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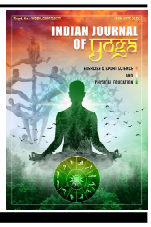

Experiment

Anxiety in Volleyball: Gender Differences During Competition

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ABSTRACT

This study aimed to explore distinctions between male and female volleyball players in terms of various sub-domains of the sports anxiety scale and overall anxiety. A total of 126 female and 55 male volleyball players from different State teams in India were chosen using a convenient random sampling technique during the 47th Junior National Volleyball Championship of India. To gauge the anxiety levels of the volleyball players, the researcher utilized the modified version (The Sport Anxiety Scale (SAS), n.d.) of the Sports Anxiety Scale – 2. The Shapiro-Wilk normality test revealed that the data did not conform to a normal distribution. The Mann-Whitney U Test did not identify any noteworthy gender differences among the volleyball players in anxiety subscales, including Worry, Concentration Disruption, Somatic Trait Anxiety, and Total Anxiety. This outcome suggests that male and female volleyball players likely experience comparable anxiety levels during competition.

INTRODUCTION:

Performance in any sport depends on various interdependent factors, i.e., physical, physiological, psychological, social, technical, tactical, etc. (Zahradník & Korvas, 2012a). These factors can be developed through various sports training processes: morpho-functional adaptation, motor learning, and psychosocial interaction (Zahradník & Korvas, 2012b). Any sports performance during a high level of competition depends maximally on an athlete's psychological preparation and mental readiness (Bali, 2015).

In this context, various psychological factors like anxiety, stress, aggression, tension (Bali, 2015), motivation, concentration, confidence (Tomar & Dhunna, 2018), personality (Parihar, 2021), etc., play an essential role during sports performance. Among these factors, few are positively related, and few are negatively related to sports performance. So, the athletes should perform various mental training activities during the training period to prepare them psychologically (Bali, 2015; Tomar & Dhunna, 2018) to cope with high competition demands.

Anxiety is a disturbed state of mind (Khan et al., 2017), which may occur due to some task-related pressure (Ford et al., 2017). It is an unpleasant emotion (Zhang et al., 2018). According to Ford et al. (2017), anxiety is of two types. One is trait anxiety, which is permanent and becomes a part of one's personality. Another is state anxiety, which occurs according to the situation. In sports, athletes respond according to typical situations to perform well, making them anxious. He further explained various physiological, behavioral, and cognitive symptoms of sports anxiety, like sweating, increased heart rate, biting fingernails, fidgeting, negative thoughts, inattention, etc.

In their study, Ramis et al. (2015) discussed the occurrence of sports-specific anxiety both before and during competitive events, referencing the multidimensional anxiety theory. According to this theory, competitive anxiety encompasses both state and trait anxiety, with manifestations in somatic and cognitive

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aspects. The authors concluded that the Sport Anxiety Scale-2 (SAS-2), which includes somatic anxiety, worry, and concentration disruption subscales (Smith et al., 2006), stands out as a valuable tool for evaluating cognitive and somatic trait anxiety in child and adolescent athletes in sports performance settings.

Variations in anxiety levels based on gender and types of sports are highlighted in the literature (Correia & Rosado, 2019). Combat sports athletes, as indicated by Kumar et al. (2021), tend to experience higher sports competitive anxiety compared to team and individual sports participants. Correia and Rosado (2019) reported elevated levels of competitive trait anxiety, cognitive and somatic anxiety, and worries in female athletes, with increased concentration disruption noted in males. Additionally, they found higher levels of cognitive anxiety, worry, and somatic anxiety among individual sport athletes compared to those in team sports.

Within the context of volleyball, Englert and Seiler (2020a) noted a negative relationship between performance and state anxiety among female players. This synthesis underscores the intricate interplay of anxiety dynamics across genders and types of sports in the realm of athletics.

Anxiety increases arousal by releasing chemicals like adrenaline and noradrenalin ("Anxiety And Arousal," 2019). There are different theories of anxiety concerning sports performance. According to the 'Inverted-U Hypothesis' (Yerkes & Dodson, 1908) and 'Multidimensional Anxiety Theory'(Krane, 1990), the optimum level of anxiety is good for sportspersons to perform well in competition by keeping his/her focus on the goal, but below or more than that level may decrease the sports performance. 'Drive theory' (Hull, 1944) stated that better performance is only possible in the presence of a higher level of anxiety. The level of anxiety depends on the individual's coping ability with anxiety. (James & Apter, 1983) Anxiety affects an individual physiologically, psychologically, and cognitively, which ultimately influences his/her performance (Smith & Smoll, 1990). So, it is clear that sports performance varies according to the level of anxiety.

