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ORIGINAL ARTICLE

Relationship between athletic coping skills and mental toughness among badminton players in Manipur

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ABSTRACT

The objective of the study was to explore whether there is any significant relationship between athletic coping skills and mental toughness among badminton players in Manipur, India. A Convenience sampling method was employed to select a total of 20 (Male = 16 and Female = 04) badminton players from the National Sports University of Manipur who had participated at the district level. They were aged between 18 and 25 years. Athletic Coping Skills Inventory-28, developed by Smith et al. (1995) was used to assess athlete's psychological skills and the Mental Toughness Questionnaire-48, developed by Clough et al., (2002) was used for measuring Mental Toughness among athletes. From Pearson's Correlation analysis, a significant negative correlation at p = .05 level was found between the subscale of Athletic Coping Skills Inventory namely coachability and confidence ability, a subscale of Mental Toughness with r = -.491*. The findings of the present study suggest that as the athletic coping skills namely coachability increase, there will be a decrease in the Subscale of Mental Toughness named confidence ability.

Keywords: Physical activity psychology, ACSI, Mental toughness, Coping, Badminton, Sports.

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INTRODUCTION

A sport is an activity in which millions of people throughout the participants and in which many more take interest through several sources. It is social phenomenon, which involves competition and co-operation. Badminton is a globally popular sport with significant physical and mental health benefits. It enhances muscle strength, flexibility, and cardiovascular health, while also improving reflexes, coordination, and cognitive abilities like concentration and strategic thinking. Furthermore, badminton can boost mood, reduce stress, and promote social interaction.

Badminton is popular for a variety of reasons. Just that certain games could be really easy to pick up and play. The Players who were new to the game yet enjoying the longer rallies might be observed using a variety of strokes. The exercise of sprinting to and from the floor creates the picking, but there's a challenge as well, (Joseph, 2021).

In Asian nations (Malaysia, China, Indonesia, India, Japan, Korea, Vietnam), badminton is very well-liked and even regarded as a national sport. Due to its rapid spread throughout other continents, badminton was included in the Olympic schedule for the 1992 Summer Olympics in Barcelona (Phomsoupha M, Laffaye G. 2015).

Coping

Coping in sports refers to the strategies athletes use to manage stress and mental pressure, ultimately impacting performance and well-being. These strategies can be intellectual, behavioural or emotional and are aimed at managing both internal demands like self-doubt and external demands like crowd noise. Effective coping can lead to improved performance, increased motivation and reduced anxiety. According to Crocker et al. (1998), coping was first characterized by Lazarus and Folkman (1984) as an athlete's behavioural and cognitive strategies for handling internal and/or external stresses. Coping is thought to be a crucial mental process that takes place between stressful experiences and the result that follows, according to Crocker et al. (1998).

According to Lazarus and Folkman (1984), coping strategies are the active, deliberate attempts made by the person to avoid or control stressful events. The pressures and stress of competitive sports will be easier for athletes to handle if they have strong coping mechanisms.

Athletic Coping Skills Inventory (ACSI-28)

The Athletic Coping Skills Inventory-28 (ACSI-28) scale was designed by Smith et al. (1995) as a multidimensional scale instrument to evaluate the level of coping abilities specifically for athletes. Coping skills were first developed in the early 1990s. Seven classes of psychological coping skills with high factorial validity are measured with the ACSI-28 scale. The ACSI scale had 87 items when it was first developed, but in the early 1990s, it was updated to 42 items with eight-factor scales. Following a few investigations, the researchers modified the ACSI once more, this time creating a 28-item version with seven-factor scales that demonstrated the strongest dimensional structure (Smith et al., 1995). It is now an extensively used measure for assessing coping skills by coaches and researchers. The subscales defined by Smith and Christensen (1995) are- Peaking under Pressure, Freedom from Worry, Coping with Adversity, Concentration, Goal Setting and Mental Preparation, Confidence and Achievement Motivation and Coachability.

Mental Toughness Questionnaire (MTQ-48)

Mental toughness is another clue that has been debated and used a lot, primarily when assessing success or achievement in sports. The concept of mental toughness has its roots in sports psychology, where it has been studied widely to understand its impact on athletic performance. However, its application extends beyond sports, influencing academic achievement, workplace productivity and personal well-being. Mental toughness is normally used colloquially to refer to any set of positive attributes that helps a person to cope with difficult situations. Mental toughness has been defined in different ways, according to Jones et all., 2002, defined that the mental toughness is having natural or developed psychological edge that enables you to generally cope better than your opponents with many demands (competition, training, lifestyle) that sport places on a performer and specially be more consistent and better than your opponents in remaining determined, focused, confidents and in control under pressure. Coaches and sport commentators freely use the term mental toughness to describe the mental state of athletes who persevere through difficult sports conditions to succeed.

