skills play an important role in sports performance, although they often receive less attention within sports development programs. Coping can be described as the cognitive and behavioural efforts individuals use to deal with internal and external demands that are perceived as stressful (Pearlin & Schooler, 1978). In sport settings, effective coping skills help athletes manage emotions, handle competitive pressure, and sustain performance in challenging situations.

Recent research in sport psychology shows that athletes with stronger coping skills tend to manage stress more effectively, regulate their emotions better, and perform more consistently, especially in high-pressure competitive environments (Martinent et al. 2020) Studies have also reported that the use of adaptive coping strategies is linked to lower psychological distress and greater resilience among competitive athletes (Gouttebarge et al., 2019; Purcell et al., 2019). This highlights the role of coping skills not only in performance outcomes but also in supporting athletes' mental well-being.

Examining how athletes cope with stress is valuable for coaches and sport psychologists, as it helps identify both effective and ineffective coping patterns and supports the development of appropriate, theory-based psychological interventions (Folkman & Moskowitz, 2004; Nicholls et al., 2016). For athletes aiming for long-term success, the ability to cope effectively with sport-related stressors remains a key aspect of overall athletic development.

Athletic coping skills Inventory (ACSI) developed by Smith et al. (1995)

Interest in psychological variables related to athletic performance has led to the development of several sport-specific assessment tools over the past few decades. One such widely used instrument is the Athletic Coping Skills Inventory–28 (ACSI-28), developed by Smith et al. (1995) to assess coping skills specific to athletic contexts. The ACSI-28 is a multidimensional self-report measure designed to evaluate athletes' ability to cope with competitive and training-related stressors.

The original version of the inventory consisted of 87 items and was subsequently refined to a 42-item version before being reduced to the current 28-item format, which demonstrated the most stable factorial structure and satisfactory psychometric properties (Smith et al., 1995). The final version assesses seven distinct coping skill dimensions and has been widely applied in both research and applied sport psychology settings. More recent studies have continued to support the reliability and validity of the ACSI-28 across different sports and competitive levels (Nicholls et al., 2016):

1. Peaking under Pressure: Demonstrates the ability to thrive under pressure, embracing it as a challenge rather than feeling intimidated; delivers clutch performances when it matters most.
2. Freedom from Worry: Avoids unnecessary stress by refraining from worrying about mistakes or underperformance; disregards external opinions in the event of poor performance.
3. Coping with Adversity: Maintains composure and control in adverse situations; quickly rebounds from setbacks and failures; maintains an optimistic attitude amidst challenges.
4. Concentration: Possesses the capacity to concentrate on tasks at hand, whether in practice or competition, despite challenging or unexpected circumstances; remains undistracted.
5. Goal Setting and Mental Preparation: Establishes specific performance goals and diligently works towards achieving them; mentally prepares for competitions, developing strategies for various aspects of gameplay.

6. Confidence and Achievement Motivation: Exhibits self-assurance and a strong drive to succeed; consistently gives maximum effort in practice, games, and collaborative endeavours to enhance skills.
7. Coachability: Receptive to feedback and capable of learning from it; accepts constructive criticism without becoming defensive or hostile.

Depression Anxiety Stress Scale (DASS) developed by Lovibond & Lovibond (1995)

The Depression Anxiety Stress Scale–21 (DASS-21) is a self-report measure designed to assess negative emotional states related to depression, anxiety, and stress. It is a shortened version of the original 42-item scale developed by Lovibond and Lovibond (1995) and consists of 21 items, with seven items allocated to each subscale. The DASS-21 was developed to retain the psychometric strength of the original scale while offering greater efficiency in applied and research settings.

The scale measures symptoms related to low mood, physiological arousal, and tension or stress. Each subscale score reflects the severity of the respective emotional state. The DASS-21 has been translated into multiple languages and has demonstrated good internal consistency and construct validity across diverse populations, including athletic and young adult samples (Oei et al., 2013; Vignola & Tucci, 2014; Vidaković et al., 2021).

