COMPARATIVE STUDY OF COMPETITIVE STATE ANXIETY OF NATIONAL KORFBALL PLAYERS

Sandhya Banik	Research Scholar, PhD, Amity School of Physical Education & Sports Sciences, Amity University Uttar Pradesh, Noida.
Kalpana Sharma	Supervisor, Director, Amity School of Physical Education & Sports Sciences, Amity University Uttar Pradesh, Noida

ABSTRACT **Aim:** A study was done to compare the means of competitive state anxiety level of the male participants of eight different teams. Methods: A quantitative research was done based on purposive sampling included 1st Indian Korfball League participants. Methods: Total 64 male participants' aged between 18-35 years of eight teams those who had qualified for the leagues for further competition were taken as subjects. In this research, the CSAI-2 questionnaire (likert scale) was used as a tool, which was given 45min. prior to competition to measure competitive state anxiety which had three sub-scales namely cognitive state anxiety, somatic state anxiety and self-confidence. Statistical procedure: Statistical procedure was done through descriptive statistics, Levene's homogeneity test of variance, one-way anova and Tukey's HSD post-hoc test with the help of SPSS version 23 at p<0.05. Results: Cronbach's Reliability Coefficient (0.600) was reported to be at acceptable value and teams exhibited medium level of competitive state anxiety, F (7, 63) = 26.77, p<0.01. Significant difference was found between the eight teams on Cognitive State Anxiety.

KEYWORDS :Sports Psychology, Physical Education, SPSS, Sports, ANOVA, Players

INTRODUCTION

Anxiety is a physical, sensational, rational, cultural and spiritual experience (Paskuall 1989) according to Morris et al. (1981), cognitive anxiety is characterized by "conscious awareness of unpleasant feelings about oneself or external stimuli, worry, disturbing visual images" whereas strong palpitation of heart, breathlessness, cold hands, butterflies in the stomach, stretchy and tense muscles are few example of somatic anxiety. (martens et al., 1990). Hardy et al. (2004) found that top level athletes were able to handle high somatic anxiety before facing deterioration in performance graph when they were highly cognitively anxious. Researchers are also constantly contributing regarding anxiety reduction, coping strategies to control anxiety and mental toughness (Gould, Eckland, & Jackson, 1993; Orlick & Partington, 1988; Mousavi & Meshkini, 2011; John et al, 2012). However, various studies also suggest that performance under influence of anxiety to induce physiological arousal may be an important factor upon performance (Fenz & Epstein, 1967, 1968; Burton, 1988; Gould et al., 1987; Parfitt & Pates, 1999; Xiberras R., 2016). Gaynor & John (2010) concluded that different competitive state exerts different responses of actual performance. Some athletes experience adrenal rush through body and excitement which is sometimes interpreted as anxiety. Many times athletes suffer from injuries, depression, concentration issues, confidence problem, mental stress and lack of motivation. Success and failure depends upon many factors such as the combination of physical factors (speed and strength) as well as mental abilities (Confidence and concentration). In most competition "all athletes have somewhat same level of physical strength but the winner of the game is the one who has better mental skills" (Muscat. A. Sport and Exercise Psychology). Anxiety and performance go hand in hand, so the importance of anxiety needs to be understood to handle the pressure on field so that the unwanted pressure and undesired symptoms can be handled.

The aim of the study was to find out the competitive state anxiety level of the players of all the participated teams. Competitive state anxiety includes the sum of its three sub-scales cognitive anxiety, somatic anxiety and self- confidence.

Materials & Method

The present study followed a quantitative research approach based on survey. This section consist the information regarding participants, permission and consent of the coaches and participants, tool used and statistical procedures.

Participants

The subjects for the present study were taken from 1st Indian Korfball League held at Gurgaon (Haryana), India in 2016. A total 64 National Korfball male players aged 18-35years, representatives of eight different teams from all over India served as the participants for this study.

Informed consent

Permission from managers and coaches was taken before the collection of data. All the participants were told about the importance of the study and how can they contribute and become a part of this important research analysis. The questionnaire was explained to them properly before their responses were taken.

Tools

Competitive State Anxiety Inventory (CSAI-2) developed by Martens, Vealey, and Burton 1990, which assess: cognitive anxiety, somatic anxiety, and a related component - self-confidence, comprised of 27 items and follows four likert- type scale ranging from (1- not at all, 2-somewhat, 3- moderately so and 4- very much so; with the exception of item number 14, where the received scores were to count in reverse direction) was used for the study. The questionnaire was given to the participants before their competition, and they were instructed as per the guidelines of the questionnaire, to not spend much time on any statement but select the answer that described their mental or physical state at that particular time.

