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A comparative study on depression, anxiety and stress among different level of professional badminton players of Madhya Pradesh

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Abstract
Introduction: Depression, anxiety, and stress are the most explored subjects in sports psychology. Various research looked into DAS and its levels in various subjects, games, and sports. We investigated the DAS among different levels of professional badminton players in this study.
Aim of Study: The aim of the study is to assess depression, anxiety and stress among professional Badminton players, who represent the state in national tournaments.
Material and Methods: For this study the researcher selects thirty (30) players from each group i.e., senior, junior and sub-junior level of Madhya Pradesh. Total no of subject is ninety (N=90). For the current study equal number of subjects were selected randomly from three groups of badminton players. Depression Anxiety and Stress scale (DASS) was used to measure the negative emotional states of depression, anxiety and stress. The descriptive statistics and analysis of variance (One-way Anova) was used for comparing means and for further analysis of data LSD as POST HOC test was used. For this study level of significance was set at 0.05.
Results: The mean and standard deviation of three levels of Badminton players, for Depression 12.73±3.81, 16.33±6.74, and 18.93±8.89, for Anxiety are 14.70±4.97, 17.87±6.65, and 21.10±7.96, and for Stress are 14.67±4.60, 16.40±5.65, and 21.17±7.43 respectively. F- value is statistically significant as calculated F-values for Depression (F=6.27; 2,87 df) > tabulated F-value (F=3.09; 2,87 df), for Anxiety (F=6.96; 2,87 df) > tabulated F value (F=3.09; 2,87 df) and for Stress (F=9.42; 2,87 df) > tabulated F-value (F=3.09; 2,87 df). Post hoc test result reveals that there was significant difference found in between senior and junior level, senior and sub-junior level Badminton players depression, and in between senior and sub-junior level Badminton players anxiety, and in between senior and sub-junior level, junior and sub-junior level Badminton players' stress.
Conclusions: There was no significant difference found in between junior and sub-junior level Badminton players depression, and in between senior and junior, junior and sub-junior level Badminton players anxiety, and in between senior and junior level Badminton players' stress.

Keywords: Depression, anxiety, stress, badminton

Introduction
From time to time, everybody feels sad or worried. These are natural emotions as well as unavoidable. People are concerned about children, bills, aging relatives, jobs and health and most people watched a sad movie or a news story about a poignant tragedy with a tear. This is normal. Everyday life is a bit stressed and depressed. Athletes and healthy people are not immune to mental wellbeing. Indeed, athletes can experience at least as common depression and anxiety disorders as their general population.
Physical activity has emerged as a potential protective mediator for mental health disorders including anxiety and depression as the prevalence of mental health issues continues to increase globally (Boone & Leadbeater, 2006; Schaal *et al*., 2011) [3, 22]. Researchers are now Focusing on the psychological impacts of physical activity after extensively studying how exercising affects physical health (Eime, Young, Harvey, Charity, & Payne, 2013; Nixdorf, Frank, & Beckmann, 2016) [7, 18].

Approximately 2-9% of children and up to 25% of teenagers suffer from major depression, while 5-10% of children and up to 50% of teenagers suffer from anxiety (Glover & Fritsch, 2018; Sabiston, *et al*., 2016) [11, 21]. By providing adolescents with an opportunity for socialization, stress relief, and self-confidence, physical activity has been associated with decreased risk of these illnesses (Adachi & Willoughby, 2014; Boone & Leadbeater, 2006; Findlay & Bowker, 2009; Lubans, *et al*., 2016; Toseeb, *et al*., 2014) [1, 3, 9, 16, 26]. There are numerous studies suggesting that physical activity is beneficial to the mental health of young people, 30-40% of whom show moderate or severe depressive symptoms between the ages of 12 and 19 (Boone & Leadbeater, 2006; Sabiston, *et al*., 2016; Strong, *et al*., 2005) [3, 21, 25]. Exercise 60 minutes per day for school-aged youth to increase muscle strength, reduce body fat, maintain a healthy body weight, promote bone density, improve mood, and decrease depression and anxiety symptoms.

