

Effect of gender and type of sport practiced on aggression and self-esteem in Tunisian athletes.

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Abstract: *The aim of this study is to investigate the relationships between self-esteem and aggressive dispositions of athletes by gender and types of sports. Thus, two questionnaires of aggression and the inventory of the physical self-esteem were completed by 440 subjects (mean age 21.49 ± 1.96) practicing team and individual sports. Our results showed a negative correlation between self-esteem and aggression ($r = -0.46$; $p < 0.001$). Practitioners of team sports are characterized by low self-esteem and high aggression and conversely for individual sports. Males show more physical ($p < 0.001$) and verbal aggression than females ($p < 0.01$). In contrast, females express more acts of anger ($p < 0.001$) and hostility ($p < 0.001$) than males. However, it seems worthwhile to give more importance to the self-esteem of players and try to improve to minimize aggression in sport.*

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

I. Introduction

Self-esteem plays a central role in the explanation of human behavior, namely aggression. Self-esteem is defined as a conscious perception of its own qualities [1], it is how the individual loves, accepts and respects as a person [2]. This feeling of self-worth is tied to the image that others would refer to him or her.

Recent literature has made this concept a critical variable in the commitment of a subject in a physical practice [3] or as an indicator of mental health [4]. Self-esteem was regularly mentioned as a contributor or explanatory factor of social behavior problems such as aggression [5]; [6].

However, the aggression and sport are interrelated and opinions differ greatly regarding links that may exist between them. Some believe that sport can enable people to break free, for others, it is simply a manifestation of hidden aggression [7].

In contrast, sport which is seen as a place of learning of aggressive behavior is one of the major contributors to the current violence [8].

Indeed, sport teaches the player not only to act these within the limits of a set of rules, but also a way to make him or her develop strategies to circumvent regulations [9], which no doubt contribute to the development of a certain permissiveness towards these regulations and some tolerance of the violation of the rules and aggression [10]; [11]; [12].

Studies investigating the relationship between self-esteem and aggression have yielded conflicting results. Some authors have found a negative correlation; high aggressiveness is linked to low self-esteem [13]; [14]; [15]; [16], while other studies have reported a positive correlation [17]; [18]. Finally, Perron [19] and Bruchon Schweitzer [20] reported that low self-esteem often resulted in a lack of confidence in one's ability to succeed, which may be the cause, according to individuals, to shy and self-effacing attitude or aggressive behavior.

Some studies indicate that males have higher self-esteem scores [21]; [22] and are more physically aggressive than females [23]; [24]; [25]; [26]. However, it is noticed that all those studies were interested to sedentary subjects. Thus, little is known about the effect of gender on self-esteem and aggression in athletes. In addition, to our knowledge, no study has addressed the relationship between aggression and self-esteem according to type of sport (team sports vs. individual).

Thus, the aim of this study is to investigate the links that may exist between self-esteem and various types of aggressive behavior in athletes practicing individual sports and those practicing team sports and analyze the differences between males and females.

II. Methods

2.1. Subjects

440 (mean age 21.49 ± 1.96): 220 females (mean age 21.14 ± 2.94) and 220 males (mean age 21.83 ± 1.85) participated in this study. They were all athletes practicing or individual sports ($n = 240$) or team sports ($n = 200$) and playing in different divisions of the region of Sfax, Tunisia.

The selected individual sports include tennis, swimming, dancing, boxing, judo and karate; and the team sports are football, handball, basketball, volleyball and rugby. The number of the practitioners of each sport is of forty (20 females and 20 males).

2.2. Measures

2.2.1. The inventory of physical self

The inventory of the physical self of Ninot et al. [27] consists of 25 items divided into 6 scales, 5-esteem physics translate the Physical Self Perception Profile (PSPP) [28] and a global self-esteem derived from the Coopersmith questionnaire [29].

The scales of physical self-esteem are:

- The perceived physical value (5 items); conveys a general sense of satisfaction, pride, respect and confidence in the physical self [28]. According to these authors, the perceived physical value can be broken down into four sub-areas;
- The physical condition or endurance (5 items); refers to the evaluation of the shape or the ability to sustain endurance efforts.
- The sport competence (4 items); is an individual's perception of his her athletic ability, ability to learn new sports skills and confidence in the sport environment.
- Physical force (3 items); categorizes the perception of physical strength, muscle development and confidence in situations requiring strength.
- And finally the physical appearance (3 items); corresponding to the evaluation of physical attractiveness and ability to maintain an attractive body.

It should be noted that the global level of self-esteem includes 5 items.

