The comparison of Trait anxiety, State anxiety, and Self-confidence among Male Athletes of Team sports and Individual sports in the Country

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The present study is devoted to the Comparison of the Trait anxiety, State anxiety and Self-confidence in three Team sports (Volleyball, Basketball and Handball) and three Individual sports (Track and field, Wrestling and Badminton). Subjects were consisted 90 male athletes for each major and Totally 540 people were selected randomly from 12 Provinces. For collection data used Sport competition anxiety test (SCAT) = $\alpha$ 0/825) and Competitive state anxiety inventory (CSAI-2) = $\alpha$ 0/839). Data analyzed by t test and Pearson's correlation coefficient. Results showed that what athletes of individual sports in the comparison with athletes of group sports had greater Trait anxiety but less self – confidence. Correlation between components somatic and cognitive of state anxiety similarly, between somatic component of state anxiety and trait anxiety, and somatic component and trait anxiety at were average and positive, but between cognitive component of state anxiety and self-confidence at, was poor and negative. Likewise, correlation between somatic components of state anxiety and self-confidence at, was poor and negative.

**Keywords:** Trait anxiety, State anxiety, Team sports and Individual sports and Self-confidence

1. Introduction

While spectators of sport games observe competency and proficiency of prominent athletes, researchers of sport psychology study fundamental reasons and factors that are effective on their quality of performance. They investigate issues related to personality characteristics, psychic attitudes and psychic profile of athletes to perceive psychical differences among the best and less successful athletes and non-athletes (Anshel, 2002).

Athletes that are active at high levels have an insignificant difference in terms of proficiency and probably the most important factor in specifying the winner from the looser is the ability to encounter with psychic pressure (Martens, 2008). Anxiety and self-confidence are important factors that create psychic energy and psychic pressure. Anxiety is the negative excited state accompanied by feelings of

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nervousness, discomfort and uneasiness that are along with somatic activity or motivation as well (Abdoli, 2008). Anxiety in sport reflects feelings of the athlete based on the fact that a mistake may be made and as a result performance will be leaded to defeat. Anxiety has unfavorable impacts on sport performance from two ways: A) it causes unnecessary contraction in muscles. When someone's name is called to go to the scene and get the prize walking that is the most natural activity of the human being will become difficult for him if he is affected with anxiety. It's because many muscles are contracted which prevent fluid and comfortable walking. The same event may happen in foot race for the runner. B) Generally when we are involved in anxiety all mental activities are affected with slowness and imprecision. The individual's attention usually becomes restricted and narrowed at the time of high anxiety and the athlete is not able to consider the whole playground (Jarvis, 2002).

2. Literature Review

Primary studies about anxiety were based on this pre-supposition that anxiety is one-dimensional (Conerly, 2006). For example Saimon (1971) found out that competitive anxiety is higher for young participants in individual sports than team sports and in contact individual sports than in-contact individual sports (Hedges, 2008). Also some believe that being worry about not performing well, lack of progress in the last fulfillment, the trainer's thought about the player, loosing because of playing bad and physical state are five effective factors on creating psychic pressure among the university wrestlers (Gould and Weinberg, 1985). Some have believed that assessment of parents, friends and others are among the main factors of concern especially among young skiers that is resulted in state anxiety (Bray et al, 2000).

Whenever we have the feeling of anxiety it is the result of personality psychology structure and characteristics of the situation in which we are. Thus when we want to see why someone is disturbed it is necessary to consider both the individual and environmental factors. Spielberger (1966) was the first person who divided anxiety into two dimensions of trait anxiety and state anxiety. State anxiety is applied to temporary excitement that are accompanied by anxiety and tension and trait anxiety is a relative stable and acquisitive behavioral attitude that is often described as a personality characteristic. This kind of anxiety causes the person to perceive a wide range of safe conditions as threatening or dangerous. State anxiety and trait anxiety are divided into two cognitive and somatic branches. Martens, Vealey and Burton (1990) believe that cognitive component of state anxiety is the mental section of anxiety and is created by negative assessment and expectations of fulfillment, while somatic component of state anxiety is the physiological and sentimental element of anxiety and is related to individuals' feelings from their physiological state in response to psychic pressure that they experience (Roberts et al, 2004).