Irrespective of individual or team sports, the level of anxiety changes according to the actual situation of the sports. The level of anxiety remains higher during the actual competition than before or after the competition (Singh et al., 2014). In volleyball, the level of anxiety differs according to the level of competition (Vamsikrishna & Selvam, 2022). The popularity of a particular sport in a specific region may also increase the players' anxiety levels (Legesse, 2016). Research also reported that volleyball players in urban areas have higher levels of anxiety (Bhatti, 2018). Proper care must be taken by the sports practitioner, coaches, sports psychologists, and sports training experts regarding the level of anxiety while preparing the sports persons for higher levels of sports competition (Ford et al., 2017) through various anxiety-controlling training programs like mindfulness and meditation (Ong, 2020).

Purpose: Therefore, not much evidence was found regarding the differences in sports anxiety between male and female volleyball players during the higher levels of competition. With this intention, the researcher wanted to find out if there is any difference between male and female volleyball players regarding sports anxiety during the higher levels of competition. So, the purpose of the present study was to find the differences between male and female volleyball players based on various sub-domains of the sports anxiety scale as well as total anxiety.

Hypothesis: There will be no significant difference between male and female volleyball players on sports anxiety.

MATERIALS & METHODS

Participants: For the study, the researcher selected 126 female (See Table 1) and 55 male (See Table 2) volleyball players from different State teams of India through a convenient random sampling technique during the 47th Junior National Volleyball Championship for Boys and Girls from 25-30 December 2021, organized by Bardhaman District Volleyball & Basketball Association under auspices of West Bengal Volleyball Association & Volleyball Federation of India, held at Aurobindo Stadium, Bardhman West Bengal, India. The age of the female players ranged between 14-18 years (M- 17.01± 0.92) with a mean height of 167.11± 7.22 and weight of 54.59± 7.15. The male players ranged between 15-18 years (M- 17.46± 0.69).

Table 1
Female Volleyball Players from Different States of India

S.No.	Name of the State Teams	N	Height		Weight		Age	
			M	SD	M	SD	M	SD
1	West Bengal	12	171.42	3.18	57.75	4.50	17.42	0.52
2	Andhra Pradesh	12	167.08	8.48	57.17	7.58	17.50	0.52
3	Uttar Pradesh	12	170.25	3.22	57.42	8.04	16.67	0.78
4	Jammu & Kashmir	12	162.25	6.12	51.25	6.36	17.50	0.80
5	Assam	06	161.33	9.56	55.57	7.03	17.50	0.84
6	Haryana	12	166.92	5.99	53.17	6.19	16.92	0.80
7	Maharashtra	12	170.92	8.65	59.08	9.60	16.75	0.87
8	Odisha	12	166.50	5.04	57.42	4.30	17.25	0.62
9	Himachal Pradesh	12	174.00	2.83	53.25	5.36	17.00	0.85
10	Bihar	12	164.50	5.10	50.33	7.89	16.00	1.13
11	Uttaranchal	12	160.17	6.95	49.50	4.21	16.83	1.19
	Total	126	167.11	7.22	54.59	7.15	17.01	0.92

Table 2
Male Volleyball Players from Different States of India

S.No.	Name of the State Teams	N	Height		Weight		Age	
			M	SD	M	SD	M	SD
1	Jammu & Kashmir	12	180.17	8.78	65.33	8.28	17.33	0.49
2	Bihar	12	182.58	6.27	66.42	7.47	17.00	0.74
3	Karnataka	08	186.86	5.44	69.25	9.00	17.13	0.99
4	Himachal Pradesh	12	181.75	9.91	65.25	5.93	17.83	0.39
5	West Bengal	11	186.09	5.67	68.00	6.57	17.91	0.30
	Total	55	183.20	7.73	66.66	7.29	17.46	0.69

Instrumentation & Study Design:

To evaluate the anxiety levels of volleyball players before or during competitions, the researcher utilized a modified version of the Sports Anxiety Scale – 2 (Smith et al., 2006), referred to as the Sport Anxiety Scale (SAS) (n.d.), in the English language. The study objectives were communicated to the participants, and written consent was obtained for their involvement. The questionnaire consisted of 21 questions, with participants responding to a four-point Likert scale. This scale gauges three anxiety factors: somatic anxiety, worry, and concentration disruption. Scores for each factor and the total anxiety were computed by summing up the responses as outlined in the instructions (refer to Appendix 1) (The Sport Anxiety Scale (SAS), n.d.).

Statistical Tools:

The researcher analyzed the data through The IBM SPSS Statistics:26 software. The researcher did the initial descriptive analysis of the collected responses through central tendency and dispersion. The normality of the data for all the variables was tested through the Shapiro-Wilk normality test for both genders (See Table 3). Based on the normality result, the Mann-Whitney U Test was applied to determine the gender differences for all the subdomains and total anxiety of the Sports Anxiety Scale among volleyball players. The level of significance was 0.05. The graphical representation showed the differences between genders on different anxiety factors.