The answers are on a Likert scale of six levels ranging 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 0.70 and reproduces the global hierarchical structure of the baseline questionnaire. Internal validity of the tool is therefore satisfactory.

2.2.2. Aggression Questionnaire (Buss & Perry, 1992)

The aggression questionnaire of Buss & Perry [30] is widely accepted as a valid measure of aggression [31]; [32].

This questionnaire consists of 29 items divided into four subscales:

- Physical aggression (9 items); which corresponds to hurting or harming another person (slaps, punches, kicks).
- Verbal aggression (5 items); is characterized by insults, offending words...
- Anger (7 items); is one of the basic emotions of cross cultural expression. It includes body language and complex physiological changes preparing the body to fight.
- The hostility (8 items); it generally consists is not liking or hating someone.

The response format is the kind adapted Likert scale ranging from 5 levels (1) "never" to (5) "always."

The 29 items version has satisfactory internal consistency for all scales since its values are Cronbach's alpha above 0.70 (Cronbach's α : Physical Aggression = 0.87; verbal aggression = 0.72 Hostility = 0.89, Anger = 0.86), and reproduces the global hierarchical structure of the baseline questionnaire. Therefore, the internal validity of the tool seems satisfactory.

2.3. Procedure

Participants volunteered to participate in this study. They were asked to fill the questionnaires of aggression and self-esteem in all anonymity. For each sport, we asked 20 females and 20 males to complete two questionnaires at the same time. The session lasted about 15-20 minutes and questionnaires were immediately collected. We asked the participants 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 of data is performed using the software STATISTICA (version 6). Several two-factors (gender x type of sport) variance analyses were applied to measure the effect of independent variables on

each dependent variable. When a significant effect is noticed, a post hoc Tukey test was applied to compare data pairs. Finally, a Pearson correlation was conducted to identify the relationship between the dependent variables. All the noticed differences are considered statistically significant for a probability level less than 0.05 ($p < 0.05$).

III. Results

The two way ANOVA (gender x type of sport) of global self-esteem showed a significant gender effect, a significant type of sport effect and a significant interaction (gender x type of sport). The Tukey post hoc analysis showed that practitioners of individual sports are characterized by a higher level of global self-esteem ($p < 0.001$). Thus, irrespective of the type of sport, females have a higher global self-esteem than males ($p < 0.01$).

The two way ANOVA (gender x type of sport) of physical self-esteem showed a significant gender effect, a significant type of sport effect and a non significant interaction (gender x type of sport). The Tukey 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 addition, it was noticed that males have a physical self-esteem higher than females ($p < 0.001$).

Analysis of variance with two factors (gender x type of sport) of physical aggression, verbal aggression, anger showed a significant gender effect, a significant type of sport effect and a significant interaction (gender x type of sport).

The two way ANOVA (gender x type of sport) of hostility showed a significant gender effect, a significant type of sport effect and a non significant interaction (gender x type of sport) (Table 1).

The Tukey's post hoc analysis showed that practitioners of team sports reveal more physical aggression ($p < 0.001$), verbal aggression ($p < 0.01$), hostility ($p < 0.001$) and anger ($p < 0.001$) than those practicing individual sports except volleyball where practitioners are characterized by a low level of physical aggression. On the other hand, males are more aggressive than females on the physical ($p < 0.001$) and verbal aggression ($p < 0.01$) with the exception of rugby where the females show more verbal aggression ($p < 0.001$) than males. However, females are more aggressive than males on the hostility ($p < 0.001$) and anger ($p < 0.001$) (Table 2 and 3).

Our results also showed that global self-esteem is negatively correlated with physical aggression ($r = -0.28$; $p < 0.01$), verbal aggression ($r = -0.14$; $p < 0.01$) and hostility ($r = -0.34$; $p < 0.01$). Physical self-esteem is negatively correlated with hostility ($r = -0.47$; $p < 0.01$) and anger ($r = -0.61$; $p < 0.01$). At the same, a negative correlation between aggression and self-esteem ($r = -0.46$; $p < 0.001$) was noticed.

Table 1: Two way ANOVA results for self-esteem and aggression.

	Gender effect		Type of sport effect		Gender x Type of sport	
	F (1, 436)	P-value	F (1, 436)	P-value	F (1, 436)	P-value
Global self-esteem	6.04	0.014	184.16	0.000	4.11	0.043
Physical self-esteem	723.99	0.000	452.72	0.000	0.30	0.585
Physical aggression	404.37	0.000	51.15	0.000	289.27	0.000
Verbal aggression	7.17	0.008	7.51	0.006	19.55	0.000
Anger	2309.43	0.000	21.82	0.000	54.33	0.000
Hostility	26.83	0.000	111.18	0.000	0.11	0.745

Table 2: Mean values \pm SD of self-esteem and aggression by gender.

