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### How important is the role of national division and experience on water-polo players' levels of anxiety and aggression?

**Abstract:** Theory and practice of sport psychology suggest that emotional and behavioral states of anxiety and aggression both affect athletic performance. The aim of the present study was the investigation of possible differentiation among water-polo male and female players according to their anxiety, anger and aggression levels. The sample consisted of 225 players (120 men, 105 women), between the ages of 17–39 years old. They completed the Greek versions of the: (a) CSAI-2, and (b) CAAS instruments. Results revealed differences among almost all questionnaire variables, between sport (athletic) experience' groups. Finally, male athletes of the 2<sup>nd</sup> national division identified greater levels of anger and aggression in comparison to all other division groups. Overall, results shine some light on facets that play an important role and can affect the athletic performance of water-polo players.

**Keywords:** National division, CSAI-2, CAAS, sport experience, anger

#### Introduction

As Cox (2002) argues, anxiety and stress are of many feelings that can arise as a reaction of athletes in an upcoming situation. Lazarus (2000a) identified anxiety as the emotion which is defined as the treatment of an uncertain situation or existential threat. Anxiety is the result from an assessment to handle a situation. The consequences of anxiety as claimed by Cox (2002), affect athletes regardless of sex and sport.

Lazarus (2000a) adopted a very interesting position when he stated that stress that according to its affect, such as anger, shame, relief, and pride, is a remarkable feeling that plays an important role on athletic performance. He also stated that these emotions should not be included and categorized into positive and negative groups and should be examined mainly in terms of their involvement on performance (i.e. anger, while often seen as a negative emotion, can also have a positive effect on boosting performance).

Research findings (Szabo, Szucs, Gaspar, & Sule, 2014), support the idea that an environmental or competitive situation is not necessarily stressful by itself. Thus, according to Lazarus (2000a, 2000b), a racing situation may act as a stimulus to cause anxiety, but if it eventually

causes an athlete's anxiety, depends mainly on how the athlete will perceives and interprets this specific situation. This finding is also one of the most basic principles underlining the multidimensional nature of anxiety (Lane, Terry, Beedie, & Clark, 2001; Syokwaa, Aloka, & Ndunge, 2014; Bebetos & Goulimaris, 2015). The athlete, when confronted with a potentially a stressful racing situation, makes an assessment at two levels: (a) the main assessment (in which the athlete evaluates his interest in the situation itself) and, (b) the secondary assessment (in which the athlete assesses his/her personal availability in order to cope with the situation). Results from both levels of assessment determines the extent to which anxiety reaction will occur or not (Hanton, Mellalieu, & Hall, 2004; Rose & Devine, 2014). It is therefore obvious that anxiety is inextricably linked to a person's subjective perception of an event or a situation.

Additionally, according to Spielberger et al. (1983) and Hargreaves (2000), anger is a normal, human feeling, which in many cases is usually healthy. However, they stated that a great risk arises when it gets out of control and becomes devastating by creating problems both in the interpersonal relationships and in the overall quality of life, were the individual often is at the mercy of unpredictable, uncontrollable and powerful emotion(s). Motives that

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create the feeling of anger include external stimuli, such as anxiety or anxiety from memories of traumatic or outrageous events.

Smith (1983) supports the idea, that aggressiveness is any behavior planned to hurt someone physically or psychologically. As Bredemeier (1983) suggested, aggressiveness in sports is often construed as the behavior intended to harm in sport areas. Furthermore, Husman and Silva (1984) defined as sport aggressiveness "... any behavior not recognized as legal through the sport official regulations, which is directed towards an opponent, official, teammate or fan who tries to avoid it (pg. 247)". Cox's definition (2002), on the other hand of "hostile aggression" focuses only on injuring the other. As he claims, over the years two types of aggression have been identified: (a) "hostile aggression" during which the athletes have a clear intention to harm the "victim" which is also accompanied by the feeling of anger without any consideration for the outcome, and (b) "instrumental aggression" in which even though the athlete still aims to harm the other person, however, hopes and believes that this action will contribute to fulfill specific and basic goal(s) either for himself or for the team (i.e. victory, earning money, e.t.c.). Likewise, research of Robazza and Bortolli, (2006), Kimble et al., (2010) and Sofia and Cruz (2015), supported the above statement. More specifically, they analyzed the relationship between the variables of anxiety, anger and self-confidence among rugby players. The results shown that athletes perceived that their moderate level of anger facilitated their performance. Moreover, they identified that cognitive anxiety was a predictive state of anger, while self-confidence was considered as a parameter to help them control their anger.

