International Journal of Humanities and Social Science Invention
ISSN (Online): 2319 – 7722, ISSN (Print): 2319 – 7714
www.ijhssi.org Volume 2 Issue 3 ǁ March. 2013ǁ PP.55-61

Effect of gender and type of sport on anxiety and self-esteem

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ABSTRACT: *The aim of this study is to investigate the relationships between anxiety and self-esteem of athletes by gender and types of sports, comparing practitioners of team sports to those individual sports. Thus, two questionnaires were submitted to 320 subjects (mean age 19.37 ± 1.26) practitioners of team sports and individual sports; the first is an anxiety questionnaire which is used to assess levels of anxiety among athletes and the second one named physical self-esteem inventory is used to assess among the various players. The results showed that cognitive anxiety is negatively correlated with global self-esteem ($r = -0.196$, $p < 0.001$) and physical self-esteem ($r = -0.151$, $p < 0.01$). Similarly, the self confidence is negatively correlated with global self-esteem ($r = -0.270$, $p < 0.001$) and physical self-esteem ($r = -0.157$, $p < 0.01$). It is reflected by the fact that practitioners of team sports are characterized by low self-esteem and a high level of anxiety. However, practitioners of individual sports are characterized by a high level of self-esteem and low anxiety. Males express more somatic anxiety ($p < 0.001$) and self-esteem ($p < 0.001$) than females, while females exhibit more cognitive anxiety ($p < 0.001$) than males. Control of emotional states should be a central concern of psychologists especially in team sports.*

Keywords*: anxiety, gender, individual sports, self-esteem, team sports.*

I. INTRODUCTION

Currently, the performance is the most predominant value in the vast majority of athletes. The importance of the issues put under pressure. Whatever level of performance, anxiety is omnipresent. It is part of the competition, training and everyday life [1]. In addition, the concerns of coaches are attached to results. Most of the time, coaches set victory as the main objective of training sessions, rather than helping the athlete to take advantage of the qualities that predispose him/her to give a better performance. It teaches him/her to win against his opponent to be better in every way. This deviation from the basic sense of the training can be a source of anxiety and bad stress. It is noted that the stress episode has three facets: self-confidence, anxiety, cognitive and somatic anxiety [2]. However, some situations can be stressful for athletes. Stress arises from the interaction of the complex transaction between the individual and the situations as well as issues that result, particularly related to new social assessments.

Thus, self-esteem will be called and threatened by the stressful situations encountered. This is why it seems particularly relevant to consider self-esteem in the model of anxiety and stress. However, self-esteem is defined as an individual's assessment and which he/she usually maintains of him/her self, this expresses an attitude of approval or disapproval, and indicates how the individual feels capable, significant, successful and honorable [3]. It is therefore of value, either positive or negative, a person is given, in relation to a sense of competence or social approval. If this concept has become so important in recent decades, it's probably also because of its impact on the psychological well-being and mental health [4] [5]. In addition, high self-esteem can help athletes to withstand negative pressure and maintain good relationships [6]. It also allows them to have better performance [7] and be less anxious. In addition, certain situations, including difficult and threatening wones, could have an impact on the level of self-esteem [8]. In contrast, anxiety and stress may influence self-esteem [9]. It seems, therefore, that anxiety can have a short term impact on self-esteem, causing the individual to experience, positive or negative states of self-esteem. On an emotional level, sport and competition in particular, seems to have a strong impact, allowing people to talk about of passion and strong emotions. Likewise, Gould et al. [10] showed that one of the causes of giving up sport was perceived stress and difficulty to cope with it. Indeed, it is also to improve, maintain or protect the self-esteem that the individual needs to deal effectively with certain episodes of anxiety and stress [11]. Thus, subjects with high levels of anxiety also tend to have low self-esteem [12], [13], [14]. Therefore, self-esteem also appears to be a better predictor of anxiety

than the specific perceived ability. Anxiety generally seems to be due to a lack of confidence in it own resources. However, the reduction of anxiety seems significantly related to the increasing perceived physical condition [15], [16]. It has been shown that the perceived physical condition and especially the evaluation of physical abilities (strength or endurance) like power or endurance make up a specification in the field of body-esteem [17], [18].

