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## Relationship between competitive anxiety, confidence and performance among female volleyball players

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### Abstract

The aim of this study is to assess the impact of the competitive level of anxiety of the female volleyball players' confidence and there by their success in the tournament from April 14 – 24, 2016. Quantitative cross sectional study design was employed from April 14 – 24, 2016 among 48 female volleyball players of Amhara College of Teacher's Education students in Debre Birhan town during the time of competition. Face to face structured questionnaire for the volleyball players and an open-ended questionnaire for their coaches were used to collect data.

Female volleyball players who had moderate cognitive anxiety (Adjusted OR=7.52 with 95% CI: 1.18 - 47.62), those who had moderate somatic anxiety (Adjusted OR=15.77 with 95% CI: 1.23- 202.35) and female volleyball player who had high confidence level in their ability and skills to demonstrate high sport performance (Adjusted OR=3.24 with 95% CI: 1.34-7.88) were found statistically significant variables.

**Keywords:** Competitive anxiety, self-confidence, volleyball, female, Amhara, Ethiopia

### 1. Introduction

As in the others ball games, once, volleyball game was a popular sport in the country Ethiopia decades ago. But its popularity and practice gradually was getting declined starting from two decades to the present. Nowadays, the federal as well as the regional governments of Ethiopia have initiated & made awareness with in the sport federation and the society at large about the importance of volleyball sport at national & international level as well [1].

In this regard, recently measures have been taken by stake holders on volleyball tournament that it has to be paid equal attention along with other sport tournaments that are being taken place at higher institution levels like Inter-Universities and Inter- Colleges sport tournaments. The objectives of conducting inter-college sport tournaments are to produce amateur & professional sportsmen in specific field for the regional & national teams and create a means of entertainment for the society [1].

In recent years, the study of the relationship between competitive anxiety and sporting performance has received a considerable amount of research attention and theoretical refinement [2]. One potentially debilitating symptom that has received extensive empirical Research attention is that of multidimensional competitive anxiety [3-5]. Emotion related research in the sport domain has indicated that both cognitive and somatic anxiety may have differential effects on sport performance [5, 6].

Typically, using the Competitive State Anxiety Inventory-2 (CSAI-2), research has assessed the temporal patterns of symptom intensity at set time-to event intervals usually focused around 7 days, 48 hr, 24 hr, and 1 hr pre competition [7]. Different research results also imply that competitive anxiety is the source of decrease in performance especially in Amateur athletes [8].

The relationship between competitive anxiety, self- confidence and performance were studied in different parts of the world in different sports [9-14]. However in investigators' best knowledge these kinds of studies were not conducted in Ethiopia especially in volleyball. So, the main purpose of this study is to identify the relationship between competitive anxiety, self-confidence and performance of Amhara Regional Inter-college female volleyball teams in the tournament held at Debre-Birhan Teachers Education College from April 14 –24, 2016.

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## 2. Subjects, Material and methods

### 2.1. Design of the research study and study period

Quantitative cross sectional study design was employed. The research study was conducted during inter-college sport tournament of Amhara colleges of teachers' education that was held from April 14 – 24, 2016 at Debre Birhan College of Teacher Education in Debre Birhan town, Amhara Regional State, Ethiopia.

### 2.2 Study area

The Amhara Regional Inter-college tournament started in 2010. The tournament was conducted annually from 2010 to 2012. Volleyball was one of the competent games and is held in every tournament. Commonly participant colleges have both female and male volley ball teams. In this tournament, only eight colleges brought female volley ball teams.

### 2.3. Sample Population of the Study

The population of sample study was 48 female volleyball players from 8 college teams which were taken purposefully. The inclusion criteria for this sample were being the first six entries of each college teams during their first match of the tournament.

### 2.4. Data collection procedures and instruments

Face to face structured questionnaire for the volleyball players and an open-ended questionnaire for their coaches were used to collect data for the study. The systematically selected female volleyball players were asked to fill the self-administered questionnaire whereas an open ended questionnaire were delivered to all the seven coaches for their responses on the issues of behavior of coaches, their preparation and final expectation.

The self-administered structured questionnaire for the players was adopted from the questionnaire competitive anxiety test (CSAI-2R) [5]. The open -ended questionnaire for the coaches were prepared by the investigators to assess the behavior of coaches, the preparation of their team and final expected results of their team by reviewing different literatures.

