

THE INVESTIGATION OF ANXIETIES AND BRIEF SYMPTOM INVENTORY LEVELS OF FEMALE VOLLEYBALL PLAYERS

POLAT Metin¹, ÇOKSEVİM Bekir¹, GÜNAY Erkan¹, PEPE Osman¹

¹ Erciyes University Physical Education and Athletics Collage, Kayseri/TÜRKIYE

ABSTRACT

The Purpose: The aim of this study was to investigate the pre and post game state and trait anxiety levels and psychological symptoms of female volleyball players.

Methods and procedures: This study was carried out with 20 female volleyball players who participated in the games of Turkey Universities Volleyball Championships which was jointly organized in Kayseri by Turkey University Sports Federation and Erciyes University. Voluntary players completed a 20-item state and trait anxiety and a 53-item Brief Symptom Inventory before and after the game. Statistical analysis was carried out after the results of the questionnaire were evaluated, using Wilcoxon Rank Test which is a nonparametric test used to determine the significance of the difference between dependent groups. The significance level was determined as $p < 0,05$

Results: No statistically significant difference was found between the pre and post game state and trait anxiety scores ($p > 0,05$). Pre-game hostility, paranoid ideation and the index of additional items were found significantly high when the results of brief symptom inventory were compared ($p < 0,05$). Furthermore, levels of pre-game somatization, obsessive-compulsive disorder, depression and anxiety disorder were observed to be higher than those of the post game's. There was a significant difference between the pre and post game index of the positive symptom total when global indices were compared ($p < 0,05$). Although no statistical difference was observed in the levels of the general severity index and the positive symptom distress index, the pre-game results were found to be higher than the post-game results ($p > 0,05$).

Conclusions: In conclusion, the game stress had an effect on high level of trait and state anxiety scores of female volleyball players who participated in our study. In addition, the game stress has caused significantly higher hostility, paranoid thoughts and positive symptom total levels. Although no significant differences were found, somatization, obsessive-compulsive disorder, general severity index and positive symptom distress index levels, it was thought that these psychological symptoms were also affected by the game stress.

Key words: Brief Symptom Inventory, Volleyball, Female Player, Anxiety

INTRODUCTION

It has been recognized for many years that psychological factors, in particular anxiety, play an important role in competition (C.A. Lizuka, et al 2005)

In sport psychology, anxiety refers to an unpleasant emotion which is characterized by vague but persistent feelings of apprehension and dread (E. Cashmore, 2002). A similar view of this construct was provided by J. Buckworth and R.K. Dishman (2002) who defined anxiety as a state of worry, apprehension, or tension that often occurs in the absence of real or obvious danger.

One approach is that increases in competition anxiety, and particularly cognitive symptoms, always have a detrimental effect on performance. Another approach have suggested that the relationship with performance should be determined at a more individual level and that athletes possess optimal levels or zones of anxiety within which their performance will be

maximized. A third perspective is based on the principle that high levels of anxiety may be interpreted in a positive way and actually benefit sport performance (B.W. Brever, 2009).

The anxiety distinction has been drawn by psychologists between state anxiety and trait anxiety. According to C.S. Spielberger (1966), state anxiety may be defined as subjective, consciously perceived feelings of tension and apprehension whereas trait anxiety refers to a general disposition among people to feel anxious in certain environmental situations. Applied to sport, the concept of state anxiety may be used to describe situations in which an athlete's feelings of tension may change during a match. On the other hand, a player who scores highly on trait anxiety may feel pessimistic most of the time. Athletes who display a high degree of trait anxiety are more likely to interpret sport situations as threatening than are less anxious counterparts (A.P. Moran, 2004).

In addition, competition stress may cause different psychological symptoms on the athletes. This is the important factor of identification these symptoms for improve the athletic performance and cope with stress of athletes.

Although the studies in the literature on anxiety levels of athletes found to be common, the effects of competition stress on psychological symptoms are restricted.

The aim of this study was to investigate the pre and post game state and trait anxiety levels and psychological symptoms of female volleyball players.