Davidson and Schwartz (1976) suggested multi-dimensional anxiety theory and sports fulfillment in the way that cognitive and somatic components of state anxiety affect performance through various mechanisms. This theory predicts that cognitive component has negative linear relation with fulfillment because it deals with results of defeat and somatic component has reverse U relation with fulfillment. Also it states that athletes have the best fulfillment at moderate levels in terms of somatic component, since somatic component is a conditional response to the contest
environment (Hardy et al, 2006). In this regard Martens (1977) has created sport competition anxiety test (SCAT) that is used specifically to measure competitive trait anxiety. Then he and his colleagues represent competitive state anxiety inventory (CSAI-2) that is applied to measure somatic and cognitive elements of state anxiety and state self-confidence (Roberts et al, 2004; 117). Lundquist and Hassmen (2005) performed a study on the Swedish version of this test on twenty six (26) sport majors and concluded that only seventeen (17) items of the original version were comparable with the Swedish version. Gould et al (1983) mentioned years of experience as the best prediction for cognitive component and trait anxiety for the somatic component among wrestlers. Elgin (2000) concludes that somatic state anxiety of basketball players is not affected by education and its level before the contest and competitive state anxiety exists in all individuals. Also Sealey and Wagner (2002) have found out that there is no considerable difference among various levels of anxiety and kind of gender before and during the contest among the volleyball players. But Strachan and Munroe-chandler (2006) concluded that using imagery could create significant differences at self-confidence level and diverse levels of anxiety. Passand (1997) compared degree of state anxiety of individual and team majors of women participating in the First Sports Olympiad of students of the country and perceived that there was no significant difference between state anxiety of individual and team majors. Mohsenpour (2003) studied state anxiety among men athletes of individual and team sports in championship contests of institutions in Khuseztan province and concluded that there was no significant difference between somatic factor of group and individual examinable items but athletes of group majors obtained lower cognitive grades than individual athletes. 

Self-confidence is another important psychic index in sports. It is accumulation of unique experiences of athletes to reach to different things as a result of which special expectations are felt in order to gain success about future activities (Martens, 2008). Self-confidence definitions have been classified into four categories by studying various articles among which we can refer to self-efficacy theory of Bandura (1977) and sports confidence of Vealey (1986) (Hardy, Jones and Gould, 2006). In self-efficacy theory Bandura (1977) believes that behavioral, cognitive and physiological factors and environmental impacts act like determinants that have interaction with each other. Self-efficacy of self-confidence is applied to the player's perception from his ability to be successful in a special activity and at a special time. He believed that self-efficacy could be evaluated with three dimensions: "level" i.e. reaching to the expected fulfillment; "power" that reflects the confidence due to which it is expected that the individual gains success and "generalization" that is applied to number of scopes that the individual considers himself to be efficient. Self-efficacy of self-confidence is predicted by four factors of success in fulfillment, field experience, verbal encouragement and exciting motivation. Success in fulfillment has the most impact on self-efficacy because it is based on individual experiences; so the more positive the experiences, the higher the self-efficacy. However, relationship power is governed by other factors like perceiving the task's hardness, the exerted attempt, level of somatic guidance and time models of success-defeat (Hardy et al, 2006). In a study on boxers, wrestlers and weight lifters by Shafiezade (2001) he perceived that technical-technological superiority, gained ranks and spending too much time for exercise are leaded to self-confidence.
Self-confidence in sports confidence has been divided into two structures of state self-confidence and trait self-confidence. Trait self-confidence is the trust or degree of confidence that the individual has about his success during the time and state self-confidence is enjoyment of the belief or a degree of confidence that the individual has at a special moment about his ability in order to obtain sport success. Object orientation and competition orientation have been added to this model which suggests that trait self-confidence and competition orientation interact with sport situation to create state self-confidence. This state is the most important regulator of behavior. Especially it is supposed that state self-confidence has a positive relationship with trait self-confidence and direction of fulfillment. But direction of results with direction of work results especially in individuals with low trait self-confidence has negative relationship (Vealey, 1986).