More recent research has continued to examine the factor structure of the DASS-21, with findings generally supporting its three-factor model, although some variability has been reported across cultural and occupational groups (Alfonsson et al., 2017; Jiang et al., 2020; Osman et al., 2012). Despite ongoing debate regarding its latent structure, the DASS-21 remains one of the most widely used and empirically supported screening tools for assessing depression, anxiety, and stress in both clinical and non-clinical populations, including athletes (Purcell et al., 2019; Gouttebarge et al., 2019).

Depression

Depression is a common mental health condition that affects individuals across all age groups and can significantly impair daily functioning, interpersonal relationships, and overall quality of life (Gouttebarge et al., 2019; Reardon et al., 2019). It is characterized by persistent low mood, loss of interest or motivation, feelings of worthlessness, pessimism, and reduced cognitive and physical functioning (American Psychological Association, 2022). When left unaddressed, depressive symptoms may become chronic and are associated with a higher risk of recurrence over time (Purcell et al., 2019).

Within the context of sport, depression has gained increasing attention as a relevant mental health concern among athletes. Although regular physical activity is generally associated with lower levels of depressive symptoms and improved psychological well-being, athletes may still be vulnerable due to performance pressure, injury, overtraining, and competitive stressors (Schinke et al., 2020; Junge & Feddermann-Demont, 2020). Recent evidence suggests that engagement in sport can have protective effects against depression when psychological support and effective coping strategies are present (Schuch et al., 2018; Purcell et al., 2019).

Anxiety

Anxiety in sport is commonly understood as a multidimensional emotional response reminded by perceived threats to performance, involving cognitive worry, physiological arousal, and behavioural reactions. Contemporary sport psychology literature describes anxiety as a psychological state that arises when individuals perceive competitive demands as exceeding their coping resources (Martinent et al., 2020;

Reardon et al., 2019). In athletic contexts, anxiety is frequently triggered by performance expectations, evaluation by others, fear of failure, and competitive pressure.

Current research continues to distinguish anxiety into two related constructs: trait anxiety and state anxiety. Trait anxiety refers to a relatively stable tendency to perceive situations as threatening, whereas state anxiety represents a transient emotional response that fluctuates depending on situational demands, such as competitive or evaluative performance contexts (American Psychological Association, 2020; Weinberg & Gould, 2019). This distinction is particularly relevant in sport, as athletes may display heightened state anxiety during competitions even when trait anxiety levels are low.

Anxiety has been widely studied in sport due to its direct influence on performance outcomes. Elevated anxiety levels have been associated with impaired concentration, reduced confidence, and inconsistent performance, particularly in high-pressure competitive environments (Martinent et al., 2020; While moderate levels of anxiety may sometimes facilitate alertness and motivation, excessive or poorly regulated anxiety can negatively affect both psychological well-being and athletic performance (Gouttebarge et al., 2019; Purcell et al., 2019).

Recent evidence suggests that effective coping skills and psychological regulation strategies play a crucial role in managing competitive anxiety. A 2024 meta-study on how coping and psychological strategies (like approach coping) help athletes perform under pressure. This supports the link between psychological skills and anxiety regulation (Hufton, 2024). These findings emphasize the importance of addressing anxiety within sport through the development of adaptive coping skills and psychological support strategies.

Stress

Stress is commonly understood as a psychological and physiological response that occurs when individuals perceive that situational demands exceed their ability to cope effectively. In sport psychology, stress and coping have been investigated as interactive processes where athletes confront competitive, organizational, and personal stressors, and use a variety of coping strategies to manage these demands and protect their mental health (Nuetzel et al., 2023). Within sport settings, stress frequently arises from performance expectations, competitive pressure, training load, injury concerns, and evaluation by coaches or peers.

