# THE RELATIONSHIP BETWEEN COGNITIVE ANXIETY AND PSYCHOLOGICAL SPORT PERFORMANCES ONPARALYMPIC ATHLETES

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**Abstract-** Sports psychologists have long believed that high levels of cognitive 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 Paralympic sport competition. The sample consisted of 166 athletes, which have been classified into 12 disabled sports, which include Archery (N= 21), Football (N= 21), Chess (N= 18), Swimming (N= 18), Athletics (N= 17), Table Tennis (N= 16), Ping Pong (N= 10), Basketball (N= 10), Power lifting (N= 9), Boccia (N= 14), Goal ball (N= 7) and Volleyball (N= 5). The results showed that swimmingathletes exhibited lower levels of cognitive anxiety, $F(3, 166) = 14.443$, $p < .01$. The result also showed that the exits of negative correlation between cognitive anxiety and sport performance among athletes, ($r = -0.81$; $p<0.05$). Sport psychologists, sport counselors and coaches should use the present findings to recommend coping strategies to athletes that are appropriate for dealing with their athletes' cognitive anxiety.

**Key Words-** Cognitive, Psychological Sport Performance, Paralympic athletes.

## I. INTRODUCTION

Anxiety, as a negative emotional, affect perceptions in sport competitions, where a large majority of athletes consider anxiety to be debilitative towards performance, which may result in decreases in performance (Weinberg & Gould, 2018; Raglin&Hanin, 2000). Many researches showed that winning in a competition depend on how an athlete can control their anxiety level (Humara, 2001). Anxiety consists of two subcomponents: cognitive and somatic anxiety, which influence performance (Jarvis, 2006; Martens, Vealey & Burton, 1990). The cognitive is the mental component, which characterized by negative expectations about success or self-evaluation, negative self-talk, worries about performance, images of failure, inability to concentrate, and disrupted attention (Jarvis 2006; Martens, Vealey & Burton, 1990). Contradictory, the somatic is the physiological element, which related to autonomic arousals, negative symptoms such as feelings of nervous, high blood pressure, dry throat, muscular tension, rapid heart rate, sweaty palms and butterflies in your stomach (Jarvis, 2002; Jones, 2000; Martens, Vealey & Burton, 1990).

According to Hann (2000) high levels of anxiety during competition are harmful, worsening performance and even leading to dropout. Therefore, it's very important to know the level of anxiety especially the cognitive anxiety in order to take all necessary preparation to reduce it.

Catastrophe Model well described the relationship between cognitive anxiety and sport performance (Cox, 2012; Weinberg & Gould, 2018; Ampofo-Boateng, 2009). According to this theory, an achievement of best sport performance results can obtain only when there is low level of cognitive anxiety. Once an athlete experience high level of cognitive anxiety as in a situation where an athlete is worrying and it combines with increase of arousal beyond and optimal level, there will be a quick or catastrophic decrease in performance. However, since there is lack research, there has been very poor research support for the catastrophe model (Ampofo-Boateng, 2009). Heavy playing schedules, competition for team places, the media and fans as well as the pressure to win trophies all play a part in players developing high stress and anxiety levels (Heather, 2010), especially the level of cognitive anxiety. Therefore, athletes use cognitive coping techniques to reduce the level of cognitive anxiety, in order to enhance their performance. Coping has been defined by Lazarus and Folkman (1984: 141) as "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taking or exceeding resources of the person". Cognitive coping strategies are goal-setting, thought stopping, imagery, positive self-talk, and focus on the present.

However, since lack of research on cognitive anxiety, cognitive techniques and its effect on performances, especially on disabled athletes, sport psychologists still failed to determine the relationship among those variables. Moreover, most of the previous research, focused on abled athletes, while ignoring less abled athletes. The extant literature also shows that there is a limited research comparing on cognitive anxiety and cognitive techniques among disable athletes.

The main purpose of this study was to examine the relationship between cognitive anxiety and

psychological performance among athletes who participated at Paralympic Games of different sports. The present study aims to determine the level of cognitive anxiety and its effect on psychological performances betweenathletes of 12 disabled sports.

## II. METHODS

The participants of this study were recruited from 7th ASEAN Para Games, Myanmar 2014, which took place in Nay Pyi Taw, Myanmar. The instrument used for the study comprised of a 27-item Competitive State Anxiety Inventory–2 (CSAI-2)and 42-item The Psychological Performance Inventory, which had been distributed during sport. Competitive State Anxiety Inventory–2 (CSAI-2) was developed by Martens, R. S. Vealey, & D. Burton (1990). The Psychological Performance Inventory which was developed by Loehr, 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 166 athletes, which have been classified into 12 disabled sports, which include Archery (21), Football (21), Chess (18), Swimming (18), Athletics (17), Table Tennis (16), Ping Pong (10), Basketball (10), Power lifting (9), Boccia (14), Goal ball (7) and Volleyball (5).