Mental toughness is a collection of values, attitudes, behaviours and emotions, which enable an individual to persevere and overcome any obstacle, adversity or pressure experienced, but also to maintain concentration and motivation when things are going well to consistently produce high levels of performance. In today's competitive scenario, all other concerned with sports cannot depend only on physical fitness alone, they have to identify and determine psychological attributes which affects the performance. Research of the last two decades has made considerable progress and contributes to our understanding of the psychological and biological/ physiological components important to individual and team game athletes. Each psychological variable has its unique contribution towards sports performance but some of the variables are preferably and specifically suitable for few games. The psychological parameters such as personality traits, anxiety, self-esteem and mental toughness are among the factors that can be considered to determine psychological predictors (Anizu et al., 2003).

According to Loehr (1986), this special inner strength that enables athletes to overcome their uncertainties and concerns is the capacity to utilize one's potential in every circumstance. Even though his works were written several decades ago, they still have a lot of influence today. The mental toughness paradigm he proposed was grounded in his therapeutic work and experiences. Motivation, self-assurance, attitude control, attention control, visual and imagery control, positive energy, and negative energy were the seven components that made up the model. This evolved into Clough's multidimensional 4Cs model (Clough and Strycharczyk, 2012), which suggests the existence of discrete but linked components. (i.e., Challenge, Commitment, Control, and Confidence).

The components of hardiness—Challenge, Commitment, and Control—are incorporated into the 4Cs paradigm (Kobasa, 1979). These promote social connection and coping, which in turn foster resilience (Maddi and Kobasa, 1984). Confidence was included in the hardiness criteria by Clough et al. (2002) in acknowledgement of the mental and physical demands of competitive sports. Clough's model gained a performance-based, sport-specific focus with the addition of this extra factor (Birch et al., 2017).

METHODOLOGY

Objective of the study

A convenience sampling method was applied to examine whether there is any relationship between Athletic Coping Skills and Mental Toughness among Badminton players in Manipur. Because coping skills are directly

related to the performance and mindset of players, it might be helpful to minimise the mental toughness factors like anxiety and stress of players.

Selection of the subjects

This study focused on badminton players in Manipur, a northeastern state of India, during the early competitive season of 2024. Data were collected and analysed during the period from January to May 2024 from 20 badminton players—16 male and 4 female—who were selected from the National Sports University, Manipur. All participants had experience competing at the district level. The participants were chosen based on their availability and accessibility for the study. They were aged between 18 and 25 years, male and female, respectively, ensuring a relatively homogeneous age group within male and female participants for the research. This sampling method offers practicality and ease of access to participants within the specified criteria, facilitating the smooth conduct of the study while ensuring a representative sample of badminton players from the university.

The Athletic Coping Skill Inventory (ACSI) was developed by Smith et al. (1995). Confirmatory factor analyses have provided evidence supporting the validity of the ACSI-28, indicating that its seven subscales align well with the underlying factor structure for athletes of both genders. The ACSI-28 has shown adequate internal consistency, with Cronbach's alpha coefficients ranging from 0.62 to 0.86 and satisfactory test-retest reliability, with alpha coefficients between subscales ranging from 0.62 to 0.87 (Casanova et al., 2020).

The Mental Toughness Questionnaire (MTQ48) was developed by Clough et al., (2002). It has an overall reliability score of 0.90, which is considered high, the MTQ demonstrates a consistent measurement of mental toughness. The concurrent validity score for both the MTQ48 overall and its scales falls within the range of 0.25 to 0.42, indicating high validity.

Data collection procedure

The participants were given a preamble about the study and then informed consent was taken from each participant. Only those players who consented to participate in the study were taken. ACSI-28 was administered to assess athletic coping skills and MTQ-48 was administered to assess Mental Toughness among the badminton players when they came for their regular training.

Data was analysed by SPSS (Statistical Package for the Social Sciences) method via online mode.

RESULTS AND DISCUSSION

Table 1 represents descriptive statistics from SPSS, highlighting mean values and standard deviations of subscales from ACSI and Mental Toughness. The highest mean was observed in Commitment (M = 36.35), followed by Challenge (M = 29.05) and Confidence Ability (M = 28.85), while the lowest were Peaking under Pressure and Free from Worry (M = 5.15).

The highest standard deviation was also in Commitment (SD = 6.020), with notable values for Confidence Ability (SD = 4.332) and Control Emotion (SD = 4.234), and the lowest in Coachability (SD = 1.673). These results establish a clear understanding of the variables before assessing their relationships.