In general, a stressful situation that involves self-esteem, especially when it results in failure risks to, decrease or destabilize. This will result, with the repetition of situations, is the reduction of the well-being and mental health.

The aim of this study is to investigate the relationship between self-esteem and anxiety by gender and type of practised sport, by comparing practitioners of team sports to those of individual sports.

II. METHODS

2.1. Subjects

320 subjects (mean age 19.37 ± 1.26): 160 females and 160 males participated in this study. They were all athletes practicing either individual sports or team sports, and playing in different teams from different divisions of the region of Sfax, Tunisia. The selected individual sports are karate, judo, gymnastics, and tennis. The team sports are football, handball, basketball and volleyball.

2.2. Measures

2.2.1. The inventory of physical self

The inventory of the physical self of Ninot et al. [19] consists of 25 items divided into 6 scales, 5 of which are related to physical self-esteem translated from the Physical Self Perception Profile (PSPP) Fox & Corbin [20] and one global self-esteem (GSE) derived from the Coopersmith questionnaire [21].

Scales of physical self-esteem are:

The perceived physical value; refers to a general sense of satisfaction, pride, respect and confidence in the physical self [20]. According to these authors, the perceived physical value can be broken down into four areas;

The physical condition or endurance refers to the evaluation of the form or the ability to sustain endurance efforts.

Sports competence; corresponds to an individual's perception of his athletic ability, ability to learn new sports skills.

Physical strength; categorizes the perception of physical strength, muscle development and confidence in situations requiring strength.

Attractive body; corresponds to the evaluation of physical attractiveness and ability to maintain an attractive body.

The answers are on a Likert scale of six levels from (1) "not at all" to (6) "absolutely."

The 25-item version has satisfactory internal consistency for all scales and demonstrates its stability subjects' responses to each scale since the values of Cronbach's alpha is greater than 0.50. (Cronbach's α: GSE = 0.87, VPP = 0.68, PC = 0.75, SC = 0.72, PS = 0.69 and AB = 0.60), and reproduces the overall hierarchical structure the baseline questionnaire. Therefore, the internal validity of the tool is satisfactory.

2.2.2. The competitive state anxiety inventory

The pre-competitive state anxiety scale is the French version [22] of Competitive State Anxiety Inventory (CSAI-2) by Martens et al. [23].

The original instrument in English consists of 27 items divided into three subscales. The individual score of pre-competitive anxiety is obtained by calculating a total for each of the three individual subscales. No total score is calculated.

Thus, a high score on the scale of cognitive anxiety is a sign of concentration difficulties facing performance. A high score on the scale of somatic anxiety informs us about the embarrassing and uncomfortable physiological reactions that may precede the kickoff of a game. Finally a high score of self-confidence is a sign of relative confidence in its ability to face the competitive situation.

The CSAI-2 measures multidimensional state anxiety in competitive situation through 23 items divided into three subscales:

The cognitive anxiety: it is operationalized as concerns about the negative performance, inability to concentrate and perturbed attention.

The somatic anxiety: it is operationalized as perceptions of bodily symptoms from self-excitation process.

Self-confidence: identified by Martens et al. [23] as a third independent factor for cognitive and somatic anxiety.

The response format is type Likert scale ranging 4 levels from (1) "Not at all" to (4) "many."

The 23-items version with has satisfactory internal consistency for all scales since its values are Cronbach's alpha above 0.50. (Cronbach's α: cognitive anxiety =0.89, somatic anxiety =0.82, self-confidence =0.93), and reproduces the overall hierarchical structure of the baseline questionnaire. Therefore, internal validity of the tool is satisfactory.

2.3. Procedure

Participants volunteered to participate in this study. They were asked to fill in all anonymity, the anxiety and self-esteem questionnaires. The filling of questionnaires was made the day before the competition, and questionnaires were collected immediately. We asked the subjects to be alone and away from all the other players so that there is no communication during the experiment. Encouragement, criticism or any other form of investment have been banned.

