ASSESSMENT OF TRAIT ANXIOITY LEVELS ON ELITE JUNIOR AND U23 CROATIAN WRESTLERS

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ABSTRACT

Purpose: Athletes are faced with competitive surrounding all the time where they are required to perform at high levels in high-pressure situations. This can often lead to anxiety so the aim of this study was to investigate levels of trait anxiety among elite, national team Croatian junior and U23 male wrestlers and to examine differences in trait anxiety between national team members in 2010 and 2017.

Methods: The study was conducted on two different groups of athletes, each tested at one time period (one group was tested in 2010 and the other in 2017). The participants were Croatian junior and U23 greco-roman national team members at the time when testing was conducted (N2010=16; N2017=9). We used a theory of competitive anxiety (Martens, Vealy, and Burton, 1990) and Croatian version of SCAT questionnaire (Sport Competition Anxiety Test, Martens, 1977) to measure levels of trait anxiety in elite wrestlers. Descriptive statistics, as well as Mann-Whitney U-test, were used to examine the levels of trait anxiety and the difference between two groups of national team members.

Results: There was no difference in trait anxiety levels between members of junior and U23 wrestling national team in 2010 and 2017 suggesting these two groups experienced similar levels of pre-competition anxiety.

Conclusions: These results can help in further understanding which are the levels of trait anxiety for elite wrestlers.

Keywords: stress, high level, Greco-roman, national team

INTRODUCTION

Sport represents competitive surrounding filled with stressful situations where athletes usually have to perform at optimum levels in high-pressure circumstances. This can, consequently, influence their performance. The common reaction to stressful situations is anxiety which can be defined as “negative emotional state characterized by nervousness, worry, and apprehension and associated with activation or arousal of the body” (Weinberg and Gould, 2011). Anxiety can be analyzed as trait or state and is viewed as a multidimensional construct made of the cognitive and somatic component. Martens, Vealy, and Burton (1990) defines state anxiety as “existing or current emotional state characterized by feelings of apprehension and tension and associated with activation of the organism”, while trait anxiety can be described as “predisposition to perceive certain environmental stimuli as threatening or non-threatening and to respond to these stimuli with varying levels of state anxiety”. Cognitive anxiety represents the mental component of anxiety which is caused by negative expectations about success or by negative self-evaluations while somatic anxiety refers to both physiological and affective elements which are developed directly from arousal in autonomic nervous system (Martens et.al. 1990).
A theory of competitive anxiety (Martens et al. 1990) suggests that sport competition is an evaluative process which creates some kind of uncertainty about the outcome before the actual competition has occurred. The greater this uncertainty and the importance of the competition is, the greater threat is perceived. This perception of the threat in competitive situations varies as a function of individual's previous experiences and qualities as well as their individual level of trait anxiety.

The idea of optimal anxiety states developed very early, when Spielberger in the 1960s first introduced the state-trait approach and concluded that both high and low levels of state anxiety interfere with performance (Spielberger, 1989), thus connecting this theory with optimal arousal theory. This tends to be true for somatic anxiety but not for cognitive because increasing this dimension of state anxiety usually result in performance decline (Weinberg and Gould, 2011; Cox, 1998). Research which further investigated temporal patterning of somatic and cognitive anxiety concluded that cognitive anxiety remains relatively stable prior to competition while somatic tends to rapidly increase as the start of the event becomes closer (Jones, 1995) and then decrease once performance begins (Martens et al. 1990). However, although the intensity of cognitive anxiety remains relatively stable prior to competition, frequency in which the athletes experience the symptoms of it increases substantially and progressively during pre-competition period (Swain and Jones, 1993). During the competition, it’s levels can vary depending on subjective probability of success (Martens et al. 1990). Also, there is an argument that anxiety can have debilitating (harmful to performance) and facilitating (helpful to performance) consequences for the performance. This refers to “direction” athletes label the cognitive and somatic symptoms experienced as a function of interpreting the meaningfulness of experienced symptoms following earlier appraisal about the congruence between demands of the situation and the one’s ability to meet them (Jones, 1995). This means that two athletes who are equally concerned and physiologically aroused prior to their upcoming performance can have completely different interpretations of those symptoms based on the perceived level of control, perceived level of ability to face this situation and goal attainment. This idea is confirmed in several studies such as the study conducted by Jones, Hanton and, Swain (1994), which found that elite performers interpreted cognitive and somatic anxiety as being more facilitative to performance than non-elite performers.