Self-confidence and cognitive component of state anxiety in multi-dimensional anxiety theory are considered as two opposite spectrums of cognitive assessment. Self-confidence has linear direction with fulfillment, because it is in contrast with cognitive anxiety (Roberts et al, 2004). But according to views of some theoreticians like Jones (1991) somatic component of state anxiety and self-confidence are two independent factors from each other. Gould (1986) and Tejari (2001) confirmed existence of linear relation between fulfillment and self-confidence but Burton (1988) rejected this issue in a study on swimmers. Hardy (1996) states that self-confidence is independent from cognitive anxiety and Hardy and Callow (1996) supported it too. The simplest point of multi-dimensional anxiety theory for professional players illustrate that whatever their self-confidence is lower they will have a better fulfillment. We can conclude from the sum of the studies that there are various factors such as kind of sports and individual characteristics in the manner of encountering with anxiety and its impact on self-confidence (Hardy et al, 2006). Objective of this survey is to compare the proposed variables in individual and team sports and confirm research hypotheses about existence of significant difference among them to determine whether anxiety and self-confidence are considered as stable characteristics for all athletes in each kind of sports or are changed depending on individual and team sports. Another objective is to study correlation among the proposed variables in all of the tested items to specify whether changes of each one are significant with others or not.

3. Methodology

The present survey is of causative-comparative kind and has been performed by metrical method.

4. Statistical Population, Sample and Sampling Method

Statistical population included men athletes of provincial and country league in group majors (handball, basketball and volleyball) and individual majors (track and field, badminton and freestyle wrestling) that were about five thousand persons in each major across the country and number of athletes in all majors was relatively equal. Examinable items of the study included five-hundred forty (540) men athletes (90 persons for each major) that were selected from twelve provinces of the country
through random cluster method. Half of them participated in group sports and another half participated in individual sports.

5. Research Tools

In this survey two standardized questionnaires are used that are common in measuring the proposed variables. The first questionnaire is sports competitive anxiety test (SCAT) that is used specially to measure trait anxiety. This test includes fifteen questions that no grade is given to questions 1, 4, 7, 10 and 13; they are in the text of the questionnaire just to keep the appearance of it; question 6 and 11 are scored reversely and the remaining questions are scored commonly from 1 to 3. Sum of the scores is among 10 to 30. Whatever the obtained score is higher it shows that preparation for getting anxious before the contest is more. The second questionnaire is competitive state anxiety inventory (CSAI-2) or Illinois self-evaluation questionnaire that is used to describe the athlete’s state before the contest's beginning. Examinable items were asked to circle the number that shows their feeling five minutes before the contest is begun. This questionnaire has three sub-scales that are cognitive component of state anxiety, somatic component of state anxiety and self-confidence. Scores of questions 1, 4, 7, 10, 13, 16, 19, 22 and 25 are gathered with each other for the cognitive component of state anxiety. Scores of questions 2, 5, 8, 11, 14, 17, 20, 22 and 26 are gathered with each other for the somatic component of state anxiety and question 14 is scored reversely. We gathered the scores of questions 3, 6, 9, 12, 15, 18, 21, 24 and 27 for self-confidence. Also internal assimilation of tests was calculated through cronbach alpha coefficient which was equal to (α= 0.81) for sports competitive anxiety test (SCAT) and (α= 0.79) for competitive state anxiety inventory (CSAI-2). Validity of both tests was evaluated as appropriate by Martens (1977) with test-retest method and was equal to 0.98. Studies that have been accomplished in Iran considered validity of both tests as appropriate (Shamshgiri, 2000; Tejari, 2001; Shafiezade, 2001, Mohsenpour, 2003 and Mahmoudnejad, 2009).

6. Method of Fulfillment

We referred to exercise place of examinable items and described the method of completing the questionnaire for them. In order to complete competitive state anxiety inventory (CSAI-2) examinable items were asked to complete it twenty minutes before the first contest starts. Questionnaires were returned through mail.

7. Data Analysis

In order to analyze data t-test was used to determine significance of the proposed variables and Pearson's correlation coefficient was applied to determine the degree and direction of relationship among the variables in the whole sample.

8. Conclusions

Hypothesis 1 illustrates equality of trait anxiety of athletes of individual and group sports. Given to results of Leven's test in table 1 presupposition of equality of trait anxiety variances of athletes in individual and group sports hasn't been supported
Results of t-test in table 1 show that there is a significant difference among individual and group athletes in terms of trait anxiety at level \( p = 0.05 \). Average score of trait anxiety related to examinable items of individual sports was more than that of the group sports.

The second hypothesis states equality of somatic component of trait anxiety of athletes in individual sports with those of group sports. Given to results of Leven’s test in table 1 presupposition of equality of trait anxiety variances of athletes in individual and group sports has been supported \( (F= 0.141 \text{ and } p > 0.05) \). Therefore, t-test is studied based on equality of variances. Results of t-test in table 1 show that there is no significant difference between athletes of individual and group sports in terms of somatic component of trait anxiety at level \( p = 0.05 \).