Statistical Analysis

Descriptive statistics, Test of Homogeneity of Variances (Levene's Test), Anova & further Post- Hoc test was done to see the difference within the means using SPSS version 23. level of significance was set at p<0.5.

Results

Table 1 explains the Cronbach's alpha coeffients which was found relatively high when compared with each variable (Cognitive anxiety=0.679, Somatic anxiety= 0.731 and self-confidence= 0.790) and acceptable when all the sub variables were added together as competitive state anxiety (0.600)

Table 1:- Cronbach Reliability coefficient

	Cronbach's Alpha statistics n=64
Cognitive Anxiety	0.679
Somatic Anxiety	0.731

Self-Confidence	0.790
Competitive State Anxiety	0.600

Table 2 includes the descriptive statistics associated with the Cognitive state anxiety of all the eight teams participated in 1st Indian Korfball League are reported in table 1. The mean= 64.53, SD=14.89, variance=221.96, skewness=(-1.366, SE=0.299), kurtosis= (1.390,SE=0.590), range=68, minimum=17 & maximum 85.

Table 2:- Descriptive Statistics of Competitive State Anxiety of all teams n=64

N	M	SD	Vrnc	Skw	SE	Kur	SE	Min	Max
64	60.53	14.89	221.96	-1.36	.299	1.39	.590	17	85

M=Mean, SD=Standard Deviation, Vrnc=Variance, Skw=Skewness, Kur=Kurtosis, SE=Standard Error, Min=Mininum, Max=Maximum

Table 3 depicts the descriptive statistics associated with Competitive state anxiety of each team participated in 1st Indian Korfball League which includes number of participants in each team, mean, standard deviation, minimum and maximum range of competitive state anxiety, skewness scores, Kurtosis scores, scores for normal distribution of data with standard error range, 95% confidence interval of mean with lower and upper bound range. All the teams (ranged between 60.00 - 68.62) showed medium competitive state anxiety except one team which showed lowest competitive state anxiety (i.e. team 08= 27.00)

Table 3:- Descriptive Statistics of Competitive State Anxiety team wise n=64

T	N	M	SD	Min	Max	Swk	Rng Nmlt SE=0.752	Kur	Rng Nmlt SE=1.481	L-Bnd 95% Confidence Interval for Mean	U-Bnd
1	08	68.37	6.34	62	82	1.68	2.24	2.90	1.95	63.06	73.68
2	08	68.62	6.94	64	85	2.36	3.13	5.81	3.92	62.81	74.43
3	08	63.25	9.28	46	74	-0.74	0.98	0.335	0.22	55.48	71.01
4	08	67.75	5.80	60	76	0.487	0.64	-0.786	0.53	62.90	75.59
5	08	63.87	4.85	56	72	0.151	0.20	0.419	0.28	59.81	67.93
6	08	60.00	12.63	44	80	0.097	0.12	-0.806	0.54	49.43	70.62
7	08	65.37	6.27	57	76	0.391	0.51	-0.375	0.25	60.12	70.62
8	08	27.00	5.34	17	33	-0.778	1.03	0.516	0.34	22.53	31.46

Note. T=Team, N-Number of participants in each team, M= mean, SD= standard deviation, Swk=Skewness, Kur=Kurtosis, SE= standard error, Rng Nmlt= Range of Normality for skewness & Kurtosis (-1.96 to 1.96), L-Bnd=Lower Bound, U-Bnd=Upper Bound

Table 4 explains test of homogeneity of variance using Levene's test.
Table 4:- Test of Homogeneity of Variances

Levene's Statistic	df1	df2	Sig.
2.133	7	56	.055

Table 5 shows the Anova table explaining the mean scores between groups and within the groups with degree of freedom, men square scores, F value and significant difference of means

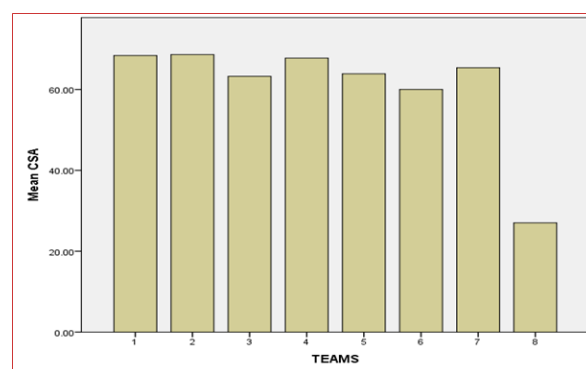**Figure 1:-** Visual Representation of means (Team wise, n=64)

Table 5:- Competitive State Anxiety (ANOVA – table)

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	10766.438	7	1538.063	26.770	.000
Within Groups	3217.500	56	57.455		
Total	13983.938	63			

**p = .01

Table 6 brings the differences within the means using Post –Hoc test.

