

# An Examination of the Pre-competition and Post-competition State Anxiety Levels of Russian Women's National Volleyball Team Athletes

Mustafa Önder Şekeroğlu

Correspondence: Mustafa Önder Şekeroğlu, Muş Alparslan Üniversitesi, Muş, Turkey

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## Abstract

This study of 14 Russian women's national volleyball team athletes aimed to determine their pre-competition and post-competition state anxiety levels according to some variables. This descriptive study used the Competition State Anxiety Inventory-2 (CSAI-2) developed by Martens, Burton, Vealey, Bump and Smith (1990). This inventory has 9 items in 3 sub-factors: cognitive anxiety, somatic anxiety and self-confidence.

A comparison of the pre-competition and post-competition anxiety levels found no statistically significant differences in cognitive anxiety ( $p>0.05$ ), somatic anxiety ( $p>0.05$ ) and self-confidence ( $p>0.05$ ). The highest pre-competition somatic anxiety score fell after the competition, while cognitive anxiety and self-confidence increased after the competition when it was low. There were no statistically significant differences in the athletes' pre-competition and post-competition anxiety levels by age or income. Considering that success does not occur without a certain level of anxiety, coaches should consider the impact of psychological factors in technical and tactical training.

**Keywords:** volleyball, pre-competition, state anxiety, national team, post-competition, female athlete

## 1. Introduction

The role of sports in the advertisement of developed and developing countries, its contribution to the economy, as well as the effects of all kinds of sportive, environmental and social preparation and improvement works done by big sports organizations are undisputed. Due to the importance attached to sports and athletes, research on the factors that affect the performance of athletes has also increased considerably in recent years.

Sport is not just a physical activity. Sport is a complex phenomenon that leads individuals to spiritual, mental and physical integrity. Therefore, the performance of athletes is not only affected by physical factors, but psychological factors also play a decisive role in their performance. The most frequently examined psychological factor in sports psychology is pre- and post-competition state anxiety. Anxiety affects the performance of athletes before, during and after the competition.

Anxiety is a universal emotion that everyone can experience as a symptom and syndrome. Anxiety has numerous definitions in the literature and is mainly described as a disturbing feeling of insecurity. Emotional responses such as tension, fear, nervousness, negative thoughts and a combination of physiological changes are defined as anxiety. Anxiety is an emotional reaction that occurs in a variety of situations (Öner and Compte, 1983; Spielberger, 1989; Miguel-Tobal and González Ordi, 2005). Anxiety depends on personal differences and does not originate from a single cause. Genetic predisposition (Cüceloğlu, 1999), social, psychological and economic factors can increase state anxiety (Atkinson et al., 1995). Anxiety disorders cause behavior changes due to extreme fear and anxiety, negatively affecting people's lives (Maina et al., 2016).

The types of anxiety examined in sports psychology are state and trait anxiety. Trait anxiety is a continuous personality trait formed by an individual's disposition to anxiety, which develops independently of the environment, affects behaviors and influences one's entire life. State anxiety is a temporary emotional condition characterized by subjective tension, anxiety and stimulation of the autonomic nervous system at a particular time. It is usually caused by environmental stress factors and arises when dealing with dangerous or threatening situations (Spielberger et al., 1970; Spielberger, 1972; Öner and Le Compte, 1983).

State anxiety has three important dimensions. Somatic state anxiety refers to the physiological aspects of anxiety. Cognitive state anxiety is fear and anxiety due to negative self-assessment. Self-confidence depends on varying cognitive and physical anxiety (Martens, Vealey and Burton, 1990).

The type of anxiety experienced by athletes before, during and after the competition is state anxiety. State anxiety is important for understanding athletes (İkizler, 1993). Pre-competition anxiety is more severe than competition and post-competition anxiety (Huband and McKelvie, 1986).

Researches have shown that severe competition anxiety negatively affects performance and success in sports (Weinberg and Genuchi, 1980; Taylor, 1987; Bedir, 2011; Koç 2013). Anxiety causes physical, somatic and mental symptoms (Horris, 1984), which manifest themselves as reduced adaptation and decision-making abilities, and lack of attention and concentration. Severe anxiety affects athletes' motivation by diminishing their conditioning and balance. Anxiety negatively affects athletes' strength, speed, endurance, flexibility, technique and tactics (Koptagel, 1984). Severe anxiety often occurs when athletes approach the upper limits of their performance capacity (Başer, 1998). Athletes' anxiety levels are high before competition, and many athletes feel stomach pain, have negative thoughts and exhibit nervous behaviors and attitudes (Erbaş, 2000).