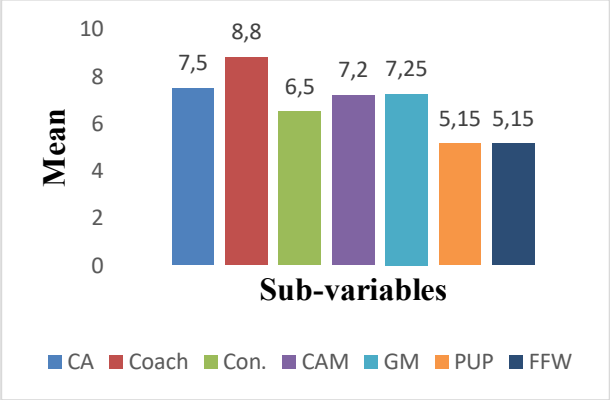
Figure 1a. Shows the graphical representation of the mean scores for the Athletic Coping Skills, in seven subscales i.e., coping with adversity, coachability, concentration, confidence & achievement motivation, goal setting & mental preparation, peaking under pressure, and free from worry.

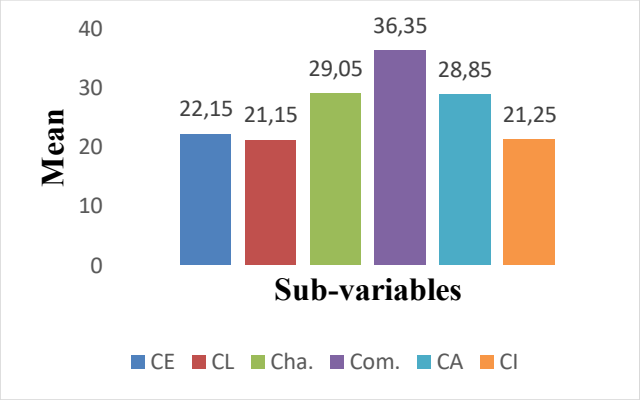
Figure 1b. shows the graphical representation of the mean scores for Mental Toughness, in six subscales i.e., control emotion, control life, challenge, commitment, confidence ability, and confidence interpersonal.

Table 1. Descriptive statistics for ACSI (Athletic Coping Skill Inventory) & MTQ (Mental Toughness Questionnaire).

Variables	Mean	Std. Deviation
CA	7.50	2.417
Coach	8.80	1.673
Con.	6.50	1.906
CAM	7.20	1.852
GM	7.25	2.770
PUP	5.15	2.300
FFW	5.15	2.519
CE	22.15	4.234
CL	21.25	3.338
Cha.	29.05	2.837
Com.	36.35	6.020
CA	28.85	4.332
CI	21.25	3.796

Note: CA = coping with adversity; Coach = coachability; Con. = concentration; CAM = confidence & achievement motivation; GM = goal setting & mental preparation; PUP = peaking under pressure; FFW = free from worry; C E = control emotion; CL = control life; Cha. = challenge; Com. = commitment; CA = confidence ability; CI = confidence interpersonal.





Note: CA = coping with adversity; Coach = coachability; Con. = concentration; CAM = confidence & achievement motivation; GM = goal setting & mental preparation; PUP = peaking under pressure; FFW = free from worry. C E = control emotion; CL = control life; Cha. = challenge; Com. = commitment; CA = confidence ability; CI = confidence interpersonal.

Figure 1. A. Graphical representation of mean for ACSI. B. Graphical representation of mean for MTQ.

Table 2 demonstrates the result attained from calculating Pearson's Correlation that was conducted to check the relationship between the sub-variables of Athletic Coping Skills and Mental Toughness among Badminton players in Manipur.

The study assessed correlations between sub-variables of ACSI and MTQ using Pearson's correlation coefficient (r), with significant levels set at p = .05 and p = .01.

Table 2. Pearson's Correlation for ACSI (Athletic Coping Skill Inventory) & MTQ (Mental Toughness Questionnaire).

Variables	CA	Coach	Con.	CAM	GM	PUP	FFW	CE	CL	Cha.	Com.	CA	CI
CA	1	.429	.160	.317	.444*	.364	.437	-.208	-.258	-.027	-.251	-.123	-.250
Coach		1	.215	.421	.602**	.172	.120	.042	-.311	-.441	-.243	-.491*	-.315
Con.			1	.417	.095	.282	.115	-.068	.079	-.316	.273	.010	-.084
CAM				1	.410	.005	-.153	-.038	-.094	.028	-.148	-.258	-.120
GM					1	.200	.100	-.066	-.240	-.129	-.255	-.089	-.212
PUP						1	.159	-.202	-.368	-.025	-.251	-.151	-.282
FFW							1	.412	.152	-.038	.340	.306	.145
CE								1	.530*	-.053	.702**	.483*	.302
CL									1	.260	.731**	.498*	.693**
Cha.										1	.045	.215	.243
Com.											1	.680**	.618**
CA												1	.492*
CI													1