The third hypothesis states equality of cognitive component of trait anxiety of athletes in individual and group sports. Given to results of Leven’s test in table 1 presupposition of equality of cognitive component of trait anxiety variances of athletes in individual and group sports has been supported \( (F= 1.608 \text{ and } p > 0.05) \). Therefore, t-test is studied based on equality of variances related to cognitive component of state anxiety of athletes in individual and group sports. Results of t-test in table 1 show that there is no significant difference between athletes of individual and group sports in terms of somatic component of trait anxiety at level \( p = 0.05 \).

The fourth hypothesis states that self-confidence of athletes of individual sports is equal to athletes of group sports. Given to results of Leven’s test in table 1 presupposition of equality of self-confidence variances of athletes in individual and group sports hasn’t been supported \( (F= 7.021 \text{ and } p < 0.05) \). Therefore, t-test is studied based on unequal variances. Results of t-test in table 2 show that there is a significant difference between athletes of individual and group sports in terms of self-confidence at level \( p = 0.05 \). Athletes of individual sports have less self-confidence than those of group sports.

The fifth hypothesis states that there is a significant relation among trait anxiety, cognitive component of state anxiety, somatic component of state anxiety and self-confidence of athletes of individual and group sports. Correlation coefficients in table 2 show that there exists a significant relation among all the proposed variables at level \( p = 0.05 \). There is a moderate positive significant correlation between cognitive component of state anxiety with somatic component of state anxiety and cognitive component of state anxiety with trait anxiety at level \( p = 0.05 \) but there is a weak negative significant correlation between cognitive component of state anxiety with self-confidence at level \( p = 0.05 \). Also there is a moderate negative relation between cognitive component of state anxiety and self-confidence and a moderate positive relation between somatic component of state anxiety and trait anxiety at level \( p = 0.05 \). A moderate negative correlation was observed between self-confidence and trait anxiety at level \( p = 0.05 \). Size of the relation among each three variable was equal with trait anxiety.
### Table 1: Summary of Leven's test and t-test for the proposed variables

<table>
<thead>
<tr>
<th></th>
<th>Leven's test</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>T</th>
<th>Significance</th>
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<tr>
<td>Trait anxiety of</td>
<td></td>
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<tr>
<td>individual sports</td>
<td>128.8</td>
<td>8444.17</td>
<td>06818.3</td>
<td>496.0</td>
<td>005.0</td>
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<tr>
<td>Trait anxiety of group sports</td>
<td></td>
<td>5778.17</td>
<td>07232.4</td>
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<td>Somatic component of</td>
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<td>state anxiety of</td>
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<td>0444.18</td>
<td>93761.4</td>
<td>163.2</td>
<td>708.0</td>
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<tr>
<td>individual sports</td>
<td></td>
<td>4889.16</td>
<td>71012.4</td>
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<tr>
<td>Somatic component of</td>
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<td>state anxiety of</td>
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<td>group sports</td>
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<td>Cognitive component of</td>
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<td>state anxiety of</td>
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<td>Self-confidence</td>
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<tr>
<td>of athletes of</td>
<td>021.7</td>
<td>5667.24</td>
<td>74531.4</td>
<td>664.0</td>
<td>009.0</td>
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<tr>
<td>individual sports</td>
<td></td>
<td>0889.25</td>
<td>05155.6</td>
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<td>Self-confidence</td>
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<td>of athletes of</td>
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<td>group sports</td>
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### Table 2: Correlation coefficients among trait anxiety, cognitive component of state anxiety, somatic component of state anxiety and self-confidence of all of the examinable items

<table>
<thead>
<tr>
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<th>somatic component</th>
<th>self-confidence</th>
<th>trait anxiety</th>
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<td>cognitive component</td>
<td>----</td>
<td>643.0</td>
<td>475.0</td>
<td>558.0</td>
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<tr>
<td>significance level</td>
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<td>00.0</td>
<td>00.0</td>
<td>00.0</td>
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<tr>
<td>somatic component</td>
<td>643.0</td>
<td>----</td>
<td>566.0</td>
<td>558.0</td>
</tr>
<tr>
<td>significance level</td>
<td>00.0</td>
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<tr>
<td>self-confidence</td>
<td>475.0</td>
<td>566.0</td>
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<td>558.0</td>
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<tr>
<td>significance level</td>
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<td>00.0</td>
<td>----</td>
<td>00.0</td>
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<tr>
<td>trait anxiety</td>
<td>558.0</td>
<td>558.0</td>
<td>558.0</td>
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<tr>
<td>significance level</td>
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</table>
9. Discussion and Conclusion