Sport is sometimes used as a tool for athletes to deal with symptoms of mental illness, but it can sometimes lead to anxiety and depression due to the pressure from sport (Reardon, 2017) [20]. If people do not play sports and the activity level is low, physical problems will inevitably arise. These physical problems are most likely to have a psychological effect. An individual who does not do a sport and has low physical activity chooses a weak socially interactive life and invites psychological problems which depress the person's quality of life such as depression, worry and stress. These psychological disorders adversely affect the productivity and happiness of the individual. Athletes are put under pressure when they compete in formal or informal competitions. Sometimes, this pressure improves performance; sometimes, it negatively affects performance. As a result of the stress caused by the upcoming competition, athletes may develop anxiety, which can negatively affect their performance in sports. A state of anxiety is a psychological and physiological condition characterized by cognitive, somatic, emotional, and behavioural components. When these components combine, they result in an unpleasant feeling indicative of fear, anxiety, apprehension, or uneasiness (Bamaniya, 2016) [2]. In games and sports, psychological and physiological factors play a crucial role in determining performance level (Grange & Kerr, 2010; Schilling & Hayashi, 2001) [12, 23].

Performance anxiety is described as a decrease in sport performance, sometimes called 'chocking;' because of too much perceived stress (Grange & Kerr, 2010; Schilling & Hayashi, 2001) [12, 23]. Fear, unhappiness, guilt, discouragement, and distraction from focus can also be experienced by some athletes (Kais & Raudsepp, 2005; Cerin, 2003) [13, 4]. Numerous studies have demonstrated the influence of psychological factors on sports performance (Crespo, 2002) [6].

Stress in athletes often rises on the day of a game because they get an audience, and they expect their success extremely high. When contemplating Depression, the condition such as slowing and stagnation, invalidity, smallness, vulnerability, hesitation, pessimism, emotions, and perceptions, and a profoundly tragedy of physiological activity (Ozturk, 1994) [19]. Physical exercise, as the concept indicates, is closely connected to the process of depression. Another psychological condition which can be encountered inadequately is stress. Stress: a symbol of danger in terms of the wellbeing and goodness of our people, extracted from the Latin word 'esoterica,' reflects the clear physiological and psychological reactions to the events interpreted as a warning and therefore inadequately treated (Erdogan, Unsar, & sutn, 2009) [8]. Athlete screening research will classify risk groups with high isolation and depression and reduced quality of life. Based on the implications of this finding, recommendations should be given for the recognition of athletes' issues and advice on how to take advantage of psychology if required (Unver, Atan, Cavusoglu, Erim, & Yamak, 2015) [27].

The aim of the study is to assess the depression, anxiety and stress among professional Badminton players, who represent the state in national tournaments.

Methods

Selection of subjects

To assess the depression, anxiety and stress among professional Badminton players, who represent the state in national tournaments. For this study the researcher selects thirty (30) players from each group i.e., senior, junior and sub-junior level of Madhya Pradesh. Total no of subjects is ninety (N=90). The age of the subjects for sub- junior category under 16 years, for junior category under 19 years and for senior category 19+ years were selected randomly.

Tool

To measure the status of depression, anxiety and stress among professional (sub-junior, junior and senior) Badminton players Depression Anxiety and Stress scale (DASS) was used. The DASS is a 42-item questionnaire which includes three self-report scales designed to measure the negative emotional states of depression, anxiety and stress (Lovibond & Lovibond, 1995) [15].

Administration of Questionnaire

The respondents will be provided an online questionnaire with the necessary instructions. The appropriate instructions will be given to subjects. The subjects were exhorted to give their frank and true opinion and the research scholar had assured the respondents that the information given by them would be kept confidential and utilized for the research purpose only.

Statistical Techniques

For the present study, the statistical technique applied in order to examine the hypotheses of the study were, descriptive statistics such as mean and standard deviation and comparative statistics of analysis of variance (One-way ANOVA) and LSD as POST HOC test.

Results

The values of descriptive statistics and comparison of mean or differences between different level of Badminton players depression, anxiety, and stress, statistical technique one-way ANOVA and Post HOC test LSD were employed and presented in following tables and figure.