#### 2.4.1. Research instruments

The questionnaire was adopted from a well-known and standardized competitive anxiety test [5]. The CSAI-2R test was comprised of three categories of 17 items: cognitive anxiety 5 items, somatic anxiety 7 items and self-confidence 5 items.

The test was developed in English and translated to Amharic and later back translated to English by different individuals for its consistency and desired results. And the questionnaire was pre-tested during the friendly match the University of Gondar female volley ball before the actual data collection period. During data collection, the principal investigators checked the filled questionnaire after each completion and then at the end of each day for completeness.

#### 2.4.2. Validation procedure of the questionnaire

The validation procedure of the questionnaire was done in two stages. First, the investigators were done intensive discussion to give their verdict on the quality of the test item to measure the needed variables. Their evaluation testified that the quality

of these items to measure those variables was good. It was also done to match the 17 items of the anxiety test with each category and their relevant matching with the variables depicted similar categorization of the items done in France [15]. Pilot test was carried during a friendly match and the reliability of cognitive anxiety; somatic anxiety and self-confidence were 0.71, 0.73 and 0.74 respectively, which showed a very good measure of the reliability of the test.

### 2.5. Data analysis techniques

Data was entered, checked and cleaned by using Epi info version 7 statistical software. And then transferred to SPSS version 20 statistical software for analysis. Data were inserted to SPSS v20 for further analysis. Descriptive analysis was done to explain the demographic characteristic of the sample population and to assess the state of the volleyball players training preparation level for the tournament. So, to check its reproducibility, reliability test was used. Bivariate correlation was also used to see the relation between each of the independent variables (cognitive anxiety, somatic anxiety and self-confidence). Linear regression analysis was done to determine the association of each independent variable with the outcome variable (sport performance). A 95% confidence interval was calculated to determine the association between outcome variable and independent variables.

## 3. Results

### 3.1 Descriptive statistics

The total number of female volleyball players participated for the inter-college sport competition was 80 female volleyball players. Among them, 48 were selected for the research study. Of these players, 25.0%, 50.0%, 25.0% was first, second and third year college students respectively. About 25.0% third year college students had experience in inter-college tournaments but 75% had not. The majority of the players had experiences in other sport tournaments. Of these, 47.92% the players participated once, 6.25% twice and 4.17% more than three times in other tournaments whereas 41.67% didn't have any experience at all.

In relation to the duration of the training, 37.5% of them took the training for two months and 62.5% of them had three months training time. On the other hand, 37.5% had a training of three days per week for two months and 62.5% took a training of two days per week for three months. All teams had trained for two hours in each training sessions. Arguably, the preparation of each team's in terms of preparation durations seemed more or less the same. In this regard; the female volleyball players were asked if they felt the training was enough to compete in the tournament. Thus, 89.6% responded that the training was sufficient enough to equip them with the necessary psychological and physical preparation and 10.4% felt that the training was not enough to compete in the tournament.

Among the 48 respondent questioned, the mean age for the study sample (18.19 years

With SD of  $\pm 1.41$  years) is consistent with the largest age group of students currently enrolled in colleges in Ethiopia. The respondents were between 16 - 23 years. In terms of age category, 14 (29.2%) were less than 18 years old, 34 (70.8%) were 18 years and above (Table 1).

**Table 1:** Descriptive statistics for demographic variable (N = 48)

Variables	Categories	N (%)
Academic Year	First Year	12 ( 25.0% )
	Second Year	24( 50.0% )
	Third Year	12( 25. 0% )
Place where they came from	Rural Area	37 ( 77.08% )
	Urban Area	11 ( 22.91% )
Experiences in Inter-college Tournaments	Participated in inter-college Tournaments	12 ( 25.00% )
	Not participated in inter-college tournament	36 ( 75% )
Experiences in other Tournaments	Not at all	20 ( 41.67% )
	Once	23 ( 47.92% )
	Twice	3 ( 6.25% )
	More than Three Times	2 ( 4.17 % )
Training Duration	2 Months	18 (37.5%)
	3 Months	30(62.5%)
Training days per week	3 days for2 Months	18 ( 37.5% )
	2days for 3 Months	30 ( 62.5% )
Felt the Training to be sufficient	Yes	43 ( 89.6% )
	No	5 ( 10.4% )

The cognitive anxiety scales were composed of 5 items: item no. 2, 5, 8,11 and 14. The rating scale was categorized as not at all somewhat, moderately and very much. So as to compute cognitive anxiety scale, items were summed up and the mean and standard deviation were computed.