Modern research acknowledges that stress is not inherently negative. Moderate levels of stress can sometimes enhance alertness, motivation, and performance when athletes perceive demands as manageable, a concept often referred to as eustress. When stress is experienced as excessive or uncontrollable, it can progress into psychological distress, which has been linked to maladaptive emotional responses, physiological strain, and reductions in performance and well-being among athletes (Arnold & Fletcher, 2012; McEwen & Akil, 2020; Sorkkila et al., 2018). This distinction is particularly relevant in sport, where athletes are routinely exposed to high-pressure situations.

Excessive or prolonged stress has been linked to emotional exhaustion, increased vulnerability to anxiety and depressive symptoms, impaired recovery processes, and reductions in athletic performance, particularly when stress exposure is chronic and poorly managed (McEwen & Akil, 2020; Madigan et al., 2015; Sorkkila et al., 2018). Recent studies emphasize that athletes' responses to stress are strongly influenced by their coping skills and psychological resources, highlighting the importance of effective coping strategies in managing sport-related stress and maintaining both performance and mental well-being (Martinent et al., 2020).

MATERIAL AND METHODS

Participants

30 male & female Badminton players were randomly selected from National Sports University, Manipur, India, of which 7 are girls, and 23 are boys (ages range from 17 to 23 Years). The minimum requirement to be included in the study was participation at the district-level competition in badminton games. All the participants provided their consent to participate in the study and signed informed forms after an explanation about the procedures.

Procedure

The participants were given a preamble about the study, and then informed consent was taken from each participant by the principal author. Only those players who consented to participate in the study were taken. ACSI-28 was administered to assess athletic coping skills, and DASS-21 was administered to assess Depression, anxiety, and stress among the badminton players when they came for their regular training.

Psychological tools used for measurement

Athletic Coping Skills Inventory (ACSI) developed by Smith et al. (1995)

Used for measuring athletic coping skills of athletes. The ACSI contains 28 trait items like measures of psychological coping skills thought to improve coping. The items are categorized according to the seven factors that make up the subscales (Coping with adversity [COPE], Coachability [COACH], Concentration [CONC], Confidence and achievement motivation [CONF], Goal setting and mental preparation [GOAL], Peaking under pressure [PEAK], and Freedom from worry [FREE]). The scores range from a low of 0 to a high of 12 on each subscale, with higher scores indicating greater strength on that subscale. The score for the total scale ranges from a low of 0 to a high of 84, with higher scores signifying greater strength.

Depression anxiety stress scale (DASS) developed by Lovibond & Lovibond (1995)

DASS measures the emotional state of depression, anxiety, and tension/stress. DASS has two commonly used versions; DASS-42 and DASS-21. The present study used DASS-21 developed by Lovibond and Lovibond (1995). For DASS-21, there are seven items in each of the subscales which were selected to be representative and sum as close to half of the respective full-scale scores as possible (Henry and Crawford, 2005).

Statistical analysis

In order to evaluate the data for fulfilling the goal of the study, the current research uses IBM SPSS (International Business Machines Corporation Statistical Package for the Social Sciences) version 27. In the first step, the descriptive statistics of ACSI and DASS were done using SPSS. Then the collected data was analysed for normality of distribution using the Shapiro-Wilk test. After establishing the normality of the data, the necessary parametric test Pearson's Correlation was used for analysis to see the correlation between the subscales of ACSI and DASS among the badminton players using SPSS.