METHODS

This study was carried out with 20 female volleyball players who participated in the games of Turkey Universities Volleyball Championships which was jointly organized in Kayseri by Turkey University Sports Federation and Erciyes University. At first, the identity information of the volunteers who participated in the study were recorded. Afterwards, State Anxiety (SA), Trait Anxiety (TA) and Brief Symptom Inventory (BSI) questionnaires were delivered to answer pre-game at rest and post-game in a gym environment. Answered forms were received one day later.

State anxiety, trait anxiety and BSI results were evaluated with using special calculation methods.

State Anxiety:

Respondents rank each feeling item on a 4-point scale ranging from 1 (never) to 4 (always). Respondents answer to this interval for each question. In the questionnaire 1,2,5,8,10,11,15,16,19 and 20th items are reverse expressions. The others items are direct expressions. The points respondents give for each question are summed to find reverse and direct expressions. The total point of reverse expressions is subtracted from the total point of direct expressions. Finally, 50 point is added to the obtained score. This result is state anxiety score.

Trait Anxiety:

Respondents rank each feeling item on a 4-point scale ranging from 1 (almost never) to 4 (almost always). Respondents answer to this interval for each question. In the questionnaire 21,26, 27,30,33,36 and 39th items are reverse expressions. The others items are direct expressions. The points respondents give for each question are summed to find reverse and direct expressions. The total point of reverse expressions is subtracted from the total point of

direct expressions. Finally, 35 point is added to the obtained score. This result is trait anxiety score.

Brief Symptom Inventory:

The Brief Symptom Inventory (BSI) was used to identify of psychological symptoms. BSI consist of 53 items covering 9 symptom dimension: Somatization, Obsession-Compulsion, Interpersonal Sensitivity, Depression, Anxiety Disorder, Hostility, Phobic Anxiety, Paranoid Ideation, Psychoticism and three global indices of distress which Global Severity Index, Positive Symptom Distress Index and Positive Symptom Total. The global indices measure current or past level of symptomatology, intensity of symptoms and number of reported symptoms (L.R. Derogatis, 1999).

Respondents rank each feeling item on a 5-point scale ranging from 0 (not at all) to 4 (extremely). Rankings characterize the intensity of distress during the past seven days.

The items comprising each of the 9 primary symptom dimensions are as follows:

Somatization: Items 2,7,23,29,30,33 and 37

Obsessive-Compulsive Disorder: Items 5,15,26,27,32 and 36,

Interpersonal Sensitivity: Items 20,21,22 and 42

Depression: Items 9,16,17,18,35 and 50,

Anxiety Disorder: Items 1,12,19,38,45 and 49

Hostility: Items 6,13,40,41 and 46,

Phobic Anxiety: Items 8,28,31,43 and 47,

Paranoid Thoughts: Items 4,10,24,48 and 51,

Psychoticism: Items 3, 14, 34,44 and 53.

Dimension scores are calculated by summing the values for the items included in that dimension and dividing by the number of items endorsed in that dimension (L.R. Derogatis, 1999).

The GSI is calculated using the sums for the nine symptom dimensions plus the four additional items not included in any of the dimension scores, and dividing by the total number of items to which the individual responded. The PST is a count of all the items with non-zero responses and reveals the number of symptoms the respondent reports experiencing. The PSDI is the sum of the values of the items receiving non-zero responses divided by the PST (L.R. Derogatis, 1999).

Statistical analysis

Statistical analysis was carried out after the results of the questionnaire were evaluated, using Wilcoxon Rank Test which is a nonparametric test used to determine the significance of the difference between dependent groups. The significance level was determined as $p < 0,05$

Results

The pre and post game state and trait anxiety levels of female volleyball players who participated in our study are given Table 1. No

statistically significant difference was found between the pre and post game state and trait anxiety scores ($p > 0,05$).