On the basis of computation, the result of the mean and standard deviation became 8.2 and 2.5 respectively. Thus the level of cognitive anxiety was categorized in to low, moderate and high. So those volleyball players who scored below 5 were leveled as possessing low anxiety level and between 6 – 11 were considered as having moderate anxiety level and above 12 were labeled at high anxiety level. Therefore, 31.3% of the sample was at moderate anxiety level while the remaining was at low cognitive anxiety level. On the other hand, for somatic anxiety the items used were 1, 4, 6, 9, 12, 15 and 17. Similar

rating scale was deployed for all items. The mean and SD for somatic anxiety were 10.25 and 3.2 respectively. The leveling given were low somatic anxiety, moderate somatic anxiety and high somatic anxiety for those who scored below 7, between 8 and 14 and above 15 respectively. To this end, 20.8% were low, 60.4% moderate and 18.8% high somatic anxiety level.

The other scale used was the self-confidence scale. This scale consisted of item 3, 7, 10, 13 and 16. The mean and SD were 13.9 and 3.66. Respondents, who scored above the mean, were categorized as having high confidence level and who scored below the mean were at low confidence level. The analysis of the data depicted that 41.7% of the respondents possessed high confidence level and the rest showed a low confidence level. (See Table 2)

**Table 2:** Frequency distribution of cognitive and somatic anxiety and self-confidence

Variables	Not At All	Some What	Moderately	Very Much
	N (%)	N (%)	N (%)	N (%)
<b>Cognitive Anxiety</b>				
2. I am concerned that I may not do as well in this competition as I could	28 ( 58.3% )	12(25.0%)	8 (16.7%)	-
5. I am concerned about losing	22 (45.8%)	18(37.5%)	8 (16.7%)	-
8. I am concerned about choking under pressure	26 (54.2%)	16(33.3%)	4 (8.3%)	2 (4.2%)
11. I am concerned about performing poorly	31 ( 64.6% )	11(22.9%)	6 (12.5%)	-
14. I am concerned that others will be disappointed with my performance	22 ( 45.8% )	13(27.1%)	13 (27.1%)	-
<b>Somatic Anxiety</b>				
I feel jittery	26 ( 54.2% )	17(35.4%)	5 (10.4%)	-
4. My body feels tense	35 ( 72.9% )	8 (13.7%)	4 (8.3%)	1 (2.1%)
6. I feel tense in my stomach	30( 62.5% )	18(37.7%)	-	-
9. My hear is racing	28 ( 58.3% )	12(25.0%)	7 (14.6%)	1 (2.1%)
12. I feel my stomach sinking	31( 64.6% )	10(20.8%)	7 (14.6%)	-
15. My hands are clammy	34 ( 70.8% )	10(20.8%)	3 (6.3%)	1 (2.1%)
17. My body feels tight	35 (72.9%)	6(12.5%)	7 (14.6%)	-
<b>Self- Confidence</b>				
3. I feel self- confident.	6 (12.5%)	13(27.1%)	11 (22.9%)	18 (37.5%)
7. I am confident I can meet the challenge.	6 ( 12.5% )	11(22.9%)	7 (14.6%)	24 (50.0%)
10. I am confident about performing well.	8 ( 16.7% )	14(29.2%)	9 (18.8%)	17 (35.5%)
13. I am confident because I mentally picture myself reaching my goal.	8 ( 16.7% )	15(32.3%)	6 (12.5%)	19 (39.6%)
16. I am confident of coning through under pressure.	14 ( 29.2% )	14(29.2%)	20 (41.7%)	-

Figure 1 shows the percentage of respondents in answering the cognitive anxiety scale, the somatic anxiety scale and the self-confidence scale of CSAI-2R test