Studies on the relationship between anger and aggression and type of sport (individual or team) (Maxwell, 2004; Maxwell & Moores, 2007a,b; Sofia & Cruz, 2017), showed that athletes of team sports tend to manifest greater levels of anger and aggression. One possible explanation that may underlies in Stoner's (1961) theory of group pathology were individuals in groups with a high degree of cohesion, generally tend to engage in more daring and dangerous activities and decisions than the ones who operate individually. Additionally, research also showed that teams of lower category' ranking, do to frustration address increased levels of anger and aggression (McGowan & Miller, 1989; Salvador, 2005; Maxwell, Visek, & Moores, 2009).

Although the aforementioned studies provide valuable information on the subject of sport anxiety, anger and aggression, they examined either on attitudes and behaviors according to experience(s) or according to team's category ranking. More specifically, there is no research evidence, to the researcher's knowledge, which proves a direct relation of anxiety, anger and aggression on both subjects of national division ranking and sport experience, in Greece.

Therefore, this study was conducted in an attempt to investigate whether national team division placement

and sport experience relates to confidence, anxiety, anger and aggression levels, of male and female water-polo players.

## Method

### Sample and Procedure

The sample included 225 Greek water-polo athletes (120 males and 105 females). Their ages ranged between 17 to 39 years ( $M=25.14$ ,  $SD=5.37$ ). More specifically, the sample, according to years of competitive experience, was divided into 3 groups: 1) 2–9 yrs.:  $N=64$  (27%), 2) 10–15 yrs.:  $N=94$  (42%), and 3) 16–> yrs.: 67 (31%). The sample was divided into these groups, because as past research indicates, up to 9 years of experience the athlete is going through sport development, up to 15 the athlete reaches peak athletic performance, and over 16 years of experience, the athlete stabilizes his/her athletic performance (Bebetsos & Konstantoulas, 2006).

Finally, the athletes were divided into two groups, according to the National Division that they participated on. More specifically, 117 (62 = males, 55 = females) were athletes of the 1<sup>st</sup> National Division (category), and 108 (58 = males, 50 = females) were athletes of the 2<sup>nd</sup> National Division (category).

### Instrumentation

#### Competitive State Anxiety

The Greek version (Stavrou, Zervas, Kakkos, & Psichountaki, 1998) of the CSAI-2 (Martens, Burton, Vealey, Bump, & Smith, 1990) was used which includes three subscales: cognitive anxiety (e.g. "I was worried if I would achieve my goal"), somatic anxiety (e.g. "I felt tension in my body"), and self-confidence (e.g. "I was very sure of myself"), with five items in each scale. On a 4-point Likert scale (1 = *not at all*, 4 = *very much so*) respondents rated the intensity of their anxiety and self-confidence competition experiences.

#### Competitive Aggressiveness and Anger Scale

The Greek version (Bebetsos, Christoforidis, & Mantis, 2008) of the Competitive Aggressiveness and Anger Scale (CAAS) (Maxwell & Moores, 2007), was used which includes two subscales: anger (e.g., "I find it difficult to control my temper"), and aggression (e.g., "I use excessive force to gain an advantage"), with six items in each scale. Responses were placed on a 5-point Likert scale (1 = *never*, 5 = *always*).

The sample was also asked to indicate their gender, age, and their years of athletic (competitive) experience.

### Measurement Procedure

The method chosen to conduct the research was that of self-completed questionnaire. Researcher informed all subjects that their participation was completely voluntary, and the individual responses would be held in strict confidence. Athletes completed their questionnaires, in practice sessions before the warm-up period.