Objective of this survey was to compare trait anxiety, cognitive and somatic components of state anxiety and self-confidence among men athletes in individual and group majors across the country and study correlation among the proposed variables among all examinable items. Results reveal that the first hypothesis about existence of a significant difference among individual and group athletes is rejected in terms of trait anxiety. Athletes of individual sports have more trait anxiety than athletes of group sports and this issue is consistent with findings of Simon (1971). Perhaps we can state that individuals who have more trait anxiety have more tendency towards individual sports and thus participate more in individual sports or in other words we can say that the team in group sports act as a decreasing source of anxiety. To put it differently the environment has an effective role.

No significant difference was observed between cognitive component of state anxiety of athletes of individual sports and group sports; hence the second hypothesis is confirmed. This is consistent with findings of Mohsenpour (2003) and is in contrast with findings of Simon (1971), Gould et al (1983) and Elgin (2000). We can assert that all athletes experience somatic anxiety that is the physiological and sentimental element of anxiety in different majors and kind of sports has no impact on appearing of it. Contradiction may be because of nonconformity in examinable items. Also nonexistence of significant difference among athletes of individual and group sports in terms of cognitive component of state anxiety demonstrates confirmation of the third hypothesis that is in contrast with findings of Gould et al (1983) and Mohsenpour (2003) and consistent with multi-dimensional anxiety theory of Davidson and Schwartz (1976), Passand (1997), Bray et al (2000) and Sealey and Wagner (2002). Perhaps we can attribute the reason of contradiction to the difference of examinable items in terms of age and gender and consistency of results is because of existence of cognitive anxiety in all sport situations, since fear of defeat and assessment by parents, friends, trainers and etc could affect all athletes at various levels. Also, we can state that because both components of cognitive anxiety are not significant statistically these two are affected by each other.

Conversely trait anxiety, somatic component of cognitive anxiety and self-confidence of athletes of individual sports were lower than athletes of group majors, so the fourth hypothesis is rejected. This is in contrast with findings of Jones (1991) because group athletes that have lower somatic anxiety enjoy higher self-confidence. On the other side perhaps we can claim that taking part in the group is leaded to increase self-confidence as is applied like a source to control trait anxiety and players feel that they are enjoyed from the support of members of the group and their encouragements.

Existence of correlation among the proposed variables shows confirmation of the fifth hypothesis and illustrates that there exists a moderate positive significant correlation between cognitive and somatic component of state anxiety that is in contrast with findings of Gould et al (1983). Because this relation is at a moderate limit we can say that increasing of somatic component will be leaded to improvement of cognitive component to some extent. The same relation exists between cognitive component of state anxiety and trait anxiety and demonstrates that cognitive anxiety is affected by inheritance factors to some extent. But there is a weak negative
relation between cognitive component of state anxiety and self-confidence that is consistent with multi-dimensional anxiety theory of Davidson and Schwartz (1976) and Tejari (2001) but is in contrast with findings of Hardy (1996) and Hardy and Callow (1996). Impact of cognitive component of anxiety in various sports and genders may affect the individual in different forms. Also there is a moderate positive relationship between somatic component of state anxiety and trait anxiety. Objective evidence of this subject could be stated in the way that individuals who have more anxiety under common conditions of life haste more, perspire more and have a faster respiration. A negative and moderate relation was observed between self-confidence and three other variables that degree of relation was higher with somatic component of state anxiety and trait anxiety. This is in contrast with findings of Jones (1991) but is consistent with multi-dimensional anxiety theory of Davidson and Schwartz (1976) and Tejari (2001). It doesn't give a strong relation to confirm findings of Gould et al (1983). Maybe we can state this issue in the way that self-confidence originates to a moderate level from individual characteristics and various factors like the kind of sport and individual characteristics are effective on the manner of encountering with anxiety and its impact on self-confidence according to Hardy et al (2006).

Based on the above-mentioned cases it must be said that dispute over the role of inheritance and environment as effective factors on psychic cases is still remained and anxiety and self-confidence are affected by various factors as two effective psychic cases on athletes' fulfillment which require more precise studies.

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