Although there are numerous theories and studies about competitive anxiety in sports, only a few of them are conducted on elite, national team wrestlers and none on Croatian wrestlers. Considering there are still some debates about desired levels of anxiety as well as the way anxiety influences performance, the aim of this study was to investigate levels of trait anxiety on elite male Croatian wrestlers. Furthermore, we wanted to examine whether levels of trait anxiety were different between junior and U23 national team members in 2010 and 2017. Generally, it is argued that knowing an athlete’s level of trait anxiety can usually be helpful in predicting his reaction to competition, evaluation, and threatening situations (Weinberg and Gould, 2011).

**METHODS**

The study was conducted on 25 male Croatian junior and U23 greco-roman national team wrestlers. First testing was conducted in 2010 when we tested the current members of U23 and junior national wrestling team (N=16). 7 years later, in 2017, we tested new current members of U23 and junior national
wrestling team (N=9), so the study was conducted on two different samples. All the participants in both samples were members of Croatian national team at the time of the testing and some of them have won medals at European and World championships. The average age of all the athletes was M=19.4; SD=1.607 (min=17; max=22). The athletes were actively wrestling for M= 9.6 years; SD= 2.466 (min=4; max=16). In 2010 we tested 16 national team members (age M=18.88; SD= 1.61; years of wrestling M=9.88; SD=3.059 ). In 2017 we tested 9 different wrestlers, current members of national team (age M=19.68; SD=1.51; years of wrestling M=9.437; SD=2.159). In order to measure trait anxiety, we used Croatian version of SCAT questionnaire (Sport Competition Anxiety Test; Martens, 1977). The questionnaire is designed to measure levels of trait anxiety in athletes and has 15 questions on which participant has to choose between three answers (rarely, sometimes, often). 5 of these questions are spurious statements added to reduce response bias and are not scored. Results can be ranged between 10 and 30, where higher results indicate higher levels of trait anxiety. Authors of the original version reported a high degree of reliability and good validity of the scale (Martens et.al. 1990).

RESULTS
In order to investigate trait anxiety levels of elite Croatian wrestlers, we calculated the result on SCAT scale for all participants (Table 1).

Table 1. Descriptive statistics for trait anxiety (N=25)

<table>
<thead>
<tr>
<th>Trait anxiety</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>min</th>
<th>max</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>25</td>
<td>18.760</td>
<td>3.789</td>
<td>13</td>
<td>30</td>
</tr>
</tbody>
</table>

Within second research problem, we examined whether junior and U23 national team wrestlers in 2017 have different levels of trait anxiety compared to their 2010 colleagues. Based on the arithmetic means of the groups, we can see that 2017 group had lower levels of trait anxiety (M=17.67) compared to 2010 group (M=19.36) but non-parametric Mann-Whitney U test (Table 2) showed that these results didn’t reach the level of statistical significance.

Table 2. Descriptive statistics for each group and results of Mann-Whitney U-test for trait anxiety

<table>
<thead>
<tr>
<th>generation</th>
<th>N</th>
<th>MR</th>
<th>M</th>
<th>SD</th>
<th>U</th>
<th>Z</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trait anxiety</td>
<td>2010</td>
<td>16</td>
<td>13.63</td>
<td>19.375</td>
<td>4.287</td>
<td>-573</td>
<td>.598</td>
</tr>
<tr>
<td></td>
<td>2017</td>
<td>9</td>
<td>11.89</td>
<td>17.666</td>
<td>2.549</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DISCUSSION
The aim of this study was to investigate differences in trait anxiety levels between junior and U23 national wrestling team members in 2010 and 2017. Although the results suggest a slight decline in trait anxiety levels in 2017 sample, the results didn’t reach the level of statistical significance suggesting that both groups have the same levels of general predisposition to perceive certain environmental stimuli as threatening and to respond to these stimuli with varying levels of state anxiety. Furthermore, results in our study showed that elite, national team wrestlers, have the levels of trait anxiety which are lower than
those suggested in norms proposed by authors of the SCAT scale (Martens et al. 1990, p.57-58). The norms are made on the sample of 239 wrestlers from youth sports and high school (M=20.91; SD=4.43) while the wrestlers in our sample represent the elite Croatian top level athletes which were current members of the Croatian national team at the time when the testing was conducted. Also, amongst them, there were some former and current World and European championships medalists.