| | n | Pre Game | | | Post Game | | | Z | p |
|---------------|----|---------------|-----|-----|---------------|-----|-----|-------|------|
| | | X ± SD | Min | Max | X ± SD | Min | Max | | |
| State Anxiety | 20 | 41,80 ± 11,91 | 26 | 65 | 42,45 ± 12,60 | 20 | 72 | -0,70 | 0,48 |
| Trait Anxiety | 20 | 40,10 ± 6,74 | 24 | 52 | 40,85 ± 8,95 | 21 | 64 | -0,06 | 0,95 |

Table 1. The comparison of state and trait anxiety levels pre and post game

Table 2. The comparison of global indices pre and post game

| | n | Pre Game | | | Post Game | | | Z | p |
|---------------------------------|----|---------------|------|------|---------------|------|------|-------|-------|
| | | X ± SD | Min | Max | X ± SD | Min | Max | | |
| General Severity Index | 20 | 0,73 ± 0,44 | 0,00 | 1,75 | 0,57 ± 0,55 | 0,00 | 2,56 | -1,85 | 0,06 |
| Positive Symptom Total | 20 | 25,95 ± 12,55 | 0 | 45 | 21,00 ± 13,90 | 0 | 51 | -2,04 | 0,04* |
| Positive Symptom Distress Index | 20 | 1,35 ± 0,43 | 0,00 | 2,21 | 1,25 ± 0,55 | 0,00 | 2,66 | -1,06 | 0,28 |

* $p < 0,05$

| | n | Pre Game | | | Post Game | | | Z | p |
|-------------------------------|----|-------------|-----|-----|-------------|-----|-----|-------|------|
| | | X ± SD | Min | Max | X ± SD | Min | Max | | |
| Somatization | 20 | 3,65 ± 3,31 | 0 | 14 | 2,95 ± 3,48 | 0 | 15 | -0,95 | 0,34 |
| Obsessive-Compulsive Disorder | 20 | 6,05 ± 3,37 | 0 | 12 | 4,65 ± 3,87 | 0 | 16 | -1,26 | 0,20 |

Table 3. The comparison of Brief Symptom Inventory sub-indices levels pre and post game

* $p < 0,05$

| | | | | | | | | | |
|----------------------------------|----|-------------|---|----|-------------|---|----|-------|-------|
| Interpersonal Sensitivity | 20 | 2,50 ± 1,82 | 0 | 7 | 2,45 ± 2,87 | 0 | 13 | -0,35 | 0,72 |
| Depression | 20 | 4,55 ± 3,42 | 0 | 12 | 3,85 ± 4,22 | 0 | 19 | -0,82 | 0,40 |
| Anxiety Disorder | 20 | 4,05 ± 3,42 | 0 | 13 | 3,30 ± 3,31 | 0 | 14 | -0,81 | 0,41 |
| Hostility | 20 | 5,05 ± 3,96 | 0 | 16 | 3,40 ± 4,01 | 0 | 18 | -1,99 | 0,04* |
| Phobic Anxiety | 20 | 2,05 ± 2,13 | 0 | 8 | 1,90 ± 2,53 | 0 | 10 | 0,00 | 1,00 |
| Paranoid Thoughts | 20 | 4,60 ± 3,21 | 0 | 10 | 3,10 ± 3,47 | 0 | 14 | -2,16 | 0,03* |
| Psychoticism | 20 | 3,20 ± 2,48 | 0 | 8 | 3,10 ± 2,67 | 0 | 10 | -0,19 | 0,84 |
| Additional Items | 20 | 3,30 ± 2,51 | 0 | 8 | 2,05 ± 2,25 | 0 | 8 | -2,00 | 0,04* |

The pre and post game global indices values of female volleyball players who participated in our study are given Table 2. There was a significant difference between the pre and post game index of the positive symptom total (PST) score ($p < 0.05$). Although no statistical difference was observed in the levels of the general severity index (GSI) and the positive symptom distress. Although no statistically significant difference was found, levels of pre-game somatization, obsessive-compulsive disorder, depression and anxiety disorder were observed to be higher than those of the post game. No statistically significant difference was found between pre and post game interpersonal sensitivity, phobic anxiety and psychoticism scores ($p > 0.05$).