2.4. Statistical analysis

The statistical analysis is performed using the software STATISTICA. Values are expressed as mean ± SD. Several analyses of variance with two factors were applied to measure the effect of independent variables on each dependent variable. Whenever we observe a significant effect, a post hoc test LSD (Least Significant Difference) is applied to compare data in pairs. Finally, a Pearson correlation was conducted to identify the relationship between the dependent variables. All differences are considered statistically significant for a probability level less than 0.05 ($p < 0.05$).

III. RESULTS

The two way ANOVA (gender x sport) of global self-esteem showed a significant gender effect [$F_{(1, 316)} = 199.44$; $p < 0.001$], a non significant type of sport effect [$F_{(1, 316)} = 0.47$; $p > 0.05$] and a significant interaction (gender x type of sport) [$F_{(1, 316)} = 8.93$; $p < 0.01$]. The LSD (Least Significant Difference) post hoc analysis showed that practitioners of individual sports are characterized by a higher level of global self-esteem. Males practicing team sports have a global self-esteem significantly higher than females ($p < 0.01$), but in individual sports there is no significant difference between the two sexes.

The two way ANOVA (gender x sport) of physical self-esteem showed a significant gender effect [$F_{(1, 316)} = 136$; $p < 0.001$], a significant type of sport effect [$F_{(1, 316)} = 7.33$; $p < 0.01$] and a non significant interaction (gender x type of sport) [$F_{(1, 316)} = 1.51$; $p > 0.05$]. The LSD post hoc analysis revealed that practitioners of individual sports are characterized by a higher level of physical self-esteem ($p < 0.001$) compared to practitioners of sports team. In team sports, the males have a physical self-esteem higher than females ($p > 0.05$). But in individual sports there's no difference between genders.

Analysis of variance with two factors (gender x sport) of somatic anxiety showed a significant gender effect [$F_{(1, 316)} = 17.01$; $p < 0.001$], a significant type of sport effect [$F_{(1, 316)} = 4.3$; $p < 0.05$] and a significant interaction (gender x sport) [$F_{(1, 316)} = 7.2$; $p < 0.01$]. The LSD post hoc analysis revealed that practitioners of team sports show more somatic anxiety than practitioners of individual sports. In team sports, males have higher somatic anxiety than females ($p < 0.001$). In contrast, no difference in individual sports has been observed.

The two way ANOVA (gender x sport) of cognitive anxiety showed a significant gender effect [$F_{(1, 316)} = 11.84$; $p < 0.001$], a significant type of sport effect [$F_{(1, 316)} = 10$; $p < 0.01$] and a significant interaction (gender x sport) [$F_{(1, 316)} = 4.52$; $p < 0.05$]. The LSD post hoc analysis revealed that practitioners of team sports show more cognitive anxiety than practitioners of individual ones. Females show more cognitive anxiety than males ($p < 0.001$). In contrast, no difference between males and females in individual sports has been observed.

The two way ANOVA (gender x sport) of self-confidence showed a significant gender effect [$F_{(1, 316)} = 55.17$; $p < 0.001$], a significant type of sport effect [$F_{(1, 316)} = 43.06$; $p < 0.001$] and a non significant interaction (gender x sport) [$F_{(1, 316)} = 0.48$; $p > 0.05$]. The LSD post hoc analysis showed that practitioners of the team sports have significantly higher self-confidence than those of individual sports. In team sports the males have more self-confidence than females ($p < 0.001$). By cons, in individual sports is no difference between males and females.

Our results also showed that cognitive anxiety is negatively correlated with global self-esteem ($r = -0.196$, $p < 0.001$) and physical self-esteem ($r = -0.151$, $p < 0.01$). At the same, self-confidence is negatively correlated with global self-esteem ($r = -0.270$, $p < 0.001$) and physical self-esteem ($r = -0.157$, $p < 0.01$).

IV. DISCUSSION

The aim of this study was to assess the effect of gender and type of sport practiced on anxiety and self-esteem.