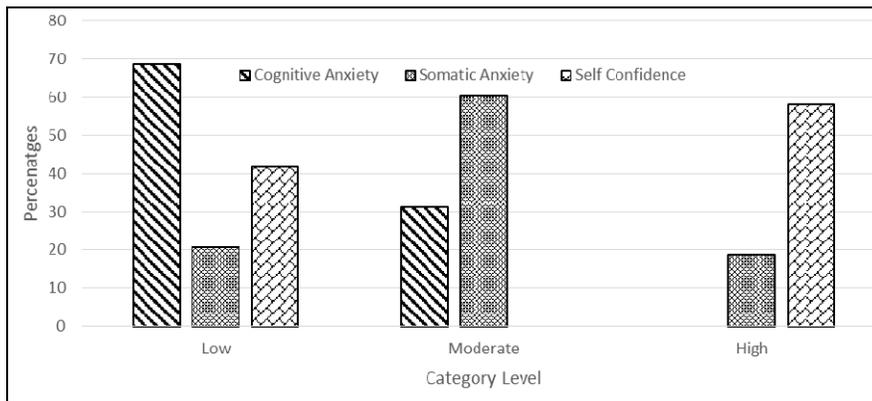


Fig 1: Percentages of cognitive and somatic anxiety and self-confidence with their respective categories.

**3.2 Testing of the measures and scales for reliability and validity**

Reliability tests were conducted using the Chronbach’s alpha coefficient ( $\alpha$ ) technique. This test serves to assess the reliability or the degree in which study measures are reproducible. A Chronbach’s alpha of 0.70 is considered acceptable in the scientific research (Martens *et al*, 1990) [5]. As can be seen in Table 3, the reliability of all measures and scales was about 0.70. In fact, Indicates that the construct reliability of these measures and scales was good.

The Chronbach’s  $\alpha$  for the Cognitive Anxiety was 0.646 for the 5 items of cognitive anxiety measure only. Chronbach’s  $\alpha$  for the Somatic Anxiety was 0.768, demonstrating very good reliability. The Self-Confidence measure estimate of reliability was 0.627. The results of reliability analysis mirror a previously computed estimate of [16].

**Table 3:** Reliability analyses for scales using Chronbach's alpha coefficient ( $\alpha$ )

Scale	N	Items on scale	Alpha Coefficient ( $\alpha$ )
Cognitive Anxiety	48	5	.646
Somatic Anxiety	48	7	.768
Self-Confidence	48	5	.627

**4.3 Sport performance of tournaments**

Pearson correlations were conducted to test for statistically significant relationships between the categorical variables of cognitive anxiety, somatic anxiety, self-confidence and sport performance of tournaments. Table 4 reports the correlation coefficient results and demonstrates statistically significant relationships between all of the variables. High sport performance on tournaments was correlated with moderate cognitive anxiety level, moderate somatic anxiety level and high self-confidence.

**Table 4:** Means, standard deviations, and inter-correlations for sport performance of tournament and predictor variables related to anxiety and self-confidence (N = 48)

Variable	M	SD	1	2	3
Sport Performance	.37	.489	.49**	0.51**	0.31*
Predictor Variable for Sport Performance					
1. Cognitive Anxiety	8.21	2.5		.35*	.17
2. Somatic Anxiety	10.25	3.2			-.086
3. Self-Confidence	13.89	3.66			

\* $p < .05$ ; \*\* $p < .01$

The means, standard deviations, and inter-correlations can be found in Table 4. This combination of variables significantly predicted the sport performance of the tournaments,  $F(3) = 21.771$ ,  $p < .001$ , with all three variables significantly contributing to the prediction. The beta weights suggest that those who had moderate somatic anxiety contributes most to predicting the sport performance of tournaments, and the self-confidence and cognitive anxiety also contributed to this prediction. The adjusted R squared value was .365. This indicates that 36.5% of the variance in sport performance was explained by the model. According to Cohen this is a large effect [17].

**4.4 Predictors of sport performance**

Finding from binary logistic regression analysis showed that cognitive anxiety, somatic anxiety and self-confidence showed

significant associations with the outcome of sport performance in a tournament. Accordingly, female volleyball players who had moderate cognitive anxiety had the likelihood of achieving high sport performance seven times compared to those who had low and high cognitive anxiety (Adjusted OR=7.52 with 95% CI: 1.18-47.62). Those who had moderate somatic anxiety had about 15 times of success in sport performance as compared to those who had low and high somatic anxiety (Adjusted OR=15.77 with 95% CI: 1.23- 202.35). Female volleyball player who had high confidence level in their ability and skills to demonstrate high sport performance had a better chance of doing so. In fact they are 3 times likely to perform better when compared with their counterparts (Adjusted OR=3.24 with 95% CI: 1.34-7.88). (See Table 5).