Discussion

Competitive sport can make even the world's most successful athlete feel nervous. Many factors such as expectations, perfectionism, fear of failure, lack of confidence, induce feelings of anxiety in athletes (A.P. Moran, 2004).

The anxiety distinction has been drawn by psychologists between state anxiety and trait anxiety. Trait anxiety is a relatively fixed behavioral disposition. Some athletes are disposed toward some anxiety regardless of the quality or level of the challenge, many athletes confess to vomiting and other nauseous manifestations before a competition. These individuals tendency is to appraise situations as threatening. State anxiety is a less permanent condition and affects competitors intermittently, depending on their perception of the particular situation. It may subside, or increase, during the actual competition, or after exercise (E. Cashmore, 2008).

The range of 36-41 points state and trait anxiety levels were classified as high-level by N. Oner and A. Le Compte (1985). In this study, pre-game state (41.80 ± 11.91) and trait anxiety (40.10 ± 6.74) levels were found to be high. When the related literature examined, the similar studies were found parallel with our results for high level of pre-game trait and state anxiety (M.W. Passer 1983, T.K. Scanlan and R.

index (PSDI), the pre-game results were found to be higher than the post-game results.

The pre and post game brief symptom inventory sub-indices values of female volleyball players who participated in our study are given table 3. Pre-game hostility, paranoid thoughts and the index of additional items were found to be significantly high ($p < 0.05$). Lewthwaite 1986, R.J. Brustad 1988, J.S. Raglin and M.J. Morris 1994).

It is widely believed that anxiety produces inefficient muscular movements in athletes. On the other hand, anxiety can induce physiological arousal and stimuli sympathetic nervous system especially to successful competitors. When we become aroused, our brain's reticular activating system triggers the release of biochemical substances like epinephrine and norepinephrine into the bloodstream so that our body is energized appropriately for action (A.P. Moran, 2004). The athletes who over come their anxiety and keep their optimal level can change this situation from disadvantage to advantage by increasing their athletic performance. In this study, the athletes who participated in our study had high level of pre-game state and trait anxiety scores. In addition, the athletes lost the match which we observed for our study. We think that the reason for losing the match was that the athletes couldn't keep an optimal level of their anxiety and their athletic performance has been affected by this situation.

Many sport psychologists believe that athletes' levels of trait anxiety are important determinants of the amount of state anxiety which they are likely to experience in a given situation (A.P. Moran, 2004). The athletes who have high competitive anxiety perceive higher threat level in the competition (R. Martens, 1990). If the trait anxiety score increases, state anxiety score increases as well (B. S. Hale, at al 2002). In our study, it has been observed that high levels of state anxiety scores can be connected to high levels of trait anxiety scores.

Being unsuccessful in sport activities may result in higher state anxiety levels. Noyes observed that when the performance in athletes was poor,

the anxiety levels of athletes were increased (M.H. Basaran, 2009). We think that the reason for no decrease in state anxiety level after the game may be due to losing the game and, therefore, the responsibility they feel towards each other.

In this study, pre-game Positive Symptom Total (PST) level was found to be significantly higher than the post-game level. In addition, although no statistical difference was observed in the levels of the General Severity Index (GSI) and the Positive Symptom Distress Index (PSDI), the pre-game results were found to be higher than the post-game results. PST values were reported to be statistically significant in the results of the study with kick boxers and mountaineers, which is also parallel with our results (B. Coksevim, et al 2006, M.M. Mazicioglu, et al 2000).

The function of each of these global measures is to communicate in a single score the level or depth of symptomatic distress currently experienced by the individual. The GSI is the single best indicator of current distress levels and should be utilized in most instances where a single summary measure is required. The GSI combines information on the numbers of symptoms and the intensity of perceived distress. The PSDI is a pure intensity measure in a sense corrected for the numbers of symptoms. It functions very much as a measure of response style, communication whether the patient is augmenting or attenuating distress in his/her manner of reporting. The PST is simply a count of the symptoms which the patient reports experiencing to any degree. The PSDI and the PST are used in conjunction with the GSI to gain a more meaningful understanding of the clinical picture (L.R. Derogatis, N. Melisaratos, 1983).

