

The Effect of Competitive State Anxiety on Sport Performance among Rowing Athletes

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ABSTRACT

Sports psychologists have long believed that high levels of competitive state anxiety during competition are harmful, worsening performance and even leading to dropout. The instrument used for the study comprised of a 27-item Competitive State Anxiety Inventory-2 and The Psychological Performance Inventory which had been distributed during sport between universities competition. The sample consisted of 77 Rowing players, including the national athletes (N=27), state athletes (N=17), district athletes (N=18) and university athletes (N=15). The results showed that elite or national rowing athletes exhibited lower levels of competitive state anxiety, $F(3, 77) = 16.908, p < .01$. The result also showed that the exists of negative correlation between competitive state anxiety and sport performance among rowing athletes, ($r = -0.69; p < 0.05$). Sport psychologists, sport counselors and coaches should use the present findings to recommend coping strategies to university and district level athletes that are appropriate for dealing with their athletes' competitive state anxiety.

Key words: *Competitive state anxiety, Sport Performance, Skill of players.*

Anxiety as a negative emotional state, can affect athletes performance by display cognitive and physiological symptoms (Weinberg & Gould, 2011; Anshel 2003). Cognitive anxiety is characterized by negative expectations and concerns, and worries about performance, inability to concentrate, disrupted attention,

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possible consequences of failure (Ampofo-Boateng 2009; McNally, 2002). These feelings have a tendency to be debilitating of performance. Whereas, somatic anxiety component is the physiological effects, consists of an individual's perceptions, which are characterized by indications such as sweaty palms, tense muscle, shortness of breath, increased heart rate, butterflies in the stomach, and shakiness (Martens, Vealey & Burton, 1990). Multi-dimensional Anxiety Theory is based on the distinction between two components of anxiety, cognitive anxiety and somatic anxiety. In this theory, cognitive and somatic subcomponents of anxiety influence performance.

In sport psychology, the relation between competitive state anxiety and performance has been the subject of many sport psychologist researches (Hardy & Jones, 1994). Anxiety was considered one of the main important psychological factor influence performance (Raglin & Hanin, 2000). There has been a large amount of research concerning the multidimensional aspect of anxiety (Martens et al. 1990). For the past 20 years, many researchers have done to find the effect of somatic and cognitive anxiety on athletes' performance (Rotella & Lerner, 1993). But the result was inconsistent (Aufenanger, 2005).

Although, research had proven that there is a link between level of competitive anxiety and performance, the role of demographic factors in influencing anxiety levels is yet to be determined (Humara, 2001; Martens et al., 1990) especially skill of athletes. Moreover, research shows that the level of competitive anxiety among athletes differs according to individuals (Raglin & Hanin, 2000; Turner & Raglin, 1996). Most of the previous research, focused on elite athletes, while ignoring less successful athletes. According to Mahoney and Meyers (1989) and Lloyd and Mayes (1999), athletes of different levels of skill will show different levels of competitive anxiety. The extant literature also shows that

there is a limited research comparing on competitive anxiety among athletes of state, district and university level. This was confirmed by Krane (1995) that research on competitive anxiety mainly focused on elite athletes. In Malaysia, no research has been done involving these four categories of skill.

The culmination of the recognition of a Multidimensional Theory of Anxiety, in relation to the field of sport psychology, come about the through Martens et al.'s (1990) development of the Competitive State Anxiety Inventory-2 (CSAI-2).

Aims

The main purpose of this study was to examine the levels of competitive state anxiety, which include cognitive and somatic anxiety, among Rowing athletes of different skill. The present study aim to determine the level of competitive state anxiety and its effect on performances between Rowing athletes of national, state, district and university level. In other words, this research sought to correlate the relationship between competitive state anxiety and performance.

METHOD

In order to assess level of competitive state anxiety (cognitive and somatic), athletes responded to the 27-item Competitive State Anxiety Inventory-2 (CSAI-2) (Martens et al., 1990), using a 4-point Likert-type scale ranging from 1 (not at all) to 4 (very much so). CSAI-2 was used to measure athletes' tendency to respond competitive sport situation during competition. Besides that, 42-item of The Psychological Performance Inventory had been distributed. The Psychological Performance Inventory asses seven factor of performance: Self Confident, Negative Energy, Attention Control, Visualization and Imagery, Motivation, Positive Energy Control and Attitude Control.

The sample consisted of 77 Rowing athletes, including the national athletes (N=27), state athletes (N=17), district athletes (N=18) and university athletes (N= 15)

RESULT

Respondents' Profile

The respondents' profile described their ranking, ethnic and age. Table 1 shows the overall results of the respondents' profile for 77 Rowing athletes. The overall mean age for these respondents was 22.49 years old. The age of male respondents varied from 18 to 25 years, where the mean age was 22.01 years old. The age of female players ranged from the minimum of 18 to the maximum of 24 years old. The mean age for female respondents was 22.49 years old.

The variable "rank which is gathered through this study is categorized into four levels namely, national, state, district and university. The result showed that 27 respondents had participated at national, whilst 17 respondents participate at state, 18 had participated at district and 15 respondents participated at the university level. Majority of the respondents, were undergraduates for Degree (n=46) and Diploma (n=31) programmes.