**Table 5:** Factors independently associated with the sport performance of female volley ball player among Amhara Inter-college participants

Variable	Sport Performance		Crude OR (95% CI)	Adjusted OR (95% CI)
	High	Low		
<b>Cognitive Anxiety</b>				
Moderate	16	17	6.89(1.34-35.71)	7.52(1.18- 47.62) <sup>b</sup>
Low and High	2	13		
<b>Somatic Anxiety</b>				
Moderate	7	1	16.33(1.81 -147.66)	15.77(1.23-202.35) <sup>b</sup>
Low and High	11	29		
<b>Self-Confidence</b>				
High	14	14	2.15(1.11- 4.16)	3.24(1.34-7.88) <sup>b</sup>
Low	4	16		

b -  $p < 0.05$  = statistically Significant

#### 4. Discussion

Effect of anxiety in sports performance has been examined by many investigators [18]. In general, anxiety is reported when athletes are not sure they can cope with situations eliciting stress [19] and may affect athletic performance in a variety of sports [20]. In addition, anxiety is often the interpretation of psychological arousal [21]. The sport performance found in this study depicted that players achieve high sport performance when their cognitive anxiety level was moderate. Studies carried out in New York reports that moderate level of anxiety leads to better sport performance whereas low and high anxiety levels results in poor sport performance [22]. Anxiety, as a negative emotional, affect perceptions in sport competitions, where a large majority of athletes consider anxiety to be debilitating towards performance, which may result in decreases in performance [23]. According to Hann "sports psychologist have long believed that high levels of anxiety during competition are harmful, worsening performance and even leading to dropout." [24].

Much emphasis is given to the implication of state anxiety or competitive anxiety to sport performance. Evidenced from other researchers indicated that fear of failure; loss of self-esteem, negative expectations and disrupted attentions characterizes the high level of cognitive anxiety, which leads poor performance in sport competitions. Hence, it is worth to have the attentions of players, coaches and sport administrative bodies. Coaches have a huge responsibility in alleviating these psychological symptoms and keep it moderate.

Many physiological reactions are visible when a player is at high level of somatic anxiety. To mention a few, rapid heartbeat, accelerated breathing, feeling of nervousness, sweaty palms, butterflies in the stomach and dry throat are observed by a player. Coaches need to pay attention to such physical signs to help the player manage them accordingly.

Results presented in this study showed that, the self-confidence of the players is a positive predictor of sport performance in a tournament. Players, who had high self-confidence in their ability and skills, were more likely to manifest their ability and skills at competitive games. This result is collaborated with the previous findings which indicated that self-confidence had enhanced positive influence on sport performance during higher and important competitions [25].

It is well known that self-confidence plays a paramount role in enabling the player to show her/his skills and ability at the peak level on different level of competitions. Having high self-confidence depicts possessing high level of self-esteem, which contributes to over-come the challenges that hamper the players during competitions. Players during competitions are expected to show high physical fitness, high skill performance, elevated intrinsic and extrinsic motivations. Such expectations

create stress that hinders the players' performance. It is the duty of coaches to find out a solution to tackle such problems.

The limitations of this study were first anxiety was assessed with questionnaire, without retrospective and experimental evaluation of relevant attributes, such as heart rate on Gymnasts [26]. Which makes the result of this study do not allow the generalization. Second, different variables which may have significant effect on performance were not included to this study.

#### 5. Conclusions

In competitive state anxiety measures, somatic anxiety was a much more powerful predictor of all two state anxiety measures than cognitive anxiety. Self-confidence was also a significant predictor of sport performances.

Cognitive anxiety was correlated significantly with sport performances. The players' moderate level of cognitive anxiety was correlated with successful sport performance while low and high level of cognitive anxiety was associated with unsuccessful sport performance. Somatic anxiety as also related significantly with sport performances. Here also moderate level went hand in hand with successful sport performance whereas low and high levels results in poor sport performances.

Self-confidence and sport performances were positively correlated to each other. It also showed that players with high confidence at their ability and skills were found to be successful in their sport performances and vice versa. Self-confidence empowered an individual player to play at his or her capacity and ability level.

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