Result:

The result of the normality test (See Table 3) shows that the scores for all the subdomains and Total anxiety for both genders were not normally distributed as the significant values for the Shapiro-Wilk Test were lesser than 0.05.

Table 3
Tests of Normality (Shapiro-Wilk Test)

Anxiety Subdomains	Gender	Statistics	df	Sig.
Worry	Female	.960	126	.001
	Male	.909	55	.001
Concentration Disruption	Female	.878	126	.000
	Male	.897	55	.000
Somatic Trait Anxiety	Female	.921	126	.000
	Male	.929	55	.003
Total Anxiety	Female	.971	126	.009
	Male	.944	55	.012

The descriptive analysis through mean and standard deviations for all the anxiety parameters, namely Worry, Concentration Disruption, Somatic Trait Anxiety, and Total Anxiety, was calculated (see Table 4 and Fig. 1). The mean score of all the subscales showed minimal differences between both the genders.

Table 4
Descriptive Analysis of Sports Anxiety Sub-Scales

S.No	Gender	N	Worry		Concentration Disruption		Somatic State Anxiety		Total Anxiety	
			M	SD	M	SD	M	SD	M	SD
1	Female	126	13.66	3.96	7.40	2.28	14.96	4.18	36.02	8.24
2	Male	55	13.20	4.77	7.76	2.34	14.87	4.83	35.84	10.33

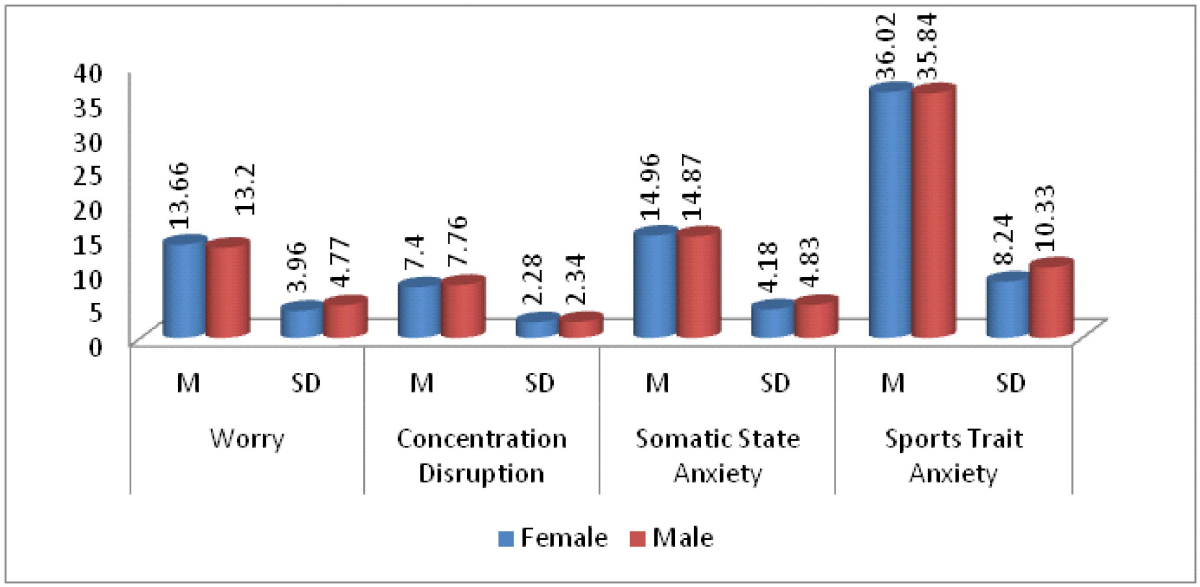

Figure 1: Descriptive Analysis of Sports Anxiety Sub-Scales

The Mann-Whitney U test assessed notable distinctions between genders across different subdomains of the sports anxiety scale. Examination of the mean ranks (refer to Table 5) for various subdomains indicates that females exhibit higher levels of worry, somatic trait anxiety, and total anxiety. Conversely, males demonstrate higher levels in the concentration disruption subscale. The test statistics from the Mann-Whitney U test will determine the significance of these gender differences.

Table 5
Ranks (Mann-Whitney U test)

Anxiety Subdomains	Gender	N	Mean Rank	Sum of Ranks
Worry	Female	126	93.96	11839.50
	Male	55	84.21	4631.50
Concentration Disruption	Female	126	88.48	11149.00
	Male	55	96.76	5322.00
Somatic Trait Anxiety	Female	126	92.27	11626.50
	Male	55	88.08	4844.50
Total Anxiety	Female	126	92.02	11594.50
	Male	55	88.66	4876.50

The result (See Table 6) indicates no significant difference between males and females on any of the sub-domains of the sports anxiety scale, as the P values of all the sub-domains are more significant than 0.05.