RESULTS AND DISCUSSION

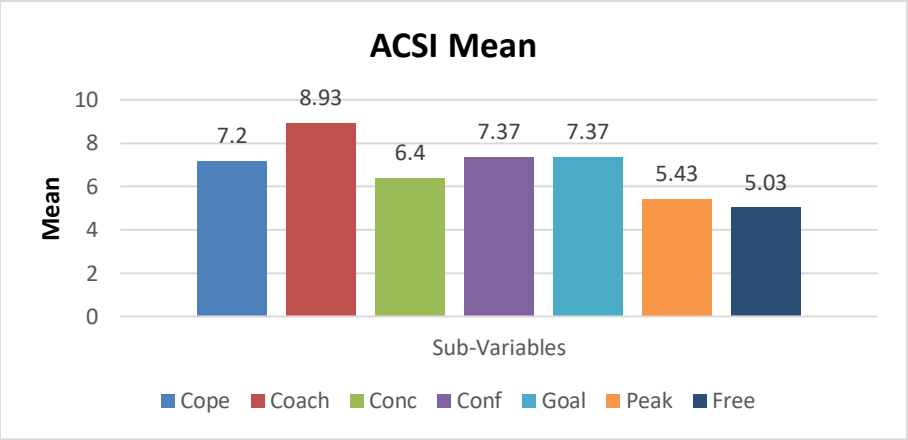
The descriptive analysis results presented in Table 1 highlight the mean values and their standard deviations for the subscale of ACSI and the subscale of DASS. It indicated from the results that highest mean value was seen in the subscale of Coachability (M = 8.93), followed by Stress (M = 7.97), Confidence and Achievement Motivation (M = 7.37), Goal Setting & Mental Preparation (M = 7.37), Coping with adversity (M = 7.20), Anxiety

(M = 7.13), Depression (M = 6.60), Concentration (M = 6.40), Peaking under Pressure (M = 5.43) and lowest in Free from Worry with a mean value of M = 5.03.

Table 1. Descriptive statistics of the sample with mean values and standard deviations.

	N	Mean	Std. Deviation
Depression	30	6.60	4.272
Anxiety	30	7.13	2.956
Stress	30	7.97	3.057
Cope	30	7.20	2.578
Coach	30	**8.93**	2.116
Conc	30	6.40	1.831
Conf	30	7.53	2.013
Goal	30	7.37	2.659
Peak	30	5.43	2.555
Free	30	**5.03**	2.512

Note. Cope - coping with adversity, Coach - coachability, Conc - concentration, Conf - confidence & achievement motivation, Goal - goal setting & mental preparation, Peak - peaking under pressure, Free - free from worry.



Note. Cope - coping with adversity, Coach - coachability, Conc - concentration, Conf - confidence & achievement motivation, Goal - goal setting & mental preparation, Peak - peaking under pressure, Free - free from worry.

Figure 1. Column graph depicting mean values for ACSI subscales.

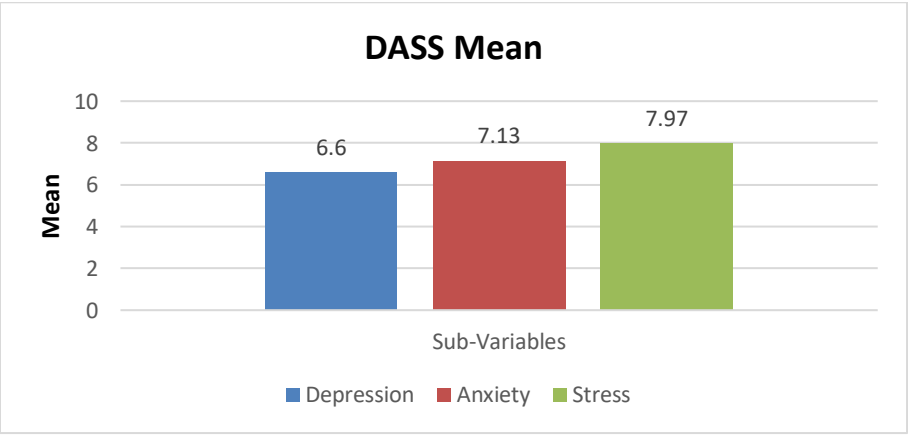


Figure 2. Column graph depicting mean values for DASS subscales.

Figure 1 shows the graphical representation of the mean scores for the athletic coping skills, in seven subscales i.e., coping with adversity, coachability, concentration, confidence & achievement motivation, goal setting and mental preparation, peaking under pressure, free from worry.