Anxiety and stress clearly affect athletes in important competitions. For example, in volleyball, missed passes, timing errors and coordination failures are more common when athletes feel anxiety. Therefore, many teams and athletes want to learn how to prepare themselves psychologically to improve their performance (Jones, 1991; Konter, 1996).

The determination of pre-competition and post-competition anxiety levels of athletes in international competitions is important in terms of success and performance. This study was planned and conducted to examine the pre- and post-competition anxiety levels of Russian women's national volleyball team athletes.

## 2. Method

### Research Model

This descriptive study of the pre-competition and post-competition state anxiety levels of Russian women's national volleyball team athletes used a general survey model.

### Population and Sample

The sample included 14 athletes on the Russian women's national volleyball team who participated in the 2016 Rio Olympic Games European Continental Qualification on January 4-9, 2016. The necessary permissions were obtained from the technical team of the Russian women's national volleyball team to administer the scale. The athletes who participated in the study voluntarily were informed about the scale, and a questionnaire was administered before and after the competition.

### Data Collection Tools

This study used the Competition State Anxiety Inventory-2 (CSAI-2) developed by Martens, Burton, Vealey, Bump and Smith (1990). It includes 27 questions in the cognitive, somatic and self-confidence sub-factors. There are 9 items in each sub-factor (Martens, et al., 1990). The questionnaire which was administered to the participants had two parts. The first part included personal information form about the socio-economic and demographic characteristics of athletes, and the second part was the CSAI-2.

Table 1. Cronbach's alpha coefficients for anxiety levels

	Cronbach's Alpha
Cognitive Anxiety	0.695
Somatic Anxiety	0.725
Self-Confidence	0.678

The Cronbach's alpha internal consistency coefficients were 0.695 for cognitive anxiety, 0.725 for somatic anxiety and 0.678 for self-confidence.

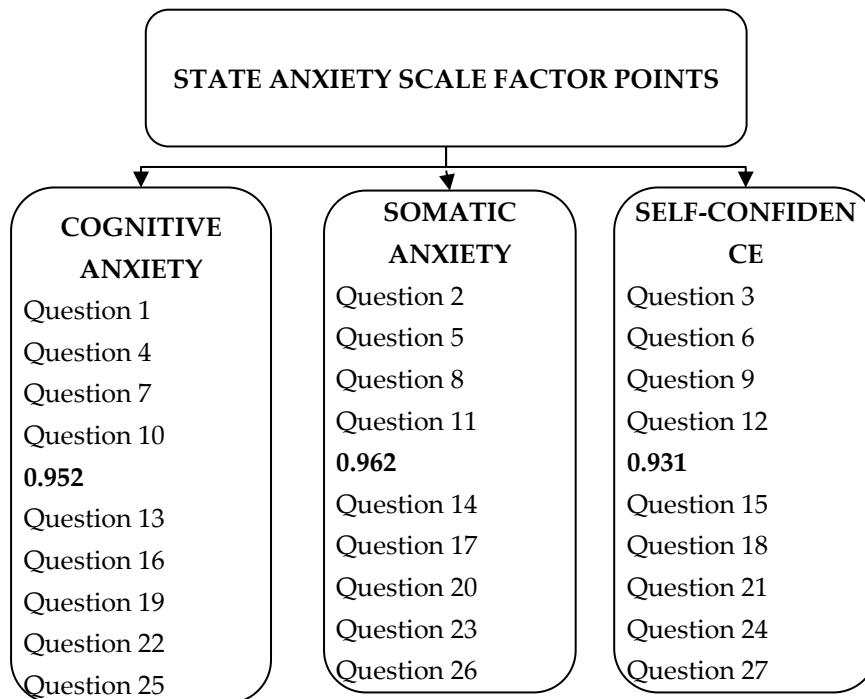


Figure 1. Sub-factor analyses of the state anxiety scale

### Data Analysis

SPSS 20 was used to evaluate the data. Since the number of the subjects was less than 30, all the tests performed were non-parametric. Frequencies and percentages were used to determine socio-demographic characteristics. The Wilcoxon signed ranks test was used to compare the pre- and post-competition anxiety levels of the athletes. The Kruskal-Wallis test was used to determine their pre-competition and post-competition state anxiety levels by age.

### 3. Findings

The results obtained by analyzing the data are presented as graphs and tables.