Table 6:
Test Statistics (Mann-Whitney U test)

	Worry	Concentration Disruption	Somatic Trait Anxiety	Total Anxiety
Mann-Whitney U	3091.500	3148.000	3304.500	3336.500
Wilcoxon W	4631.500	11149.000	4844.500	4876.500
Z	-1.156	-.992	-.497	-.397
Asymp. Sig. (2-tailed)	.248	.321	.619	.692

a: Grouping Variable: Gender

Discussion:

The purpose of this investigation was to assess potential disparities in sports anxiety between male and female volleyball players participating in elevated sports competitions. A total of 126 female and 55 male volleyball players responded to their anxiety levels during high-level competitions using the Sports Anxiety Scale – 2 questionnaires. Due to non-normally distributed scores, the Mann-Whitney U test was employed to examine significant differences between genders. However, no significant distinctions were identified in any of the sub-domains of the sports anxiety scale.

Athletes often experience heightened concerns about their performance during elevated sports competitions, causing apprehension (Correia & Rosado, 2019). The fear of particular situations and achieving optimal performance is a common sentiment among players (Justin, 2021). Notably, research has suggested that female athletes exhibit more worry than their male counterparts (Dias et al., 2010). However, the current study reveals no significant gender differences in worry levels among volleyball players, conflicting with the findings of a study by O'Donoghue and Neil (2015) but aligning with the results of another study by Perry and Williams (1998).

Concentration disruption is associated with concerns about achieving optimal performance in sports competitions, and historically, it has been observed to be more prevalent among male athletes than their female

counterparts (Grossbard et al., 2009). Nevertheless, the outcomes of the current study contradict this observation, as no notable gender differences were detected in the levels of worry and concentration disruption among male and female volleyball players.

No substantial correlation exists between volleyball performance and state anxiety, suggesting that the levels of state anxiety remain consistent across genders during performance, as noted by Englert and Seiler (2020b). This aligns with the conclusions drawn in the current study. The outcomes of this research reveal no noteworthy gender disparity in somatic trait anxiety, diverging from the observations of Ashraf et al. (2013), who reported higher somatic trait anxiety in males compared to females.

According to the 'U' Hypothesis theory, to achieve the highest level of sports performance during the competition, the sports persons need to have an optimum or moderate level of anxiety; below or above that level may cause poor performance by the sports persons (Raglin & Turner, 1993). Anxiety is ubiquitous in sports during competitions (Justin, 2021). So, the presence of anxiety up to the optimum level among the volleyball players (male and female) who participated in this study is also quite natural, and this can be observed from the result of the study, which is in line with the facts mentioned by Ford et al. (2017) & Correia & Rosado (2019) in their articles about the presence of anxiety among the sports persons irrespective of their gender and types of sports. Controlling anxiety during a higher level of competition also affects sports performance (Humara, 1999). The volleyball players, irrespective of gender, who participated in this study must have controlled their anxiety equally; this might be one of the reasons behind no significant differences in total anxiety between both genders.

The above discussion, based on the findings of different previous articles and research, is clear that anxiety up to a certain level is widespread in athletes during any level of sports competitions, irrespective of their gender. An optimum level of anxiety helps sports persons to perform well. Below or above that level may interrupt their performance.

The volleyball players of both genders who participated in this study must have had equal anxiety during this national-level competition. So, no significant differences were found between male and female volleyball players in the anxiety sub-scales and total anxiety. So, based on the acquired result, the null hypothesis for the present study is accepted.

Conclusions:

From the findings and subsequent discussion, it can be inferred that anxiety plays a significant role in sports performance. Athletes who effectively manage their anxiety during competitions tend to exhibit better performance. Therefore, the conclusion can be drawn that, in the context of this study, male and female volleyball players demonstrated a comparable level of anxiety. There were no discernible differences between them across the various anxiety subscales, including Worry, Concentration Disruption, Somatic Trait Anxiety, and Total Anxiety.

Limitations and Future Research:

Anxiety stands as a pivotal psychological factor impacting sports performance, regardless of gender. Additionally, various elements like personality, emotion, and motivation contribute to athletes' performance in competitions, and gender distinctions may exist in these aspects. Therefore, future research on these psychological parameters among volleyball players is warranted. A limitation of the present study is the relatively small participant pool of 55 males and 126 females. Increasing the number of participants could yield different outcomes. Despite this limitation, the researcher has strived to deliver a comprehensive and pertinent discussion within the confines of the available data.

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