*Note: *. Correlation is significant at the .05 level (2-tailed). **. Correlation is significant at the .01 level (2-tailed). CA = coping with adversity; Coach = coachability; Con. = concentration; CAM = confidence & achievement motivation; GM = goal setting & mental preparation; PUP = peaking under pressure; FFW = free from worry; C E = control emotion; CL = control life; Cha. = challenge; Com. = commitment; CA = confidence ability; CI = confidence interpersonal.*

Key findings are:

ACSI Sub-Variables

Coping with Adversity & Goal Setting & Mental Preparation: Positive and significant correlation (r = 0.444, *p* = .05). Coachability & Goal Setting & Mental Preparation: Strong positive correlation (r = 0.602, *p* = .01). Coachability & Confidence Ability: Negative and significant correlation (r = -0.491, *p* = .05). Other sub-variables of ACSI (e.g., Concentration, Confidence & Achievement Motivation, Peaking Under Pressure) showed no significant correlations with ACSI or MTQ sub-variables.

MTQ Sub-Variables

Control Emotion & Control Life: Positive and significant correlation (r = 0.530, *p* = .05). Control Emotion & Commitment: Strong positive correlation (r = 0.702, *p* = .01). Control Emotion & Confidence Ability: Positive correlation (r = 0.483, *p* = .05). Control Life & Commitment: Strong positive correlation (r = 0.731, *p* = .01). Control Life & Confidence Ability: Positive correlation (r = 0.498, *p* = .05). Control Life & Confidence Interpersonal: Positive correlation (r = 0.693, *p* = .01). Commitment & Confidence Ability: Positive correlation (r = 0.680, *p* = .01). Commitment & Confidence Interpersonal: Positive correlation (r = 0.618, *p* = .01). Confidence Ability & Confidence Interpersonal: Positive correlation (r = 0.492, *p* = .05).

Non-Significant Correlations: Most sub-variables of ACSI and MTQ (e.g., Challenge, Free from Worry) showed no significant correlations with other sub-variables.

CONCLUSION

This study was conducted on the relationship between Athletic Coping Skills and Mental Toughness among Badminton players in Manipur, 20 athletes, out of which 16 were Male and 04 Female. The study was done by using the Athletic Coping Skill Inventory (ACSI-28) which was developed by Smith et al. (1995). And Mental Toughness Questionnaire (MTQ-48) was developed by Clough et al., (2002). In this study, I found that for most of the sub-variables of ACSI and MTQ, there is no statistically significant correlation while there is a positive correlation for some of the sub-variables of ACSI and MTQ named (Coping with Adversity - Goal Setting & Mental Preparation), (Coachability - Goal Setting & Mental Preparation), (Control Emotion - Control Life, Commitment and Confidence Ability), (Control Life - Commitment, Confidence Ability and Confidence Interpersonal), (Commitment - Confidence Ability and Confidence Interpersonal), (Confidence Ability - Confidence Interpersonal), And only one statistically negative correlation for the sub-variables coachability and confidence ability were found.

Similar results were found in the study done by Hussein in 2023 in that study they found that there is no statistically significant difference between Sports Achievement Motivation and Mental Toughness. Another study was done by Phukan (2022) found a similar result, which was that there is no statistically significant difference between Coping with Adversity and Coachability. Furthermore, the study done by Sural et al., (2021) reveals that there is a statistically significant positive relationship between Mental Toughness and Coping Skills Training. Also, the study conducted by Esposito (2018) discloses that there is no statistically significant difference between Mental Toughness and Coaching Style.

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

Implications

Sports coaching and training results can be greatly improved by integrating psychological techniques. In order to assist coaches and athletes perform better, sports psychology is essential for fostering motivation, attention, and mental toughness. It also helps keep an eye on athletes' mental health, guaranteeing their emotional stability and general well-being. Furthermore, players can receive customized advice from individualized one-on-one counselling sessions on how to deal with stress, overcome obstacles, and perform at their best on and off the field.

AUTHOR CONTRIBUTIONS

Siddhant Yadava, the principal author, was responsible for the overall conceptualization and design of the study, formulation of research objectives, and development of the study framework. He undertook an extensive review of relevant literature, collected and analysed the data, and interpreted the findings in relation to the research questions. He also took the lead in drafting the manuscript and ensuring coherence throughout the work. Dr. N. Debala Chanu, as co-author, provided critical guidance on research methodology and statistical analysis, contributed substantially to refining the theoretical framework, and offered significant revisions to enhance intellectual clarity, academic rigour, and structural flow. Both authors have thoroughly reviewed and approved the final version of the manuscript and accept full accountability for the accuracy, integrity, and scholarly merit of the work.

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No potential conflict of interest was reported by the authors.

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