Table 1: Descriptive statistics for Depression, Anxiety and Stress of different level of Badminton players

		N	Mean	Std. Deviation	Std. Error
Depression	Senior	30	12.73	3.81	0.69
	Junior	30	16.33	6.74	1.23
	Sub-junior	30	18.93	8.89	1.62
	Total	90	16.00	7.20	0.76
Anxiety	Senior	30	14.70	4.97	0.91
	Junior	30	17.87	6.65	1.21
	Sub-junior	30	21.10	7.96	1.45
	Total	90	17.89	7.07	0.75
Stress	Senior	30	14.67	4.60	0.84
	Junior	30	16.40	5.65	1.03
	Sub-junior	30	21.17	7.43	1.36
	Total	90	17.41	6.55	0.69

Table 1 show the number of participants along with that, it provides the mean and standard deviation of Depression,

Anxiety, and Stress among different level of Badminton players. The mean and standard deviation of depression level in senior, junior and sub-junior Badminton players are 12.73±3.81; 16.33±6.74; 18.93±8.89 respectively. The mean and standard deviation of anxiety level in senior, junior and sub-junior Badminton players are 14.70±4.97; 17.87±6.65; 21.10±7.96 respectively. The mean and standard deviation of stress level in senior, junior and sub-junior Badminton players are 14.67±4.60; 16.40±5.65; 21.17±7.43 respectively. Figure 1 also shows the means of depression, anxiety and stress among different levels of Badminton players.

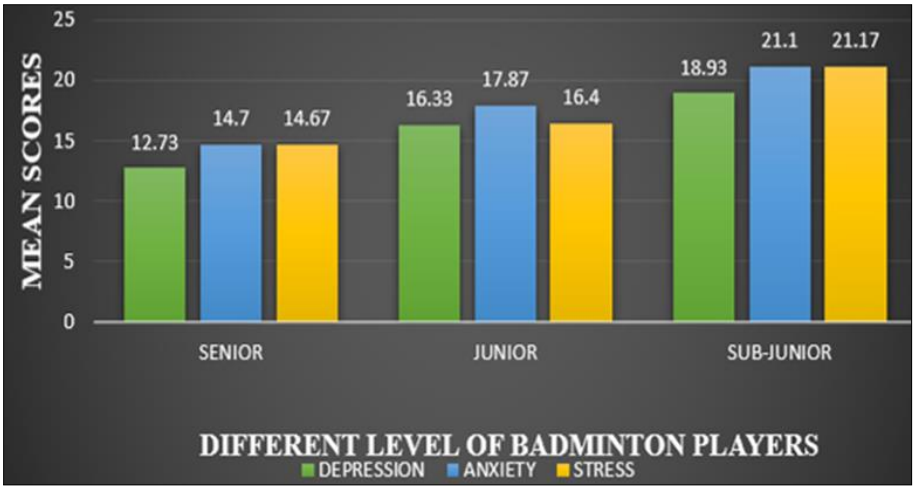

Fig 1: Mean Comparison of Depression, Anxiety and Stress of Different level of Badminton players.

Table 2: Comparative statistics of Depression, Anxiety and Stress for different level of Badminton players

		Sum of Squares	df	Mean Square	F	Sig.(p-value)
Depression	Between Groups	581.60	2	290.80	6.27	.003
	Within Groups	4032.40	87	46.35		
	Total	4614.00	89			
Anxiety	Between Groups	614.42	2	307.21	6.96	.002
	Within Groups	3838.47	87	44.12		
	Total	4452.89	89			
Stress	Between Groups	679.76	2	339.88	9.42	.000
	Within Groups	3138.03	87	36.07		
	Total	3817.789	89			

*Significant at 0.05 level

From table 2 the F-value is significant in depression, anxiety and stress in Badminton players as the calculated F-value of depression in Badminton players (F=6.27; 2,87 df) > tabulated F-value (F=3.09; 2,87 df), the calculated F-value of anxiety in Badminton players (F=6.96; 2,87 df) > tabulated F-value (F=3.09; 2,87 df) and the calculated F-value of stress in Badminton players (F=9.42; 2,87 df) > tabulated F-value (F=3.09; 2,87 df). Since the F-value is significant, need to apply post HOC test for comparing means of different groups.

Table 3: Multiple Comparisons of Post HOC test (LSD) of Depression, Anxiety and Stress for different level of Badminton players.