Figure 2 shows the graphical representation of the mean scores for depression, anxiety, and stress.

Table 2. Pearson Correlation value (r) for all the subscales of ACSI & DASS

	Depression	**Anxiety**	**Stress**	**Cope**	**Coach**	**Conc**	**Conf**	**Goal**	**Peak**	**Free**
Depression	1	**.436***	**.477****	-.149	-.232	-.318	-.171	-.248	**-.385***	**-.394***
Anxiety		1	.222	-.026	-.202	-.329	-.122	-.121	-.227	**-.409***
Stress			1	**-.450***	-.246	-.312	-.188	-.223	**-.497****	**-.427***
Cope				1	-.042	.231	**.464****	.276	**.515****	**.451***
Coach					1	.283	.130	**.544****	-.071	.227
Conc						1	**.455***	.210	.338	.342
Conf							1	**.388***	.342	.146
Goal								1	.179	.199
Peak									1	.282
Free										1

*Note. Cope - coping with adversity, Coach - coachability, Conc - concentration, Conf - confidence & achievement motivation, Goal - goal setting & mental preparation, Peak - peaking under pressure, Free - free from worry. *. Correlation is significant at the .05 level (2-tailed). **. Correlation is significant at the .01 level (2-tailed).*

Pearson's Correlation statistics were applied to see the correlation between the subscales of ACSI and DASS-21 among the badminton players. From the analysis, it was found that a significant positive correlation was found between depression and anxiety subscale. Pearson's correlation analysis was conducted to examine the relationships between the subscales of the Athletic Coping Skills Inventory (ACSI) and the Depression Anxiety Stress Scale–21 (DASS-21) among badminton players. The results indicated a statistically significant positive correlation between depression and anxiety ($r = .436$, $p < .05$), suggesting that higher levels of depressive symptoms were associated with higher levels of anxiety among the athletes.

This finding is consistent with recent research demonstrating a strong association between depression and anxiety in both athletic and non-athletic populations, highlighting the frequent co-occurrence of these psychological conditions (Reardon et al., 2019). The r value is .436, which is significant at .05 level, which indicates that as the value of depression increases anxiety will also increase.

There was a large positive correlation between anxiety and depression (r = .638) Similarly, a significant positive correlation was found between depression and stress subscale with r = .477, which is significant at .01 level, which indicates strong evidence that as the depression increases, stress will also increase. These findings are supported by the study of Deng, Y et al., (2022), that academic and family stress leads to depression among students.

A significant negative correlation at .05 level was found between depression and peaking under pressure subscale with r = -.385, which indicates that as the value of depression increases peaking under pressure will decrease. Same way, a statistically significant, negative correlation was found between depression and the free from worry subscale of the ACSI (r = -.394), which is significant at .05 level, which implies that as depression increases, there will be a decrease in the free from worry. No statistically significant difference was found between depression and subscales of ACSI namely, coping with adversity, coachability, concentration, confidence & achievement motivation, goal setting & mental preparation.

A significant negative correlation was found between anxiety and only one subscale of ACSI namely free from worry subscale. The r value is -.409, which is significant at .05 level, which indicates that as the value of anxiety increases, free from worry will decrease.

Likewise, no statistically significant difference was found between anxiety, stress, and subscales of ACSI namely, coping with adversity, coachability, concentration, confidence & achievement motivation, goal setting & mental preparation, and peaking under pressure.

For the subscale of stress, a significant negative correlation was found with the coping with adversity subscale of ACSI with r = -.450, which is significant at .05 level, which indicates that as coping with adversity increases, stress will decrease. A Significant negative correlation was also found between stress and peaking under pressure subscales with r = -.497 at .01 level, which indicates strong evidence that as the value of stress increases, peaking under pressure will decrease. Likewise, a significant negative correlation was found between stress and free from worry subscale (r = -.427), which is significant at .05 level, which means that, as the stress increases, free from worry will decrease.