The results of this study show that more anxious individuals are those who have negative views or low self-esteem and vice versa. This is confirmed by the analysis of correlations which suggest that cognitive anxiety and self-confidence are negatively correlated with global self-esteem and physical self-esteem.

However, high anxiety is strongly associated with low self-esteem and vice versa; the more subjects have a strong self-esteem, the more they express low anxiety. Our results are consistent with those of Roger et al. [24] and Johnson [25]. In their sets, our results showed that self-esteem in subjects practicing individual sports is higher than in practitioners of team sports. In contrast, subjects practicing team sports are more anxious compared to those practising individual sports. Thus, we can say that practitioners of team sports are characterized in general by low self-esteem and a high state of anxiety. However, in individual sports, there is a high level of self-esteem and low anxiety. So we can say with great care that the individual sports seem to be associated with a particular benefit to individuals in terms of emotional control.

Starting now with the differences between males and females in anxiety. First we can say that males are more anxious than females [26]. However, our results are in contradiction with previous statements. In general, we founded that females expressed more cognitive anxiety than males. However, males show more somatic anxiety than females. This is explained by Ritter et al. [08] by situations, particularly difficult and threatening contexts, which could have an impact on the level of anxiety especially for females who can't resist these kinds of situations. In team sports our results showed that males express more somatic anxiety and self confidence than females with the exception of cognitive anxiety where females have more cognitive anxiety than males. However, in individual sports, there is no difference between the two genders.

Regarding the effect of gender on self-esteem, our results showed that in team sports, males have more global self-esteem and physical self-esteem than females especially in volleyball and handball. But this difference tends to diminish in individual sports where there is no distinction between males and females.

To conclude, we can claim that there is a negative correlation between self-esteem and anxiety. It is reflected by the fact that the subjects of team sports practitioners have a low self-esteem and high anxiety. In contrast, those practicing individual sports are characterized by a high level of self-esteem and low anxiety. Males have higher self-esteem than females in team sports. However, in individual sports, there is no difference between the two sexes.

All these results confirm our hypothesis, which states that individuals with low self-esteem are those who express high anxiety and vice versa, and our results are consistent with those of Passer [12], Brustad & Weiss [13] and Brustad [14]. Some psychologists believe that people who have high self-esteem are better than low esteem. In fact, a high self-esteem is associated with psychological well-being while low self-esteem tends to be associated with various psychological problems including increased depression and anxiety. People with low self-esteem tend to be more solitary, more socially anxious and shy. However, people with a high self-esteem tend to believe they are capable, efficient and that the efforts must they help develop will lead them to success. In addition, high self-esteem can help athletes to resist negative pressure and maintain good relationships [06]. It also allows them to perform better and be less anxious [07]. People with low self-esteem, have little confidence in their skills and abilities, and maintain low expectations. On the other hand, anxious subjects tend to attribute successes and failures to external uncontrollable causes. By contrast, the non-anxious subjects tend to attribute responsibility for events. Nevertheless, the reduction of anxiety seems to be significantly related to increased self-esteem [15], [16].

On an emotional level, sport and competition in particular seem to have a strong impact on emotions. In this regard, a study by Gould et al. [10] showed that one of the causes of abandonment of sports in athletes was anxiety and the difficulty of coping with it. Both adults and young people with low self-esteem are predisposed to depression [27], [28], neuroticism [29] and anxiety [30], [31]. Yet, a high self-esteem is related to subjective well-being [32], [33].