## III. RESULT

### 3.1. Respondents' Profile

The respondents' profile described their ethnic and age. Table 1 shows the overall results of the respondents' profile for 166disabled athletes. The overall mean age for these respondents was 22.10 years old. Ethnic background which was gathered through this study is categorized into four, Malay, Chinese, Indian and others. The result showed that 44 respondents were Malays, whilst 31were Chinese,21 Indiansand 70 respondents belong to other races.

| Variables | Frequency | Percentage | Mean | SD |
|---|---|---|---|---|
| Athletes According to Ethnic | | | | |
| Malay | | | | |
| Chinese | 44 | 26.51 | | |
| Indian | 31 | 18.67 | | |
| Others | 21 | 12.65 | | |
| | 70 | 42.17 | | |
| Athletes According to Types of Sport | | | | |
| Individual | | | | |
| Team | 104 | 62.65 | | |
| | 62 | 37.35 | | |
| Age | | | | |
| Male | | | | |
| Female | 130 | | 21.61 | 1.77 |
| Overall | 36 | | 21.18 | 1.45 |
| | | | 22.10 | 1.78 |

**Table 1: Respondents' Profile (n=166)**

### 3.2. Cronbach Reliability Coefficients

In this study, Cronbach alpha coefficients were found relatively high, ranging from .81 to .86 (Table 2).

**Table 2: Cronbach Reliability Coefficients**

| Questionnaire | Cronbach's Alpha (n=166) |
|---|---|
| Cognitive Anxiety | .8191 |
| Psychological Performance | .8687 |

### 3.3. Level of Cognitive Anxiety

Table 3 shows the mean scores for the cognitive anxiety among athletes of different sports, $F (11, 166) = 14.443$, $p < .01$. Apparently, significant differences emerged

for the athletes having different sports at competition. Overall, the mean score obtained for the swimming athletes was lower than those in other categories.

**Table 3: Level of Cognitive Anxiety among PARALYMPIC Athletes**

| Sports | Mean | F-Value | P-Value |
|---|---|---|---|
| Archery | 11.5558 | 14.443** | 0.000 |
| Football | 18.0910 | | |
| Chess | 13.0781 | | |
| Swimming | 11.9900 | | |
| Athletics | 15.4712 | | |
| Table Tennis | 12.3622 | | |
| Ping Pong | 13.2210 | | |
| Basketball | 16.4576 | | |
| Power lifting | 14.1125 | | |
| Boccia | 14.2201 | | |
| Goal ball | 17.0003 | | |
| Volleyball | 15.3788 | | |

** p=.01

3.4. Level of Psychological Sport Performance

Table 5 shows the mean scores for the psychological sport performance among athletes of different sports, $F (11, 166) = 15.457$, $p < .01$. Apparently, significant differences emerged

for the athletes having different sports at competition. Overall, the mean score obtained for the swimming athletes was higher than those in other categories.

**Table 4: Level of Psychological Sport Performance among PARALYMPIC Athletes**

| Sports | Mean | F-Value | P-Value |
|---|---|---|---|
| Archery | 16.0117 | 15.457** | 0.000 |
| Football | 12.4501 | | |
| Chess | 17.3321 | | |
| Swimming | 19.5510 | | |
| Athletics | 15.2518 | | |
| Table Tennis | 14.8717 | | |
| Ping Pong | 15.6521 | | |
| Basketball | 13.0001 | | |
| Power lifting | 14.3166 | | |
| Boccia | 16.9750 | | |
| Goal ball | 13.1200 | | |
| Volleyball | 16.4252 | | |

** p=.01

### 3.5. Correlation of Cognitive Anxiety and Psychological Sport Performance

The correlation coefficient of -0.81 was noted between the level of cognitive anxiety and psychological sport performance in the evaluation of 166PARALYMPIC athletes, which is significant (P < .05). In other words, the negative relationship existing between these variables is statistically significant (Table 5). Negative correlation indicates that either variables increase or decrease contradictory.

**Table 5: The Relationship between the Level of Cognitive Anxiety and Psychological Sport Performance**

| Subject | Psychological Sport Performance |
|---|---|
| The Level of Cognitive Anxiety | -0.81** (0.000) |

* * p=.05

## IV. DISCUSSION

### 4.1. Level of Cognitive Anxiety

The result showed that football athletes exhibited higher level of cognitive anxiety than those in other sports categories, whereas swimming athletes showed the lowest level of cognitive anxiety. In sport disabled world, no research involving the 12 categories of sports 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 since football considered as favorite sports for many people, could increase their level of cognitive anxiety during competition.

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. It 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. Furthermore, the result of Cognitive Coping Techniques Inventory showed that football players less using cognitive coping techniques to overcome cognitive anxiety. Therefore, the level of cognitive anxiety of football players were higher.

### 4.2. Level of Psychological Sport Performance

The result showed that national swimming athletes obtain the highest psychological sport performance compared other disabled sports. The main reason swimming athletes perform better than other sport athletes because their level of cognitive anxiety was the lowest. These is mainly due to the water, that keeping keep them cooldan relax. According Petrescu,Pitigoiand Păunescu (2014), swimming reduces mental tension and anxiety. Furthermore, most of them use coping strategies to reduce their cognitive anxiety. High level of cognitive anxiety is the barrier for high performances in sport. The result showed that football playersexperienced highest level of cognitive anxiety, therefore their sport performances has been dropped. Many researches proved that high level of cognitive anxiety has been the barrier to deteriorate performance in sport.

### 4.3. Level of Cognitive Anxiety and Psychological Sport Performance

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

## CONCLUSION

The findings of the research determined that there are differences in the level of cognitive anxiety, showed byPARALYMPIC athletes. These differences were related to their types of sports. The results showed that swimming PARALYMPIC athletes exhibited lower levels of cognitive anxiety than other sports athletes. Low cognitive anxiety levels are very important in high sport performance. This study also showed that exist of negative correlation between cognitive anxiety and psychological performance. Sport psychologists, sport counselors and coaches should use the present findings to recommend coping strategies to football athletes that are appropriate for dealing with their athletes' cognitive anxiety.

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