Table 1: Respondents' Profile (n=77)

Variables	Frequency	Percentage	Mean	SD
Athletes according to rank				
National	27	35.06		
State	17	22.08		
District	18	23.38		
University	15	19.48		
Programme	31	40.26		
Diploma	46	59.74		
Degree			22.01	1.29
Age			21.17	1.88
Male			22.49	1.45
Female				
Overall				

Cronbach Reliability Coefficients

In this study, Cronbach alpha coefficients were found relatively high, ranging from .82 to .86 (Table 2).

Table 2: Cronbach Reliability Coefficients

Questionnaire	Cronbach's Alpha (n=77)
Competitive State Anxiety	.8649
Sports Performance	.8277

Level of Competitive State Anxiety

Table 3 shows the mean scores for the competitive state anxiety among Rowing athletes of different skills, $F(3, 77) = 16.908, p < .01$. Apparently, significant differences emerged for the athletes having different skills at competition. Overall, the mean score obtained for the national athletes was lower than those in other categories.

Table 3: Level of Competitive State Anxiety among Rowing Athletes

Skills of Athletes	Mean	F-Value	P-Value
National	12.6781	16.908**	0.000
State	15.5139		
District	17.3370		
University	21.9901		

** p=.01

Post-Hoc Tukey Test (Table 4) showed that the level of competitive state anxiety of university were higher than district (p=.05), state (p=.05) and national (p=.05) level athletes. Furthermore, the level competitive state anxiety of district were higher than state (p=.05) and national (p=.05), but lower than university level athletes (p=.05). In addition, the level of competitive state anxiety of state were higher than national (p=0.05), but lower than district (p=.05) and university (p=.05) level athletes. Lastly, the level of competitive state anxiety of national were lower than state (p=.05), district (p=.05) and university level athletes (p=.05).

Table 4: Post Hoc Tukey Test: Level of Competitive State Anxiety among Rowing athletes

Skill of Athletes	National	State	Distict	University	N
National		* (1.3781)	* (1.9712)	* (2.3471)	27
State					17
District					18
University					15

*p=.05

Level of Sport Performance

Table 5 shows the mean scores for the sport performance among the Rowing athletes of different skills, $F(3, 77) = 18.110, p < .01$. Apparently, significant differences emerged for the athletes having

different skills at competition. Overall, the mean score obtained for the national athletes was higher than those in other categories.

Table 5: Level of Sport Performance among Rowing Players

Skills of Athletes	Mean	F-Value	P-Value
National	23.0975	18.110**	0.000
State	20.8917		
District	18.2138		
University	15.2363		

** p=.01

Post-Hoc Tukey Test (Table 6) showed that the level of sport performance of national were higher than district (p=.05), state (p=.05) and university (p=.05) level athletes. Furthermore, the level of sport performance state Rowing players were higher than district (p=.05) and university (p=.05), but lower than national level athletes (p=.05). In addition, the level of sport performance of district were higher than university (p=0.05), but lower than national (p=.05) and state (p=.05) level athletes. Lastly, the level of sport performance of university were lower than state (p=.05), district (p=.05) and national level athletes (p=.05).

Table 6: Post Hoc Tukey Test: Level of Sport Performance among Rowing Players

Skill of Athletes	National	State	Distict	University	N
National		* (1.3131)	* (1.8201)	* (2.8312)	27
State					17
District					18
University					15

*p=.05

Correlation of Competitive State Anxiety and Sport Performance

The correlation coefficient of -0.69 was noted between the level of competitive state anxiety and sport performance in the evaluation

of 77 Rowing athletes, which is significant ($P < .05$). In other words, the negative relationship existing between these variables is statistically significant (Table 7). Negative correlation indicates that either variables increase or decrease contradictory.

Table 7: The Relationship between the Level of Competitive State Anxiety and Sport Performance

Subject	Sport Performance
The Level of Cognitive Anxiety	-0.69** (0.000)

* * $p = .05$

DISCUSSION

Level of Competitive State Anxiety

The result showed that rowing athletes of university level exhibited higher competitive state anxiety level than those in state and district categories, whereas national athletes showed the lowest. In Malaysia, no research involving the four categories of skills has been conducted so far, therefore this research has failed to compare these with the findings of previous research. However, according to Drive theory, the present of audience for low skilled athletes, during the sport competition could increase their competitive state anxiety.

Competitive state anxiety includes symptoms of cognitive and somatic anxiety. Cognitive anxiety is the extent to which an athlete worries or had negative thoughts, and the negative thoughts may include fear of failure, loss of self-esteem and self-confidence. Somatic anxiety refers to athletes' changes in their physiology, such as increased perspiration, difficulty in breathing, increased heart beat, changes in the brain wave, elevated blood pressure, increased urination, butterflies in the stomach, less saliva in the mouth and muscle tension. The sympathetic nervous system is stimulated by fear perception in the cerebral cortex, prompting an immediate stress response. Both of these anxieties could lead to the poor performance of an athlete in competition. It may start

before a competition in the form of pre-competitive anxiety that might affect performance throughout the competition.