Table 2. The participants' socio-economic, demographic and descriptive characteristics

Socio-economic, demographic and descriptive variables		F	%
Age	21-24	5	35.7
	25-28	7	50.0
	30-34	0	0
	Over 34	2	14.3
	Total	14	100.0
Marital status	Single	14	100.0
	Married	0	0
	Total	14	100.0
Education level	High school	0	0
	Undergraduate	14	100.0
	Graduate	0	0
	Total	14	100.0
Level of income	Middle-upper level	2	14.3
	Upper level	12	85.7
	Total	14	100.0
Sport starting age	Between 4 and 6	14	100.0
	Between 7 and 9	0	0
	Between 10 and 12	0	0
	Between 13 and 15	0	0
	Total	14	100.0
Years of volleyball experience	Between 1 and 3	0	0
	Between 4 and 6	0	0
	Between 7 and 9	0	0
	Between 9 and 11	0	0
	Above 12	14	100.0
	Total	14	100.0

All the athletes included in the research were single, had bachelor's degrees and started playing volleyball between 4 and 6 years of age. They all had 12 or more years of experience playing volleyball. Of the athletes, 35.7% were between 21 and 24 years old, 50% were between 25 and 29, and 14.3% were 34 or older. Of them, 14.3% had middle-upper level incomes, and 85.7% had upper level incomes.

Table 3. The participants' pre-competition and post-competition state anxiety levels by age

Pre-Competition State Anxiety	N	Mean	SD	$\chi^2$	p	Post-Competition State Anxiety	N	Mean	SD	$\chi^2$	p
21-24	5	9.00	2	1.50	.47	21-24	5	8.70	2	1.14	.56
25-29	7	6.43				25-29	7	6.36			
30-34	2	7.50				30-34	2	8.50			

Table 3 shows that there were no statistically significant differences in the pre-competition and post-competition state anxiety levels of Russian national women's volleyball team athletes by age ( $p > 0.05$ ). The mean pre-competition anxiety levels of the athletes between 21 and 24, and 25 and 29 were higher than their mean post-competition anxiety levels. The 30-34 age group had higher mean post-competition anxiety levels.

Table 4. The participants' pre-competition and post-competition state anxiety levels by income

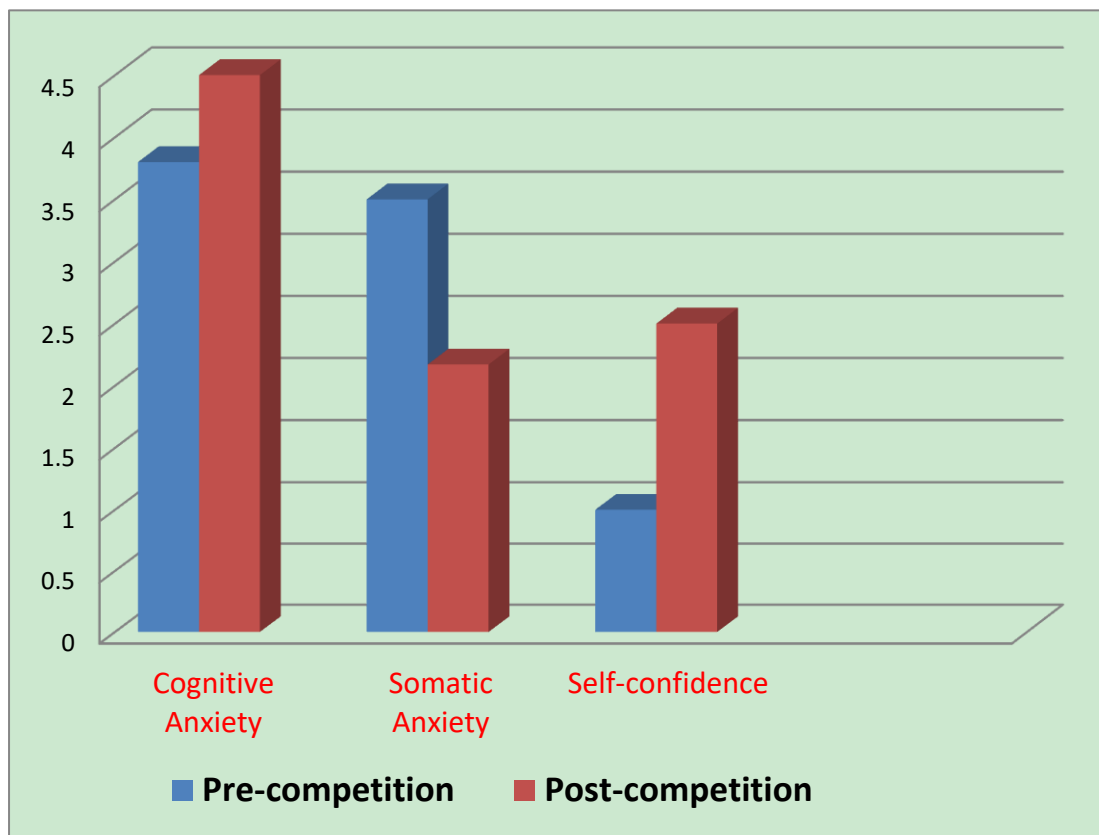
Pre-Competition State Anxiety	N	Mean	SD	$\chi^2$	p	Post-Competition State Anxiety	N	Mean	SD	$\chi^2$	p
Middle-upper level income	2	7.50	1	.00	1.00	Middle-upper level income	2	8.50	1	.145	.70
Upper level income	12	7.50				Upper level income	12	7.33			