No statistically significant difference was found between stress and subscales of ACSI namely, coachability, concentration, confidence & achievement motivation, goal setting & mental preparation.

For the subscales of ACSI, from the analysis, it was found that a significant positive correlation was found at .01 level between the subscale of coping with adversity and confidence & achievement motivation subscale (r =.464), which indicates strong evidence that as the scores of coping with adversity increases, confidence & achievement motivation will also increase.

Similarly, a significant positive correlation was found between coping with adversity and Peaking under Pressure subscale with r = .515, which is significant at .01 level, which indicates strong evidence that as the coping with adversity increases, peaking under Pressure will also increase.

Likewise, a significant positive correlation was found between coping with adversity and free from worry subscale (r = .451), which is significant at .05 level, which means that, as the coping with adversity increases, free from worry will also increase.

No statistically significant difference was found between subscales of ACSI namely, coping with adversity and coachability, concentration, goal setting & mental preparation.

For the subscales of ACSI, from the analysis, it was found that a significant positive correlation was found at .01 level between the subscale of coachability and goal setting & mental preparation subscale (r = .544), which indicates strong evidence that as the score of coachability increases, goal setting & mental preparation will also increase.

No statistically significant difference was found between subscales of ACSI namely, coachability and concentration, confidence & achievement motivation, peaking under pressure, free from worry.

Same like this, A Significant positive correlation was found between concentration and confidence & achievement motivation subscales. The r value is .455, which is significant at .05 level, which indicates that as the value of concentration increases, confidence & achievement motivation will also increase.

No statistically significant difference was found between subscales of ACSI namely, concentration and goal setting & mental preparation, peaking under pressure, free from worry.

Likewise, a significant positive correlation was found between confidence & achievement motivation and goal setting & mental preparation subscale (r = .388), which is significant at .05 level, which means that, as the confidence & achievement motivation increases, goal setting & mental preparation will also increase.

No statistically significant difference was found between subscales of ACSI namely, confidence & achievement motivation and peaking under pressure, free from worry.

Similarly, no statistically significant difference was found between subscales of ACSI namely, goal setting & mental preparation and peaking under pressure, free from worry.

Also, no statistically significant difference was found between subscales of ACSI namely, peaking under pressure and free from worry.

CONCLUSION

From the current study, it can be concluded that athletic skills peaking under pressure and free from worry have a significant negative correlation with depression. A negative correlation means that as one variable (in this case, depression) increases, the other variable (the two subscales) decreases. Correspondingly, a significant negative correlation was found between anxiety and only one subscale of ACSI namely free from worry. It suggests that as anxiety levels increase, the perception of being free from worry decreases in athletes. The result also shows that Badminton Players experiencing higher levels of stress may perceive themselves as less capable of coping with adversity, feeling free from worry, and peaking under pressure.

In this investigation, we did not collect comparison-based data among male and female badminton players for Athletic Coping Skills and depression, anxiety, stress to distinguished prominence between them.

AUTHORS CONTRIBUTIONS

All authors meet the criteria for authorship in accordance with established ethical guidelines. Siddhant Yadava, principal author of this manuscript conceptualized the theme, collected and analysed the data, and wrote the entire manuscript. My co-author Dr N. Debala Chanu, Assistant Professor, Department of Sports Psychology, National Sports University, Manipur, helped complete the manuscript and reviewed it. Both authors have read and approved the final version of the manuscript and agree to be accountable for all aspects of the work.

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CONFLICT OF INTEREST

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this manuscript.

AI USE DISCLOSURE

In accordance with current publishing ethics and transparency recommendations, artificial intelligence (AI) tools were used solely to assist with translation and language editing, with the aim of improving clarity and readability. No AI tools were used in the generation of scientific content, including the study design, data collection, analysis, interpretation of results, or the formulation of conclusions. The authors retain full responsibility for the content of the manuscript and confirm its originality, integrity, and accuracy.

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