Before proceeding to the discussion of the effect of gender and type of sport on anxiety, remember that anxiety has three forms: somatic anxiety that informs us about annoying physiological reactions and this type of anxiety tends to decrease and dissipate at the beginning of competition; cognitive anxiety shows us concentrating difficulties and anxiety that can affect the performance and finally the self-confidence which is a sign of relative confidence. However, our results showed that subjects practicing team sports are more anxious than subjects practicing individual sports. This can be explained by Thomas et al. [34] that practitioners of team sports are frequently exposed to difficult and embarrassing situations as the sporting environment (geographical, relational), activity and size group. These factors influence the collective functioning and psychological aspect of the player. This is confirmed by our results that showed football, handball and basketball are sports where there is a high level of anxiety compared to karate, gymnastics and tennis which are characterized by low levels of anxiety. Also our results showed that subjects practicing combat sports express more cognitive anxiety than subjects engaged in individual sports other than fighting, and our results are consistent with those of Pfister [35]. This can be explained by the same author by three possibilities; the first is that the anxiety is associated with inhibition of aggression, the second is that anxiety is related to corporal face-to-face, subject of social assessment and the third possibility is that anxiety is due to the possible excesses of aggression in these practices. However, some authors were able to show the psychological benefits of exercise, such as reducing anxiety, which related to the increase in perceived physical condition [36], [37]. So we can assume that high

self-esteem leads to an over-estimation of the physical condition, and in return a positive estimate of the physical condition leading to enhanced self-esteem. Given the close relationship that maintains self-esteem with anxiety, we can easily explain the observed effect on the psychological well-being of the feeling of progress on the physical side. For this reason, it seems that anxiety can have a short term impact on self-esteem, causing the individual to experience positive or negative self-esteem states. Indeed, it is also to improve, maintain or protect the self-esteem that the individual needs to deal effectively with certain episodes of anxiety and stress [11]. This is what Crocker & Park [38] calls the pursuit of self-esteem.

So to conclude, we can say the most relevant results that suggest that males express more somatic anxiety and self confidence than females, while females exhibit more cognitive anxiety than males. Yet, the females have higher cognitive anxiety scores than males. In addition, our results showed that the practitioners of team sports manifest anxiety higher than individual sports practitioners. Generally, our results showed a strong link between self-esteem and anxiety. This association varies by gender and type of sport. Taken together, the practitioners of team sports are characterized by low self-esteem and high anxiety. However, practitioners of individual sports are characterized by a high level of self-esteem and low anxiety.

V. CONCLUSION

This study provides some relevant results regarding the effect of gender and type of sport on anxiety and self-esteem. However, we based our research on psychometric measurement (method of investigation by questionnaires). However, this measure is relatively limited in the sense that it is based on self-reported behaviors and emotional states experienced by the athlete at a given time and does not take into account the dynamics of emotions throughout the competition. In this regard, we believe that the relationship found between self-esteem and anxiety should be more thoroughly explored in a longitudinal study. Thus, it is essential to see if the different results of this experiment can be replicated with a larger sample, and using measurement tools most relevant which are most likely to objectify states of reported emotions such as direct observation [39], [40], [41], [42], [43]. However, mental training programs can have a positive effect on some psychological indexes such as the level of anxiety [44] and confidence [45].

Thus, the control of emotional states is a central concern of sports psychologists, based on the idea that a certain level of activation is required to achieve good performance, but beyond a certain level, the stress would be rather debilitating. Various experiments have tried unsuccessfully to demonstrate the effect of conventional techniques of mental preparation (relaxation, induction of activation...) on anxiety states [46], [47]. For this reason Burton, [48]; Cury & Sarrazin [49] tested the influence of training programs to use goal setting to limit the negative effects of anxiety and improve self-confidence and also use relaxation techniques to reduce the pre-competitive anxiety [50]. Thus, these authors and Borkovec [51] state that the two components of anxiety are differentially sensitive to some mental preparation strategies: cognitive anxiety would be sensitive to cognitive therapy strategies, manipulations of expectation while somatic anxiety could be treated with relaxation methods. In general, control strategies methods of anxiety must be specific, and strive to modulate the uncertainty of the situation (for example by controlling the nature of the objectives identified by the subject), and to modulate the valence of achieving the expected result. The study of emotional fluctuations in relation to strategies and behaviors implemented by the athlete could then provide a perspective of innovative research that could contribute to a better understanding of the relationship between emotions and performance [52].

ACKNOWLEDGMENTS

The authors thank all subjects for their voluntary participation in this study. The authors wish to express their sincere gratitude to all the participants for their cooperation. This study did not involve any financial external support.

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