Elite athletes like national and state level, who have learned anxiety management skills, often respond to a greater degree to competitive state anxiety but return to their resting rate sooner than those athletes, who are not trained in anxiety management like district and university level. At the interview session with the rowing athletes it was found that most of the national athletes using coping strategies like positive self talk, thought stopping, relaxation techniques and imagery to reduce their competitive state anxiety level. In the other hand, most of the low skill athletes like district and university level unaware and not practicing of these techniques. Therefore, the level of competitive state anxiety of district and university level athletes was very high.

Level of Sport Performance

The result showed that national rowing athletes obtain the highest sport performance compared state, district and university skill athletes. The main reason national athletes perform better than other skill athletes because most of them use coping strategies to reduce their competitive state anxiety. High level of competitive state anxiety is the barrier for high performances in sport. The result showed that district and university skill rowing athletes experienced highest level of cognitive anxiety, therefore their sport performances has been drop. Many research proved that high level of competitive state anxiety has been the barrier to deteriorate performance in sport.

Level of Competitive State Anxiety and Sport Performance

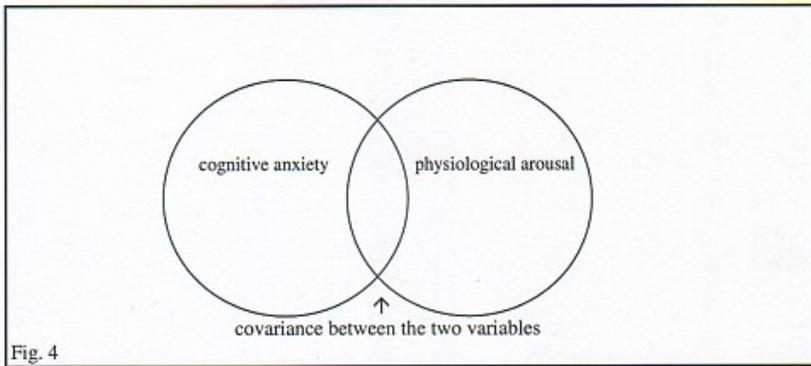
The main aim of the study was to test Multidimensional Theory of Anxiety through Competitive State Anxiety Inventory–2 (CSAI-2). The present study hypothesized that those athletes experience high level of competitive state anxiety had a low level of performance

and athletes' experienced low level of competitive state anxiety had high level of performance.

The result revealed there exists of negative correlation between competitive state anxiety and sport performance. It means the higher the level of competitive state anxiety experience by rowing athletes, the lower sport performance level. The relationship between competitive state anxiety and performance was explained best in Multidimensional Anxiety Theory. This theory explains that somatic and cognitive anxiety effect performance. The relationship between somatic and cognitive anxiety, where an athlete experiences physiological and cognitive changes, will effect the performance (Ampofo-Boateng, 2009).

The hypothesis that there was a negative correlations between competitive state anxiety and performance, was supported Multidimensional Theory of Anxiety. This investigation supported those researches done by Cox (2011), Tsorbatzoudis, Barkoukis, Sideridis and Grouios (2002), Beilock and Carr (2001), Ntoumanis and Biddle (1998), Wann (1997), Krane and Williams (1994), Nideffer (1993), Martens et al. (1990) and, Rodrigo, Lusiardo and Pereira (1990). Hence, this investigation result showed that competitive state anxiety as the main factor due to low performance in sport.

A number of researchers have also drawn attention to the likelihood that cognitive and somatic anxiety are not entirely the independent sub-components they have been treated as, and in fact actually correlate to some extent with each other (Krane, 1990; Jones, Cale & Kervin, 1988; Petlichkoff & Gound, 1985). Morris, Davis and Hutchings (1981) had expressed that it was likely that there was some form of relationship between the two components.



The main reason of performance low when high level of anxiety was that the anxiety had an effect on concentration (Jones, 2000; Landers, Wang & Courtet, 1985). Good concentration is known to help improve sports performance. According to Nideffer and Sagal (2001), concentration is crucial to sports performance and is often the deciding factor in athletic competition. An athlete who is able to maintain his or her concentration for the entire duration of the execution of a skill or performance or competition had a good chance of being successful (Ampofo-Boateng 2009).

This result had proved that the level of competitive state anxiety is the best predictable factor for performance. In other words, the level of performance could be achieved by an athlete totally depends on his competitive state anxiety. This result also showed the importance of athletes to control the level of competitive state anxiety by using certain coping strategies, to improve their performance.

CONCLUSIONS

Clearly, competitive state anxiety has the capability to threaten a person's well being because it can increase a person's cognitive and somatic anxiety, which has a tendency to deteriorate athletes' performance. Overall, the results showed a tendency for performance to decrease when competitive anxiety (cognitive and somatic) increased. The result support Multidimensional Theory of

Anxiety, which a negative relationship exist between competitive state anxiety and performance. Sport psychologists, sport counselors or coaches should use this research to recommend coping strategies can be use by athletes, to decrease cognitive and somatic anxieties, to enhance performance.

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