### Statistical Analyses

Initially, descriptive statistics were performed. To investigate possible differences between category, and athletic experience for each factor of the questionnaires, Two-Way and One-Way Anova analyses were conducted.

## Results

### Psychometric Characteristics

The internal consistency for the variables of both questionnaires, were: a) Cognitive Anxiety .85, b) Somatic Anxiety .84, c) Confidence .94, d) Anger .81, and e) Aggression .88.

### Two-Way Anova Analyses

#### Gender and Athletic Experience

Univariate analyses were conducted to check-out any gender and/or athletic experience related differences. The analyses revealed the following statistical significant differences:

- For the variable of "Cognitive Anxiety" a significant main effect for athletic experience was shown:  $F_{2,198} = 14.37$ ,  $p < .001$ . The post hoc Scheffe test showed that the differences were detected between the 1<sup>st</sup> (least experience) ( $M = 2.48$ ,  $SD = .65$ ), with both the 2<sup>nd</sup> (intermediate experience) ( $M = 2.06$ ,  $SD = .61$ ), and the 3<sup>rd</sup> (most experience) ( $M = 1.85$ ,  $SD = .58$ ).
- For the variable of "Somatic Anxiety" a significant main effect for athletic experience was shown: a significant main effect for athletic experience was shown:  $F_{2,198} = 7.03$ ,  $p < .05$ . The post hoc Scheffe test showed that the differences were detected between the 1<sup>st</sup> (least experience) ( $M = 2.21$ ,  $SD = .62$ ), with both the 2<sup>nd</sup> (intermediate experience) ( $M = 1.93$ ,  $SD = .65$ ), and the 3<sup>rd</sup> (most experience) ( $M = 1.77$ ,  $SD = .52$ ).
- For the variable of "Confidence" a significant main effect for athletic experience was shown: a significant main effect for athletic experience was shown:  $F_{2,198} = 8.83$ ,  $p < .001$ . The post hoc Scheffe test showed that the differences were detected between the 1<sup>st</sup> (least experience) ( $M = 2.76$ ,  $SD = .75$ ), with both the 2<sup>nd</sup> (intermediate experience) ( $M = 3.05$ ,  $SD = .64$ ), and the 3<sup>rd</sup> (most experience) ( $M = 3.30$ ,  $SD = .53$ ).
- For the variable of "Aggression" a significant main effect for athletic experience was shown:  $F_{2,198} = 3.13$ ,  $p < .05$ . The post hoc Scheffe test showed that the differences were detected between the 1<sup>st</sup> (least experience) ( $M = 2.15$ ,  $SD = .50$ ), with both the 3<sup>rd</sup> (most experience) ( $M = 2.26$ ,  $SD = .57$ ), and the 2<sup>nd</sup> (intermediate experience) ( $M = 2.43$ ,  $SD = .57$ ).

### One-Way Anova Analyses

#### National Division (Category)

Univariate analyses were conducted to investigate any national division differences. The analyses revealed the following statistical differences:

- For the variable of "Anger"  $F_{3,199} = 10.14$ ,  $p < .001$ . The post hoc Scheffe test showed that male athletes of the

2<sup>nd</sup> National Division had differences with the rest of the athletes' groups (Table 1).

- For the variable of "Aggression"  $F_{3,199} = 11.36$ ,  $p < .001$ . The post hoc Scheffe test showed that male athletes of the 2<sup>nd</sup> National Division had differences with the rest of the athletes' groups (Table 1).

**Table 1. One-Way Anova analyses of CAAS variables**

Groups	Anger	
	<i>M</i>	<i>SD</i>
Males 2 <sup>nd</sup> Division	<b>2.75</b>	<b>.73</b>
Females 2 <sup>nd</sup> Division	2.35	.60
Males 1 <sup>st</sup> Division	2.30	.81
Females 1 <sup>st</sup> Division	2.14	.41
Groups	Aggression	
	<i>M</i>	<i>SD</i>
Males 2 <sup>nd</sup> Division	<b>2.65</b>	<b>.76</b>
Females 2 <sup>nd</sup> Division	2.29	.57
Males 1 <sup>st</sup> Division	2.25	.41
Females 1 <sup>st</sup> Division	2.01	.38

## Discussion

The aim of the study was to examine any possible direct relation(s) between the psychological determinants of confidence, anxiety, anger and aggression with sport experience and national team division placement, specifically among male and female water-polo athletes. To researcher's knowledge, no similar studies have been conducted on the specific topic in Greece. Therefore, discussion and conclusions from the present study reflect a first attempt to interpret these results.

