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RELATIONSHIP BETWEEN MENTAL SKILLS AND ANXIETY INTERPRETATION IN FEMALE VOLLEYBALL PLAYERS

Key words: mental skills, anxiety, facilitative, volleyball.

ABSTRACT

The relationship between mental skills and anxiety direction in sport is a vital topic of sport psychology research, which has been explored in depth over the last two decades. The present study was aimed to examine the relationship between mental skills and anxiety interpretation in female volleyball players. One hundred and twenty female volleyball players were surveyed using modified CSAI-2 and OMSAT-3 inventories. The results revealed that several subscales of mental skills had a significant impact on the success of volleyball players in regard to interpretation of anxiety and self-confidence as facilitative to their performance. Also, participants perceived anxiety intensity and self-confidence differently from anxiety direction and self-confidence. The study findings show that mental skills are important to reinforcement of self confidence of volleyball players. The conclusion is that coaches and sports psychologists should seriously consider athletes' mental skills in preparation of volleyball players before competition.

INTRODUCTION

One of the main subjects in sport psychology is precompetitive anxiety and its effect on athletes' mental skills and motor skills. Anxiety has a major influence on the athlete's performance in any sport. Martens [21] views anxiety as feelings of nervousness and tension associated with activation or arousal of the body. The multidimensional conceptualizations of competitive anxiety include both cognitive and somatic components. The Competitive State Anxiety Inventory - 2 (CSAI-2) was developed to assess separately components of somatic anxiety, cognitive anxiety and self confidence [22]. Smith, Smoll, and Schultz [32] developed the Sport Anxiety Scale, which assesses multidimensional competitive trait anxiety, including worry, disrupted concentration, and

somatic anxiety. However, these scales measure the intensity of cognitive and somatic symptoms to imply the presence of anxiety, and they do not consider the interpretation of symptoms in relation to the sporting event [13, 29].

Jones [11], Jones and Swain [13], and Swain and Jones [32] introduced the concept of anxiety direction into sport psychology. They emphasized the importance of considering interpretations of arousal symptoms and the direction of symptoms (positive-facilitative or negative-debilitative) as well as the traditionally considered anxiety intensity. In 1960, with the aid of the Achievement Anxiety Test, Alpert and Haber [1] demonstrated the relevance of distinction between debilitative and facilitative dimensions in academic performance. Mahoney and Avenier [19] reported that anxiety can be interpreted as facilitative or

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debilitative in sport. They interviewed athletes who were successful or unsuccessful at making to the U.S. Olympic gymnastics team, and found that the more successful athletes tended to use their anxiety as a stimulant to better performance. They concluded that the athletes' success was correlated with positive interpretation of anxiety symptoms. With the emergence of the concept of anxiety direction research has been conducted in the area of anxiety interpretation. Several studies [2, 12, 13, 14, 15, 16, 30] concluded that the way athletes view their anxiety symptoms prior to competition can have a significant effect on their performance. Those athletes who interpret their anxiety symptoms as facilitative are more likely to perform better than athletes who interpret anxiety symptoms as debilitating. Also, highly competitive athletes reported anxiety to be more facilitative than athletes who were less competitive.

With the advances of psychology, mental skills have been perceived as very important in athletic performance. Formerly coaches and athletes emphasized the importance of physical fitness, while today sports psychologists, coaches and athletes also stress the significance of mental fitness. Also, the usage of psychological skills has made significant progress in athletes' performance at the Olympic and collegiate levels. The majority of sport psychologists believe that coaches and athletes need mental skills more than physical skills to achieve their goals [18, 23, 26]. A number of research studies showed that people can be better concentrated and have higher self-esteem, increase their efficiency and be more successful in their performance when they use mental skills [6].

Recently a new trend has emerged which places an emphasis on mental skills related to sports. Winter and Martin [35] designed a questionnaire examining athlete's six mental skills (motivation, focus, self-confidence, mental states control, imagery, and goal setting). Durand-Bush et al. [3] designed the Ottawa Mental Skills Assessment Tool - 3 (OMSAT-3), which measures a broad range of mental skills (relaxation, goal setting, imagery, self-talk, self confidence, fear control, focusing, refocusing, activation, mental practice, stress reaction, and commitment). Athletes' use of mental skills made them experience less anxiety, better focus, more self-confidence and more favorable performance [4, 5, 15, 17, 18, 31, 35].

Because interpretation of anxiety symptoms influences performance, it is important to identify the specific psychological skills that may help athletes interpret their anxiety as normal and facilitative. A number of studies [2, 4, 20, 24, 25, 27, 28] investigated the relationship between psychological skills and competitive anxiety. Their results showed that performers who reported a greater usage of relaxation, imagery, goal setting, and self-talk strategies experienced lower levels of anxiety and interpreted symptoms as more beneficial to their performance than the controls. Although, earlier studies investigated the relationships between psychological skills and competitive anxiety in sports, they never really focused on mental skills (e.g., relaxation, goal setting, imagery, and self-talk). Similar to Dominikus et al. [2] the present study attempts to investigate primarily mental skills (e.g., relaxation, goal setting, imagery, self-talk, self confidence, fear control, focusing, refocusing, activation, mental practice, stress reaction, and commitment) in relationship to competitive anxiety. Also, the vast majority of research on anxiety was concerned with closed skill athletes [4, 9, 10, 12, 14, 15, 16, 30] and individual sports [4, 9, 28]. Thus, there is a need to explore the usage of psychological skills anxiety interpretation in other sport types (e.g., team and contact-based sports).

