

The Relationship between Cognitive Anxiety and Sport Performance on Running 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 sport between universities competition. The sample consisted of 107 runners, including the national athletes (N=33), state athletes (N=21), district athletes (N=35) and university athletes (N= 18). The results showed that elite or national Running athletes exhibited lower levels of cognitive anxiety, $F(3, 77) = 15.247$, $p < .01$. The result also showed that the exists of negative correlation between cognitive anxiety and sport performance among runners, ($r = -0.72$; $p < 0.05$). 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' cognitive anxiety.

Keywords: *Cognitive, Sport Performance, Skill of players.*

INTRODUCTION:

Anxiety, as a negative emotional, affect perceptions in sport competitions, where a large majority of athletes consider anxiety to be debilitating towards performance, which may result in decreases in performance (Weinberg & Gould, 2011; 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, 2002; 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 2002; Martens, Vealey & Burton, 1990).

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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).

Researchers have reported that over 50 of consultations among athletes at an Olympic festival were related to stress or anxiety problems (Murphy, 1988). 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, 2011; 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).

Recent investigation found that male and female athletes suffering stresses resulted pressure to win, excessive anxiety, frustration conflict, irritation and fear, which significantly affected their mental or emotional health (Humphrey, Yow & Bow 2000). 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. However, since lack of research on cognitive anxiety and its effect on performances, sport psychologists still failed to determine the relationship among those variables. Moreover, most of the previous research, focused on elite athletes, while ignoring less successful athletes. This was confirmed by Krane (1995) that research on competitive anxiety mainly focused on elite athletes. The extant literature also shows that there is a limited research comparing on cognitive anxiety among runners athletes of state, district and university level.

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

METHODS

The participants of this study were recruited from sport between universities. 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 between universities. The Psychological Performance Inventory asses seven factor of

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performance: Self Confident, Negative Energy, Attention Control, Visualization and Imagery, Motivation, Positive Energy Control and Attitude Control.

The sample consisted of 107 runners, including the national athletes (N=33), state athletes (N=21), district athletes (N=35) and university athletes (N= 18).

RESULT

Respondents' Profile

The respondents' profile described their ranking, ethnic and age. Table 1 shows the overall results of the respondents' profile for 107 Running athletes. The overall mean age for these respondents was 22.09 years old. The age of male respondents varied from 18 to 26 years, where the mean age was 23.79 years old. The age of female players ranged from the minimum of 18 to the maximum of 25 years old. The mean age for female respondents was 21.88 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 33 respondents had participated at national, whilst 21 respondents participate at state, 35 had participated at district and 18 respondents participated at the university level. Majority of the respondents, were undergraduates for Degree (n=89) and Diploma (n=18) programmes.

Table 1: Respondents' Profile (n=107)

Variables	Frequency	Percentage	Mean	SD
Athletes according to rank				
National	33	30.84		
State	21	19.63		
District	35	32.71		
University	18	16.82		
Programme				
Diploma	18	16.82		
Degree	89	83.18		
Age				
Male			23.79	2.11
Female			21.88	1.71
Overall			22.09	1.87

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Cronbach Reliability Coefficients

In this study, Cronbach alpha coefficients were found relatively high, ranging from .86 to .88 (Table 2).

Table 2: Cronbach Reliability Coefficients

Questionnaire	Cronbach's Alpha (n=107)
Cognitive Anxiety	.8831
Sports Performance	.8679

Level of Cognitive Anxiety

Table 3 shows the mean scores for the cognitive anxiety among runners of different skills, $F(3, 107) = 15.247$, $p < .01$. 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 Cognitive Anxiety among Runners

Skills of Athletes	Mean	F-Value	P-Value
National	12.4123	15.247**	0.000
State	14.7328		
District	17.3876		
University	21.4512		

** $p < .01$

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

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Table 4: Post Hoc Tukey Test: Level of Cognitive Anxiety among Runners

Skill of Athletes	National	State	Distict	University	N
National		* (1.3210)	* (1.6241)	* (2.4271)	33
State					21
District					35
University					18

*p=.05

Level of Sport Performance

Table 5 shows the mean scores for the sport performance among the runners of different skills, $F(3, 107) = 17.402$, $p < .01$. 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 Runners