To begin with, results indicated that least experienced athletes had higher levels of cognitive and somatic anxiety, and lower levels of confidence, in relation to more experienced ones. Past research identified that confidence is stronger among elite athletes than for those at lower competition levels (i.e. lower national division) (Hays et al., 2009; Woodman & Hardy, 2003). In meta-analysis of studies with the use of CSAI-2, Woodman and Hardy (2003) concluded that confidence was greater especially among men who participated in an individual sport at high level. Another similar meta-analysis with Craft and his colleagues (2003) reported similar results. Cox et al. (2010) in their study of intercollegiate athletes who rated their performance in six sports (track and field, football, swimming, baseball, soccer and softball), confidence was the strongest athletic experience indicator. Modrono and Guillen (2011) found that self-confidence was higher for athletes with in the top five places than for athletes with lower rankings. In addition, self-confidence scores (with the use of CSAI-2) correlated positively with performance in

young gymnasts (Tsopani et al., 2011). In relation, analyses identified greater levels of anxiety, both somatic and cognitive, among younger and least experienced athletes (Robazza & Bortoli, 2007; Jones & Uphill, 2004; Stoeber et al., 2007; Parnabasa & Mahamood, 2013).

Secondly, correlation of aggressiveness and athletic experience was also demonstrated by present findings. As past outcomes recorded (Bebetsos & Antoniou, 2003; Bebetos & Konstantoulas, 2006; Gagnon-Dolbee, McKelvie, & Eastwood, 2017) male intermediate athletes identified higher rates of aggressiveness than individuals of lower and greater athletic experience level. As researches mentioned, at the intermediate level, athletes are in their way of a possible transition to the highest athletic category (professional), which offers them higher wages, better living standards, e.t.c. So, it "make sense" to them to try harder with the possibility of excessive use of aggression while trying of achieving that goal.

According to the present study, the levels of aggression relate statistically considerably to the factor "national division". More specifically, statistically considerably higher levels of anger were detected in men in relationship to women. The findings agree with previous researches (Bebetsos et al., 2008; Proios, 2012). In fact, considerably higher levels of aggressiveness were observed in male athletes. The increased aggressiveness in male sport teams is caused by the aggressive tendency that men have, since they regard this specific behavior as there a natural characteristic (Maxwell & Moores, 2007). Simultaneously, men present themselves as more competitive with the consequence of being led a lot of times to a more aggressive behavior (Maxwell, 2004; Steinfeldt et al., 2012).

Respectively, are also the findings in the studies of Bebetos et al. (2013), and of Christoforidis et al. (2010), who researched male and female water polo and handball players and they observed that male athletes of lower competition level (2<sup>nd</sup> national category) showed greater levels of anger and aggressiveness than both male and female athletes of higher competition level (1<sup>st</sup> national category). It should be mentioned that Archer in his researches (2004; Archer & Cote, 2005) indicated that the difference in the levels of aggressiveness among boys "appears" during childhood, is preserved as time passes by, and is finally increased as they get older.

One limitation of the current investigation was the self-report methodology that was employed.

### Conclusion

Overall, the present findings suggest that psychological prospects such as anxiety, confidence, aggression, are directly related to athletes' perceptions according to the competition level, athletic experience and gender, that they are involved in. In what concerns applied or practical implications, the study points out the need of specific and appropriate psychological strategies on reducing the negative levels of anger and anxiety and reinforcing the positive aspects of experience on sports events. Having

shown the important role of confidence, anxiety, and aggression in direct relation with sport experience and team national division placement, results of this study may facilitate a better understanding of athletic performance in relation to gender and guide further research.

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