Dependent variable	(I) group	(J) group	Mean difference (Jl)	Std. Error	Sig. (p-value)
Depression	Senior	Junior	-3.60	1.76	.044*
		Sub- junior	-6.20	1.76	.001*
	Junior	Senior	3.60	1.76	.044*
		Sub- junior	-2.60	1.76	.143
	Sub- junior	Senior	6.20	1.76	.001*
		Junior	2.60	1.76	.143
Anxiety	Senior	Junior	-3.17	1.72	.068
		Sub- junior	-6.40	1.72	.000*
	Junior	Senior	3.17	1.72	.068
		Sub- junior	-3.23	1.72	.063
	Sub- junior	Senior	6.40	1.72	.000*
		Junior	3.23	1.72	.063
Stress	Senior	Junior	-1.73	1.55	.267
		Sub- junior	-6.50	1.55	.000*
	Junior	Senior	1.73	1.55	.267
		Sub- junior	-4.77	1.55	.003*
	Sub- junior	Senior	6.50	1.55	.000*
		Junior	4.77	1.55	.003*

Table 3 shows the results of multiple comparison of different group. It can be seen that for depression the difference between means of senior and junior level Badminton players is significant as the p-value is 0.044 which is significant at 0.05 level of significance. Similarly, the difference between means of senior and sub-junior level Badminton players is significant as the p- value is 0.001 which is significant at 0.05 level of significance. However, there is no significant difference of depression between means of junior and sub-junior level Badminton players as the p-value is 0.143 which is not significant at 0.05 level of significance.

For anxiety the difference between means of senior and sub-junior level Badminton players is significant as the p-value is 0.00 which is significant at 0.05 level of significance. however, the difference between means of senior and junior level Badminton players is not significant as the p- value is 0.068 which is not significant at 0.05 level of significance. similarly, there is no significant difference of anxiety between means of junior and sub-junior level Badminton players as the p-value is 0.063 which is not significant at 0.05 level of significance.

For stress the difference between means of senior and sub-junior level Badminton players is significant as the p-value is 0.000 which is significant at 0.05 level of significance. Similarly, the difference between means of junior and sub-junior level Badminton players is significant as the p- value is 0.003 which is significant at 0.05 level of significance. However, there is no significant difference of stress between means of senior and junior level Badminton players as the p-value is 0.267 which is not significant at 0.05 level of significance.

Discussion

Anxiety and stress are natural components of our daily lives in various situations, but when they transcend the normal range, they must be addressed immediately; otherwise, the mental wellbeing of the individual will suffer. All students experience stress at some point in their academic careers regardless of their age, sex, education, or parents' occupation. Students are prone to depression, anxiety, and stress resulting in cognitive and psychosomatic complaints that may become chronic due to spokesperson, familial, and institutional factors (Karmakar, *et al*., 2021) [14]. On the basis of the result of the study, the hypothesis stated that there would be significant difference in depression, anxiety and stress in different levels of Badminton players. The hypothesis established was found to be significant in most of the groups, hence it can be concluded that the different level of Badminton player has different level of depression, anxiety and stress. A study on Analysis of depression, anxiety and stress among professional students at collegiate level by Sharma V. K. and Krishna N.R. (2018) [24] shows that the significant difference in depression among physical education and engineering students and among physical education and medical students. And there is significant difference in anxiety among physical education and engineering students and among physical education and medical students. And also, there is significant difference in stress among physical education, engineering and medical students (Sharma & Krishna, 2018) [24]. According to Karmakar, *et al*. [14] Depression, anxiety, and stress among students in North-East (2021) shows that medical students had more depression, anxiety, and stress in comparison to engineering students (Karmakar, *et al*., 2021) [14]. A Study conducted by the Robert Masten *et al*. In the study to identify the impact of anxiety among the athletes of world-class, international class, national class, perspective class, youngster class, and non-categorized athletes. The highest relative impact of anxiety on world-class categorization in comparison to other classes (Masten, Tušak, & Faganel, 2006) [17]. On the basis of previous study, the mean anxiety of athletes engaging in individual sports was the highest, this was followed by participants involved in team sports and dual sports. (Clairon, Xiao, Orhan, Kussainova, & Emmanuel, 2021) [5].

Conclusion

Further on the basis of the current study, we can conclude the following conclusion:

- There was significant difference in depression between senior and junior level badminton players, also between senior and sub-junior level badminton players but there was no significant difference between junior and sub-junior level badminton players.
- There was significant difference in anxiety between senior and sub-junior level badminton players, but there were no significant difference in between senior and junior level badminton players and also there was no significant difference in between junior and sub-junior level badminton players.
- Further there was significant difference in stress between senior and sub-junior level badminton players, also there was significant difference in junior and sub-junior level badminton players, but there were no significant difference in between senior and junior level badminton players.

Conflict of Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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