Skills of Athletes	Mean	F-Value	P-Value
National	21.5768	17.402**	0.000
State	18.7729		
District	15.4781		
University	13.1042		

** 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 Runners 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 ($p=.05$), 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 Runners

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

*p=.05

Correlation of Cognitive Anxiety and Sport Performance

The correlation coefficient of -0.72 was noted between the level of cognitive anxiety and sport performance in the evaluation of 77 Runners, 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 Cognitive Anxiety and Sport Performance

Subject	Sport Performance
The Level of Cognitive Anxiety	-0.72** (0.000)

* * $p=.05$

DISCUSSION

Level of Cognitive Anxiety

The result showed that Runners of university level exhibited higher cognitive anxiety level than those in state and district categories, whereas national athletes showed the lowest level of cognitive anxiety. 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 cognitive 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. 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. Elite athletes like national and state level, who have learned anxiety management skills, often respond to a greater degree to cognitive 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 football 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 cognitive 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 cognitive anxiety of district and university level athletes was very high.

Level of Sport Performance

The result showed that national runners 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 cognitive anxiety. High level of cognitive anxiety is the barrier for high performances in sport. The result showed that district and university skill runners experienced highest level of cognitive anxiety, therefore their sport performances has been drop. Many research proved that high level of cognitive anxiety has been the barrier to deteriorate performance in sport.

Level of Cognitive Anxiety and Sport Performance

The result revealed there exists of negative correlation between cognitive anxiety and sport performance. It means the higher the level of cognitive anxiety experience by runners, the lower 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 by different categories of runners. These differences were related to their level of skill. The results showed that elite or national runners exhibited lower levels of cognitive anxiety than non-elite 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 performance. 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' cognitive anxiety.

Future research should identify the most prevalent sources of cognitive anxiety among different skill of **Runners**. Initial evidence suggest among the sources of anxiety are fear of injury, presence of audience, past unpleasant experiences, fear of lose, negative evaluation, knowledge of the opposition team, uncertainty, playing at the opposition's place, high hope, and perceived sport events as very important. Seeking sources of cognitive anxiety should be a great value to reduce the level of anxiety. Furthermore, types of coping strategies can be used to reduce the level of cognitive anxiety among athletes much depend on the sources of anxiety.

REFERENCES

- Ampofo-Boateng, K. 2009. *Understanding Sport Psychology*. Selangor, Malaysia: UPENA.
- Cox, R. H., 2012. *Sport Psychology: concepts and applications*. 7th ed. New York: McGraw Hill.
- Heather B. 2010. Psychology: motivation, anxiety, confidence and goal setting. (<http://www.soccernh.org/LinkClick.aspx?fileticket=z-jkZpam25k%3D&tabid=4766>).
- Humara, M. 2001. The relationship between anxiety and performance: A Cognitive-behavioral perspective. *Athletic Insight 1(2): The Online Journal of Sport Psychology*
- Humphrey, J. H., Yow, D. A. & Bowden, W. W. (2000). *Stress in college athletics: Causes, consequences, coping*. Binghamton, NY: The Haworth Half-Court Press.
- Jarvis, M. 2002. *Sport Psychology*. New York: Routledge.
- Jones, G. 2000. Stress and anxiety. In S.J. Bull, *Sport Psychology: A self-help Guide* (p. 31-51). Ramsbury, Marlborough: Crowood.
- Krane, V. 1995. *Anxiety and stress: reflection of the past and visions of the future*. Paper presented as the Dorothy Harris Young Scholar – Practitioner lecturer at the meeting of the Association for the Advancement of Applied Sport Psychology. New Orleans, LA.
- Martens, R., Vealey, R.S., & Burton, D. 1990. *Competitive Anxiety in Sport*. Champaign, Illinois: Human Kinetics.

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- Murphy, S. M. 1988. The on-site provision of sport psychology services at the 1987. U. S Olympic Festival. *The Sport Psychologist* 2, 105-130.
- Raglin, J.S. & Hanin, Y.L. 2000. Competitive anxiety. In Yuri, L.H., *Emotions in Sport* (p. 93-111). Champaign, IL: Human Kinetics.
- Weinberg, R.S. & Gould, D., 2011. *Foundations of Sport and Exercise Psychology*. Champaign, IL: Human Kinetics.