We think that the significant PST value and the high levels of GSI and PSDI values which are not however statistically different show that female volleyball players are affected by game stress and exposure some psychological symptoms. These psychological symptoms are discussed below using investigate sub-indices of BSI.

In our study, pre-game Hostility, Paranoid Thoughts and Additional Items values were found to be significantly higher than post-game. Due to the limited number of relevant studies, an effective discussion can not be held.

Hostility is consist of some symptoms like nervousness and wobbliness, blaming others for current predicaments, getting angry, short temper, distrust, beating someone (B. Alver, 2009), frequent arguments and uncontrollable outbursts of temper (L.R. Derogatis, N.

Melisaratos, 1983). The game stress had an impact on these psychological symptoms of female volleyball players who participated in our study. Because of the efforts to overcome the anxiety, hostility may come to the fore (M.M. Mazicioglu, et al 2000). We think that the reason of high level pre-game hostility derive from high levels of state and trait anxiety scores of athletes. Paranoid thoughts are conceived as a mode of thinking. The primary characteristics of paranoid thought are projection, hostility, suspiciousness, centrality, fear of loss of autonomy (L.R. Derogatis, N. Melisaratos, 1983), skepticism, jealousy and blaming on other excessively (B. Alver, 2009). It is seen that the game stress had an impact on these psychological symptoms of female volleyball players who participated in our study. We think that the reason for high level of pre-game paranoid thoughts is high levels of state and trait anxiety scores of athletes.

In this study, although no statistical difference was observed, pre-game levels of somatization, obsessive-compulsive disorder, depression and anxiety disorder are higher than the values of post-game. Somatization reflects psychological distress arising from perception of bodily dysfunction. Complaints typically focus on cardiovascular, gastrointestinal, respiratory system (L.R. Derogatis, N. Melisaratos, 1983), loss of memory, chest pain, agoraphobia, poor appetite, feeling uncomfortably warm or cold, body's going numb and tingling (B. Alver, 2009). Even though no statistical difference was found between the pre and post game somatization score, the game stress had an effect on these somatic symptoms of female volleyball players who participated in our study. We think that their athletic performance has been affected by this situation. Obsessive-compulsive disorder is consist of some symptoms like involuntary, disturbing, unfamiliar to self, repeated thought that cannot get out of mind with conscious endeavors (obsession) to neutralize obsessive thoughts (compulsion) (B. Alver, 2009). In addition, difficulty in making decisions and trouble concentrating (L.R. Derogatis, N. Melisaratos, 1983). These psychological symptoms of female volleyball players who participated in our study may be affected by the game stress.

Depression is consist of some behaviors and symptoms such as grief, pessimism, misery, annoyance, reluctance, desperation, loneliness, negative feelings pertaining self, lack of concern instability. There are fatigue, lassitude, tiredness, as well as physical, biological and psychological complaints in case of depression (B. Alver,

2009). Although no statistical difference was found between the pre and post game depression score, the game stress had an effect on these depressive symptoms of female volleyball players who participated in our study. We think that these symptoms may be affected by high level of pre-game trait and state anxiety scores. Anxiety disorder is a disturbing feeling emerges when a strong desire or motive is likely not to be achieved. It consist of fear, anxiousness, strain, nervousness, shaking, getting into panic, urination disorders, feeling of asphyxiation, sweating, breathing excessively (B. Alver, 2009). We think that these psychological symptoms of female volleyball players who participated in our study may be affected by the game stress. Hence, we think that their athletic performance has been affected by this situation during the game.

In addition, no significant difference was observed in the interpersonal sensitivity, phobic anxiety and psychoticism. This situation shows that game stress is not effective on these symptoms of female volleyball players who participated in our study.

In conclusion, the game stress had an effect on high level of trait and state anxiety scores of female volleyball players who participated in our study. In addition, the game stress has caused significantly higher hostility, paranoid thoughts and positive symptom total levels. Although no significant differences were found, somatization, obsessive-compulsive disorder, general severity index and positive symptom distress index levels, it was thought that these psychological symptoms were also affected by the game stress.

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