		Global Self-esteem	Physical self-esteem	Physical aggression	Verbal aggression	Hostility	Anger
Team Sports	Males	3.13 \pm 0.16*	3.61 \pm 0.38*	3.39 \pm 0.19***	3.32 \pm 0.18***	2.73 \pm 0.14*	2.03 \pm 0.08***
	Females	3.39 \pm 0.15	2.67 \pm 0.30	1.65 \pm 0.07	2.75 \pm 0.26	2.97 \pm 0.11	4.01 \pm 0.09
individual Sports	Males	4.04 \pm 0.14	4.32 \pm 0.31*	2.26 \pm 0.08	2.75 \pm 0.17	2.29 \pm 0.08*	2.13 \pm 0.08***
	Females	4.06 \pm 0.16	3.41 \pm 0.42	2.11 \pm 0.12	2.89 \pm 0.22	2.50 \pm 0.11	3.58 \pm 0.11

* Significant difference between males and females $p < 0.05$ *** $p < 0.001$

Table 3: Mean values \pm SD of self-esteem and aggression by gender and type of sport.

	Global self-esteem	Physical self-esteem	Physical aggression	Verbal aggression	Hostility	Anger
Team sports	3.26 \pm 0.62##	3.14 \pm 0.58##	2.52 \pm 1.04###	3.04 \pm 0.95#	2.85 \pm 0.52##	3.02 \pm 1.05##
Individual sports	4.05 \pm 0.60	3.87 \pm 0.58	2.18 \pm 0.42	2.82 \pm 0.78	2.40 \pm 0.40	2.85 \pm 0.83
Males	3.63 \pm 0.75*	3.99 \pm 0.49***	2.77 \pm 0.80***	3.01 \pm 0.76**	2.49 \pm 0.50***	2.08 \pm 0.33***
Females	3.76 \pm 0.70	3.07 \pm 0.53	1.90 \pm 0.47	2.82 \pm 0.95	2.71 \pm 0.50	3.77 \pm 0.46

Significant difference between team and individual sports $p < 0.01$ ## $p < 0.001$

* Significant difference between males and females $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$

IV. Discussion

The results of this study show that the most aggressive 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 physical aggression, verbal aggression and hostility were negatively correlated with the global self-esteem. However, a high aggression is strongly associated with low self-esteem and vice versa, the more self-esteem individuals have the less aggressiveness they exhibit. Our results are consistent with those of Anderson [13], Gondolf [14], Long [15] and Oates & Forrest [16]. Indeed, our results showed that self-esteem among practitioners of individual sports, is higher than that of team sports practitioners. In contrast, people practicing team sports show a much higher aggressiveness than those practicing individual sports. Also, we noticed that in team sports, females have a higher global self-esteem than males. However, this difference tends to diminish in individual sports. On the other hand, males have a physical self-esteem higher than females regardless of the type of sport they practice.

Thus, it seems that practitioners of team sports are generally characterized by a high aggressiveness and low levels of self-esteem with the exception of volleyball where practitioners are characterized by a low self-esteem as well as a low aggressiveness. It seems that this contradiction is logical in the sense that in volleyball both fields are separated by the thread and therefore there is no physical contact between players which minimizes, in general, aggressive behavior. However, in individual sports, there is a high level of self-esteem and low aggressiveness, which has been demonstrated by Nosanchuk [33] who argues that karate practitioners have a higher level of self-esteem and low aggressiveness. Thus we can confirm that the practice of individual sports seems to be accompanied by some benefit for individuals, particularly in terms of aggression and emotional control.

In addition, an attempt was made to believe that individual sports in which there is no direct opposition with the opponent (non-aggressive sports such as tennis, dancing, swimming...) subjects exhibit less aggression. However, this finding is demonstrated by the fact that practitioners of so-called non-aggressive sports (tennis, dancing, and swimming) have a high level of self-esteem and also a higher level of verbal aggression, hostility and anger compared to practitioners of combat sports that have a low self-esteem and low verbal aggression, hostility and anger. In contrast, Zillmann et al. [34] as well as Bredemeier et al. [35] have shown that practitioners of combat sports are more physically aggressive practitioners than those of individual sports other than combat sports. Our results are quite consistent with the interpretations of Baumeister et al. [36] and Kernis et al. [37] which indicates that the more aggressive individuals are those who have a high level of self-esteem. One of the possible explanations for these results against that of Baumeister [38], Baumeister and al. [36] suggest that individuals who have a more favorable and narcissistic view of themselves feel superior to others and thus can act aggressively in response to interpersonal threats.