The growing popularity of volleyball as well as other sports requires from coaches the use of information on players' mental fitness and acquaintance with scientific methods of using mental skills accompanying technical and tactical skills. The examination of athletes' mental skills level and their relationship with anxiety may reveal possible weak spots in athletes' mental fitness. The purpose of the present study was to examine the relationship between mental skills and anxiety interpretation in female volleyball athletes.

METHODS

Participants

The sample consisted of one hundred and twenty female volleyball players from ten universities in Iran, aged 18 to 25 years (mean 23.18, SD = 1.76). All subjects had at least two to five years of experience at various university volleyball competitions. They provided their

answers to the questionnaire items before the start of a volleyball competition.

Research instruments

The instruments used for this research were two questionnaires: Modified Competitive State Anxiety Inventory - 2 (CSAI-2), and Ottawa Mental Skill Assessment Tool - 3 (OMSAT-3) as well as demographic information sheet containing data on students' age, sport experience and university name.

Modified Competitive State Anxiety Inventory (CSAI-2)

The modified CSAI-2 [13] was used to measure the intensity and directional of anxiety interpretation, which includes subcomponents of cognitive anxiety, somatic anxiety, and self-confidence. The intensity response scale consisted of 27 items (9 in each subscale), rating intensity on a scale from 1 (not at all) to 4 (very much so), where overall scores could range from 9 (very low) to 36 (very high). Past research of the inventory was found to have strong internal consistency, with reliability coefficients between 0.80 to 0.90 for each subscale [13]. In this study coefficient alphas for the cognitive, somatic, and self-confidence intensity subscales were found to be 0.81, 0.76, and 0.87, respectively.

The subjects used the directional response scale to rate the degree of direction of cognitive and somatic anxiety symptoms and self-confidence, and were interpreted as -3 (very debilitating towards performance) to +3 (very facilitating to performance). Therefore, the overall scores of the directional component ranged from -9 to +9, where negative scores signified debilitating interpretation of anxiety and positive scores represented facilitative interpretation of anxiety. In earlier studies internal reliability coefficients amounted to 0.83 for cognitive anxiety and 0.72 for somatic anxiety [12, 32, 34].

Ottawa Mental Skills Assessment Tool - 3 (OMSAT-3)

Durand-Bush et al. [3] revised two former versions of the OMSAT measuring a broad range of mental skills. The third version includes 48 items and 12 groups of mental skills (4 items per group), categorized into three main domains (foundation skills, psychosomatic skills, and cognitive skills). A 7-point Likert scale was used, ranging from

“strongly agree” to “strongly disagree” with a neutral choice available. Previous studies displayed internal consistency scores from 0.68 to 0.88, and intraclass reliability scores from 0.78 to 0.96, indicating strong reliability [3]. In the present study internal consistency scores of 0.67, 0.62, and 0.66 were obtained for the foundation, psychosomatic and cognitive skills subscales, respectively.

Procedure

The subjects were recruited from ten universities during a volleyball competition in the city of Ahwaz, Iran. The demographic information, CSAI-2 and the OMSAT-3 questionnaires were distributed to the players. The subjects were informed of their participant rights during the study and well as the anonymity of all information and answers. 20 to 30 minutes were given to the participants to answer the questionnaires before the beginning of the volleyball competition.

Data analysis

Pearson's correlation was used to measure the relationship between mental skills and anxiety interpretation. The SPSS ver. 16 software package was used for statistical analysis.

RESULTS

Descriptive statistics

The results revealed that the majority of volleyball players under study chose the subscale of goal setting ($M = 19.004$, $SD = 0.52$), whereas the fear control subscale was the least selected one ($M = 3.05$, $SD = 1.24$).

Relationship between mental skills and anxiety direction interpretation

Pearson's correlation coefficients revealed a low and moderate correlation between mental skills and interpretation of anxiety direction. Overall, the obtained results showed that the subscale of stress reaction was positively and significantly correlated with all three anxiety direction scales ($p < 0.05$). Although the subscale of imagery was also correlated with all three direction scales ($p < 0.01$), in somatic and cognitive anxiety a negative significant correlation was found. Also, the subscale of focusing was correlated with all

direction scales ($p < 0.01$), and there was a significant negative correlation with self-confidence. There was a positive and significant correlation between the subscales of mental practice and activation with the self-confidence direction ($p < 0.05$). Similarly, the subscale of self-confidence also displayed a significant positive correlation with self-confidence direction ($p < 0.01$). Somatic direction was significantly correlated with the subscales of refocusing, fear control and commitment ($p < 0.01$), however the subscale of relaxation was negatively correlated with somatic direction ($p < 0.01$). The subscale of goal setting had a positive and significant self confidence direction, but a negative and significant correlation with somatic direction ($p < 0.05$). There was no significant difference between the subscale of competition planning and direction of anxiety interpretation (Tab. 1).