Table 4 shows that there were no statistically significant differences in the Russian women's national volleyball team members' pre-competition and post-competition state anxiety levels by income ( $p > 0.05$ ). The post-competition anxiety level scores of those with middle-upper level incomes were higher than their pre-competition levels, while the post-competition anxiety scores of those with upper level incomes were lower than their pre-competition levels.

Table 5. The pre-competition and post-competition anxiety levels of the participants

	Group	Mean	Z	P
CognitiAnxiety	Pre-competition	3.80	-0.85 0	.40
	Post-competition	4.50		
Somatic Anxiety	Pre-competition	3.50	-0.55 7	.58
	Post-competition	2.17		
Self-confidence	Pre-competition	1.00	-1.08 9	.28
	Post-competition	2.50		

No statistically significant differences at the  $p < 0.05$  level were found for cognitive anxiety, somatic anxiety and self-confidence.



Graphic 1. The participants' pre-competition and post-competition mean state anxiety levels

Graph 1 shows that the athletes' somatic anxiety score was higher before the competition and lower afterwards, while the cognitive anxiety and self-confidence scores increased after the competition.

## 5. Discussion and Conclusion

Athletes can be under high levels of stress due to the influence of various factors in competitions and may experience the symptoms of anxiety. This phenomenon can affect athletes physically and mentally, and may reduce their performance and success. Athletes generally experience high levels of anxiety in international competitions.

In this study, although there were numerical differences between the athletes' pre-competition and post-competition state anxiety scores by age, the differences were not statistically significant. Bingöl et al. (2012) examined the anxiety levels of Turkish national taekwondo athletes and found no significant differences by age. Ak (2015) also found no significant relationship between the age variable and state anxiety level. Other studies related to the topic (Erbaş, 2000; Yücel, 2003; Civan, 2010), like this study, found no significant relationship between the ages of the athletes and their anxiety levels. Athletes experience anxiety at any age. What is important is to motivate athletes to overcome stress and anxiety and to provide psychological support.

There were no statistically significant differences in the state anxiety levels of the athletes by income. This may be due to the fact that the athletes are high level and do not experience economic distress. However, the scores of the post-competition anxiety levels of those with middle-upper level incomes were higher than their pre-competition levels. The athletes with upper level incomes had lower post-competition anxiety level scores than their pre-competition scores. It has been reported that anxiety levels are affected by income levels (Ak, 2015).

No statistically significant differences were found in the cognitive anxiety, somatic anxiety and self-confidence of the athletes. This may be because all the athletes started playing volleyball between 4 and 6 years of age and had at least 12 years of experience. Kağan (2005) found no significant differences between the pre-competition and post-competition state anxiety levels of athletes. Like this study, Erbaş and Küçük (2012) found no significant differences in the state anxiety levels of high-level basketball players.

The high pre-competition somatic anxiety score of the Russian women's national volleyball team athletes fell after the competition. Their low pre-competition cognitive anxiety and self-confidence scores increased after the competition. Like this study, Kuruç et al. (2004) found that somatic anxiety decreased after the competition, but self-confidence increased.

The results of this study will be useful for other researchers. Considering that success does not occur without a certain level of anxiety, coaches should consider the impact of psychological factors in technical and tactical training. National team and sports club managers should follow studies of competition concerns, and athletes should receive psychological support from experts as it can reduce anxiety.

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