Results on SCAT questionnaire in our study are also lower than those obtained by Gould, Horn, and Spreemann (1983) who conducted the study on 458 elite junior wrestlers (age 17-19; M=21.98; SD=4.40). Results in their study also showed that wrestlers who were low on SCAT (18 or below) rated themselves higher in perceived ability, predicted better result in the tournament, were more confident in their tournament prediction, worried in a fewer number of matches, felt that nervousness less often hurt their performance, had less trouble sleeping, and thought it was more important to their parents that they wrestle well, compared to wrestlers who was high on SCAT (26 or above). They also experienced less anxiety in the different time points before and during competition as well as when fighting against the toughest opponent. However, authors claimed that they found no difference in precompetitive and competitive anxiety between more and less successful as well as more and less experienced wrestlers. This should be further investigated on Croatian sample in future research.

According to Martens et al. (1990), numerous research has concluded that athletes with higher levels of competitive trait anxiety tend to perceive competitive situations as more threatening than athletes with lower levels of competitive trait anxiety. It seems that individuals with high trait anxiety have some sort of cognitive bias which allows them to pick out more threat-related information (Weinberg and Gould, 2000). However, several theories suggest that some people perform best when their state anxiety is low, while some people prefer higher levels of state anxiety (Weinberg and Gould, 2011). This can also be different based on whether we are considering somatic or cognitive levels of anxiety. Based on the results of their study, Gould, Horn, and Spreemann (1983) concluded that elite junior wrestlers indicated that they became nervous in 66% of their matched and that this nervousness helped slightly more than it hurt their performance.

The research conducted on 1988 U.S. Olympic wrestling team (Gould, Eklund, and Jackson, 1992a, 1992b) found that, among other things, heightened arousal and intensity, as well as high confidence, were related to athletes’ best performances while over and under arousal, irrelevant or negative thoughts as well as worries about losing were associated with worst performances. Eklund (1996) on his research of wrestlers found that low-level performances were associated with feeling listless and lethargic, moderate performance was associated with state described as normal nervousness while high levels of performance were associated with high levels of positive activation and intensity. Furthermore, competition anxiety can be interpreted as helpful of harmful to performance depending on the athletes’ perceptions in the competition situation. Some recent studies even concluded that athletes can be taught to view anxiety as facilitative (Wadey and Hanton, 2008; Hanton and Jones, 1999a, Hanton and Jones, 1999b) with the training in basic psychological skills such as goal setting, self-talk, imagery, and relaxation. According to theories mentioned before, the training in athletes’ perception of control and increasing self-confidence can also have a great impact on levels of perceived threat before the competition. These kinds of skills can successfully be trained and implemented in everyday practices.
using psychological skills training. In line with this suggestion is the fact that all the participants in this study who filled the questionnaire in 2017 stated that they would like to work with sport psychologist. It is also suggested that coaches should try to help athletes to view increased anxiety states as an indicator of readiness and excitement rather than fear (Weinberg and Gould, 2011).

CONCLUSION
The results of this study can help further understand the complex nature of pre-competition anxiety as well as how it influences the different level athletes. It is extremely useful to know which are the levels of anxiety in elite athletes from different sports in order to investigate which is the optimal level for that particular sport. It is important to further investigate this area comparing the elite level athletes to non-elite athletes in different sports as well as comparing the athletes from different sports, different age groups and between genders.

REFERENCES