Table 1. Relationship between mental skills and anxiety direction interpretation

OMSAT3	Cognitive Direction	Somatic Direction	Self-confidence Direction
Goal setting	–	-0.165*	0.164*
Self confidence	–	–	0.274**
Commitment	–	0.182*	–
Stress reaction	0.208*	0.248*	0.167*
Fear control	–	0.217**	–
Activation	–	–	0.178*
Relaxation	–	-0.230**	–
Imagery	–	-0.207*	0.223**
Mental practice	–	–	0.154*
Focusing	0.213**	0.234**	-0.380**
refocusing	–	0.261**	–
Competition planning	–	–	–

* $p < 0.05$, ** $p < 0.01$

Relationship between mental skills and anxiety intensity interpretation

The results revealed a low and moderate correlation between mental skills and anxiety intensity. The subscales of stress reaction, fear control, focusing, and refocusing had positive significant correlations with somatic and cognitive anxiety intensity, but negative significant correlations with self-confidence anxiety ($p < 0.01$). The subscales of goal setting, self-confidence,

activation, and imagery were positively and significantly correlated with self-confidence intensity ($p < 0.01$). There was a positive and significant correlation between the subscale of competition planning and somatic and self confidence intensity ($p < 0.05$). The subscale of relaxation was significantly correlated with somatic and self-confidence intensity ($p < 0.01$), positively correlated with self-confidence intensity, and negatively correlated with somatic intensity. There were no significant differences between the subscales of mental practice and commitment with anxiety intensity interpretation (Tab. 2).

Table 2. Relationship between mental skills and anxiety intensity interpretation

OMSAT3	Cognitive Intensity	Somatic Intensity	Self-confidence Intensity
Goal setting	–	–	0.339**
Self confidence	–	–	0.281**
Commitment	–	–	–
Stress reaction	0.307**	0.358**	-0.252**
Fear control	0.297**	0.273**	-0.247**
Activation	–	–	0.240**
Relaxation	–	-0.241**	0.220**
Imagery	–	–	0.258**
Mental practice	–	–	–
Focusing	0.369**	0.323**	-0.326**
Refocusing	0.179*	0.283**	-0.236**
Competition planning	–	0.208*	0.159*

* $p < 0.05$, ** $p < 0.01$

DISCUSSION

The volleyball players' use of stress reaction and focusing was positively correlated with all three anxiety directions. The abilities of volleyball players to engage in these strategies helped them interpret their somatic, cognitive and self-confidence directions as facilitative to their performance. However, the subscale of imagery was positively correlated with the self-confidence direction and negatively correlated with the somatic and cognitive direction. These results failed to corroborate the findings of Fletcher & Hanton [4], in whose study the use of imagery was positively correlated with cognitive anxiety interpretation. Athlete's use of stress reaction, fear control,

refocusing and focusing was positively correlated with the somatic and cognitive anxiety direction. But these subscales were negatively correlated with self-confidence intensity. The differences in self-confidence direction and intensity are illustrative of different ways of using mental skills by athletes in competition, which influence their anxiety and confidence levels.

The subscales of self-confidence, activation, mental practice, and goal setting significantly predicted interpretation of the self-confidence direction as facilitative to their performance. Also the subscales of self-confidence, activation, goal setting, imagery and competition planning revealed a significant correlation with self-confidence intensity. This is confirmed by Leunes [18] and Goudas et al. [5], who showed that more prosperous athletes had more self-confidence in competitions. Thus, they experience less anxiety and negative reactions to errors. Also self-confidence has been seen as a factor that could facilitate performance [2, 7, 30, 34]. The subscale of relaxation has a significant negative correlation with somatic direction.

The findings of the present study show that coaches can use a number of athletes' mental skills so the latter could interpret anxiety as facilitative. The results revealed that the subscales of goal setting, self-confidence, stress reaction, activation, imagery and mental practice can be used to help athletes interpret self-confidence anxiety in a positive manner. Additionally, they also indicate that the subscales of fear control, commitment, refocusing, stress reaction, and focusing were all related to facilitative interpretations of somatic anxiety, while stress reactions and focusing were associated with cognitive anxiety. It should be noted that different sports involve different circumstances and require special mental skills that can interpret anxiety as facilitative. Also mental skills play an important role in the success of volleyball players in the interpretation of anxiety as facilitative. Thus coaches can be advised to focus on these mental skill techniques to help athletes in their interpretation of anxiety as facilitative. The study was carried out on a sample of female collegiate volleyball players; however, similar research can be conducted to examine other gender and age groups. Also studies can be performed to examine the usage of mental skills usage in various individual and team sports.

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