Regarding the difference between males and females in aggression, our results showed that females are more aggressive than males. Our results are contradictory with those of other studies [39]. Those latter explained the gender difference not only by biological factors, but also by social and cultural factors. In fact, practicing sports for males seem to meet a desire for accomplishment, reward-seeking and domination of the other. While for the females, they fulfill a function primarily dominated by search for pleasure and affiliation [40]; [41]; [42]; [43]; [44], the higher aggressiveness of females compared to males noticed in our study can be explained by the accession of females in sports called masculine or aggressive and therefore the females join the males in aggression [45].

Our results also showed that in team sports, males show a strictly physical and verbal aggression more than females, except for rugby, where females are more verbally aggressive than males. In contrast, Coulomb-Cabagno et al. [46] report that in football, males are more aggressive than females (73.8% vs. 29.76%). However, the females are disproportionately more punished than males (63% vs. 49%).

Concerning the impact of gender and type of sport on aggression, our results showed that aggressive driving (physical and verbal) in people practicing team sports is more important than individual sports practitioners except for volleyball where the level of motor aggressiveness is very low. This is because, in general, the behavior of team sport players who have more opportunity for physical assault, and their level of physical aggression is higher than individual sports players. This is confirmed by our results that showed that football, handball and rugby are sports where there is a high level of physical and verbal aggression against karate, dance and volleyball where physical and verbal aggression is low. In addition, and contrary to what was assumed, the results of this study indicate that females show a greater physical aggression in individual sports than in team sports. However, no difference was noticed between team sports and individual sports in verbal aggression expressed by females.

Thus, according to our results and those of Collard & Obœuf [47], we can confirm the hypothesis that sport, especially team sports, are the site of addiction to certain forms of aggressive driving.

Concerning the effect of gender and sport forms of covert aggression (hostility and anger), we noticed that hostility and anger are very prevalent in team sports than individual sports regardless of gender. Anyway, this can be explained according to Berkowitz [48] by the predominance of acts of provocation in team sports as it leads directly to the expression of anger and hostility. However, our results also showed that males express the same level of anger in team sports and individual sports.

Yet, the results indicate that tennis is the sport that has more hostility and anger than the other individual sports. The expression of anger is interpreted in this sport, by the act of breaking the racket on the ground [49].

Therefore, it appears that the individual sports and especially combat sports seem to be accompanied by some benefit for individuals, especially in terms of secret aggression. Our results showed that rugby and football are sports where the behavior of hostility and anger exist. However, there is a low level of secret aggressiveness in combat sports such as judo, boxing and karate. For karate, Daniels & Thornton [50] have confirmed that it has less hostility and anger than other sports. Similarly, Reynes & Lorant [51] have shown that the practice of judo is accompanied by a low level of hostility and anger.

Regarding the effect of gender on hostility and anger, our results show, in general, that females reveal a secret aggressiveness (hostility and anger) higher than those expressed by males. And this difference is much more expressed than anger hostility. Besides, our results are comparable to studies conducted by Van Goozen et al. [52] which have shown that females who are practitioners of combat sports do not become more easily angry than females who are practitioners of individual sports other than combat ones.

V. Conclusion

This study provides some relevant results regarding the effect of gender and type of sport on aggression and self-esteem. Our results suggest that there is a negative correlation between self-esteem and aggression. Thus, people practicing team sports are characterized by a high aggression and a low self-esteem. However, practitioners of individual sports are characterized by a low aggression and a high self-esteem.

Yet, we based our research on psychometric measures (questionnaires) and thereafter no situational provisions. However, this measure is relatively limited as it is based on reported behavior and does not take into account the different types of aggression that could be associated with a competitive practice. In this regard, we believe that the relationship found between self-esteem and aggression should be explored more deeply by using measurement tools that can better objectify reported aggressive behavior such as direct observation and accounting of sanctions received by players [53]; [35]; [54]; [55]; [56]. Therefore, it seems worthwhile to give more importance to the self-esteem of players and try to improve to minimize aggression in sport. However, mental training, along with that of physical training, aimed at improving and developing psychological skills such as self-esteem that allows the athlete to develop its resources to better adapt to the constraints of the sport. Thus, the mental training based on four basic skills which are then used alone or combined to fit the specific needs of athletes: relaxation, management objectives, imagery, internal dialogue.

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