Table 6:- Post- Hoc Test (Tukey HSD)
Multiple Comparisons of means

	T1 MD	T1 Sig	T2 MD	T2 Sig	T3 MD	T3 Sig	T4 MD	T4 Sig	T5 MD	T5 Sig	T6 MD	T6 Sig	T7 MD	T7 Sig	T8 MD	T8 Sig
T1			-.2	0.0*	5.1	.87	.6	1.0	4.5	.93	8.3	.36	3.0	.99	41.3	.000*
T2	.25	1.0			5.3	.84	.87	1.0	4.7	.91	8.6	.32	3.2	.98	41.6	.000*
T3	-5.1	.87	-5.3	.84			-4.5	.93	-.62	1.0	3.2	.98	-2.1	.99	36.2	.000*
T4	-.62	1.0	-.87	1.0	4.5	.93			3.8	.96	7.7	.46	2.37	.99	40.7	.000*
T5	-4.5	.93	-4.7	.91	.62	1.0	-3.8	.96			3.8	.96	-1.5	1.0	36.87	.000*
T6	-8.3	.36	-8.6	.32	-3.2	.98	-7.7	.46	-3.8	.96			-5.3	.84	33.00	.000*
T7	-3.0	.99	-3.2	.98	-2.1	.99	-2.3	.99	1.5	1.0	5.3	.84			38.37	.000*
T8	-41	.00*	-41	.00*	-36	.00*	-40	.00*	-36	.00	-33	.00*	-38.	.00*		

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T= Team, Host Team= (I), Other Team= (J), MD= Mean Difference (I-J), SE=Standard Error (3.78), Sig=Significant Difference (p<0.05)

Discussion of Findings:
Significant difference was found between the competitive state anxieties of the male participants of 1st Indian Korfball League players.

The descriptive statistics associated with competitive state anxiety levels of all the eight teams are reported in Table 3. As per findings it can be seen that the highest competitive state anxiety was associated with Team-2 (M=68.62) whereas the lowest competitive anxiety was associated with the Team-8 (27) (Parnabas v., 2015; Saadan et al., 2016).

In order to test the hypothesis that the competitive state anxiety level of all the participating team means are equal, a between group ANOVA was performed. Before conducting the ANOVA, all the data

was checked for not violating the assumption of normality and after getting the satisfying results that all the eight teams are within the range of skewness and kurtosis although (Team1 & Team 2), violated the assumption but rest of the teams reported to be within the range of skewness and kurtosis (Rose et al., 2015; Joreskog K. G., 1999; DeCarlo L. T., 1997). Furthermore the assumption of homogeneity of variances was also tested based on Levene's F test, $F(7, 63) = 2.133, p = 0.55$.

The independent between groups ANOVA showed a statistically significant difference between the teams, $F(7, 63) = 26.770$, p = 0.000, 2η(eta squared) =.770. Thus, the null hypothesis of no difference between the means was rejected and 77.4% large effect size (Cohen J., 1998; Valentine & Cooper, 2003; Wuensch K., 2015 & Becker L. A., 2015) as per Cohen's guidelines (1992) of the variance was accounted for competitive state anxiety.

The next step was to evaluate the difference between the eight means so; further, the statistically significant ANOVA was done to follow-up with Tukey HSD multiple comparisons post-hoc test (Abdi & Williams, 2010; Olleveant et al, 1999; Winston Haynes, Encyclopedia of Systems Biology). see table 6.

A visual depiction of the means can be seen in fig 1.

Conclusion
The importance of competitive state anxiety has long been recognized by researchers, sports psychologists, sports counsellors, coaches' and all those associated with sports. It has ability to detoriate an athlete's performance if not controlled because it affects a person's both cognitive as well as somatic anxieties. The results have shown significant difference between the competitive state anxieties of eight teams. According to the present study conscious efforts, different strategies and appropriate steps should be taken into consideration to cope with the anxiety by the coaches and sports counsellors so that athletes' can perform well in any given situations.

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