

## A study of pre-competition anxiety of Taiwan division B male table tennis players

Su-Chun Wang<sup>1</sup>, Ming-Hua Hsu<sup>2</sup> and Chen-Chih Huang<sup>3</sup>

<sup>1</sup>Office of Physical Education, Asia-Pacific Institute of Creativity, Miaoli County, Taiwan, R.O.C.

(Tel: 886-3-7605500; E-mail: [wasckimo@yahoo.com.tw](mailto:wasckimo@yahoo.com.tw))

<sup>2</sup>Office of Physical Education, National Chung Hsing University, Taichung City, Taiwan, R.O.C.

(Tel: 886-4-228472621; E-mail: [mhhsu@mail2000.com.tw](mailto:mhhsu@mail2000.com.tw))

<sup>3</sup>Department of Sport, Health & Leisure, Wufeng University, Chiayi County, 621, Taiwan, R.O. C.

(Tel: 886-5-2267125; E-mail: [brian@brian@wfu.edu.tw](mailto:brian@brian@wfu.edu.tw))

**Abstract:** the purpose of the study was to investigate the pre-event anxiety of Taiwan's table tennis players in men's division B. Fifty-four male tennis players from four different schools served as subjects of the study. With Sport Competition Anxiety Test (SCAT, Lu Chun-Hong's version) and Competition State Anxiety Scale-II (CSAI-2, Huang Ying-Zhe's version) as analyzing tools, data were further verified by applying descriptive statistics and Pearson product-moment correlation. Study results could be concluded as followed: 1. 'Trait anxiety', 'pre-event cognitive anxiety' and 'pre-event somatic anxiety' showed positive correlation. They showed, however, negative correlation with 'self-confidence'. 2. 'Pre-event cognitive anxiety' and 'pre-event somatic anxiety' were positively-correlated. They were, however, negatively-correlated with 'self-confidence'. 3. 'Pre-event somatic anxiety' and 'self-confidence' were negatively correlated.

**Keywords:** trait anxiety, pre-event state anxiety, self-confidence.

### 1. INTRODUCTION

The sport psychology is a branch of sport science, as well as the science specialized in human sports psychological factors. The psychological differences often determine the victory or defeat of athletes with equivalent physical performance and technical level.

The table tennis game was a sort of relative competition, there are variable skills and delicate actions in a match, the players have to respond quickly, and the long duration and the noisy playing condition are likely to cause the players anxiety. The anxiety is divided into two types, one is persistent trait anxiety, it is quite stable anxiety tendency of individuals, the persons with higher trait anxiety are more likely to feel strong threat and context stress in a stress context; the other one is temporary state anxiety, it is a short emotional state, the

spontaneous nervous system causes individual unease and tension, to be brief, the state anxiety is transient anxiety varying with the match situations [1].

All of Taiwan's studies of table tennis players aimed at elite players, seldom at table tennis players of division B, therefore, the results of this study are expected to serve as a reference frame for the coaches or teachers of various levels of schools to train players in the future.

### 2. METHODOLOGY

#### 2.1. Subjects

54 players served as subjects: 12 players of the table tennis team of Qin Min Commercial and Vocational School, 10 players of the table tennis team of Ta Hwa Institute of Technology, 8 players of the table tennis team of Yilan Institute of Technology and 24 players of the table tennis team of Chongxian Senior High School.

## 2.2. Method

Friendly matches were adopted, and the players were asked to fill in questionnaires before competition. The original data were analyzed by statistical software SPSS, and the following statistical methods were used according to the research purpose.

2.2.1. The basic data of research subjects were analyzed by descriptive statistics.

2.2.2. The correlation among variables of pre-competition anxiety was discussed by Pearson's product-moment correlation.

2.2.3. The significance level of all the statistical tests was defined as  $\alpha=0.5$ .

## 3. RESULTS

According to Table 1, the findings show that the "trait anxiety" was closely related to various aspects of "pre-competition state anxiety", and the aspects of "pre-competition state anxiety" were closely related to each other. The aforesaid findings will be analyzed and discussed below.

Table 1 Analysis of correlation among pre-competition anxiety variables

	Trait anxiety	Cognitive state anxiety	Somatic state anxiety	Self-confidence
Trait anxiety		0.55*	0.68*	- 0.36*
Cognitive state anxiety			0.52*	- 0.19*
Somatic state anxiety				- 0.16*
Self-confidence				

\*  $p < 0.05$

### 3.1. The "trait anxiety" was positively correlated with "pre-competition cognitive state anxiety" and "pre-competition somatic state anxiety"; negatively correlated with "self-confidence".

According to the aforesaid findings, the table tennis players of division B of Taiwan with higher "trait anxiety" had higher "pre-competition cognitive state anxiety" and "post-competition somatic state anxiety", and had lower "pre-competition self-confidence"; on the contrary, the players with lower "trait anxiety" had lower "pre-competition cognitive state anxiety" and "post-competition somatic state anxiety", and had higher "pre-competition self-confidence".

Weinberg and Genuchi [2] took 63 male golfers as subjects, and found that the players with lower trait anxiety had lower state anxiety, and the trait anxiety was significantly correlated with pre-competition state anxiety.

Scanlan and Passer [3] took 192 10-12 years old female football players as subjects to discuss the source of competition pressure. The results showed that the players with high trait anxiety had higher pre-competition state anxiety.

Maynard and Howe [4] took 22 male college student rugby players as subjects to discuss the relationships among the trait anxiety, state anxiety and competition performance of rugby players. The results showed that the trait anxiety was significantly correlated with somatic anxiety.

Hardy and Jones [5] proposed that the self-confidence somehow resisted potential negative cognition in the relationship between intermediate anxiety and sports performance. Therefore, why "pre-competition self-confidence" was negatively correlated with "trait anxiety" in this study can be understood.

According to the aforesaid findings of scholars, the "trait anxiety" was significantly correlated with

"pre-competition state anxiety" [2-4]. The results of this study were supported.

**3.2. "Pre-competition cognitive state anxiety" was positively correlated with "pre-competition somatic state anxiety"; negatively correlated with "self-confidence".**

According to the aforesaid findings, the table tennis players of division B of Taiwan with higher "pre-competition cognitive state anxiety" had higher "pre-competition somatic state anxiety" and lower "pre-competition self-confidence"; on the contrary, the players with lower "pre-competition cognitive state anxiety" had lower "pre-competition somatic state anxiety" and higher "pre-competition self-confidence".

Martens et al. [1] thought it was impossible that the athletes had very high somatic anxiety but no cognitive anxiety; on the contrary, very high cognitive anxiety but no somatic anxiety. Krane [6] took senior high school gymnasts and university golfers as subjects to discuss the relationship between three dimensions of pre-competition sports state anxiety and the performance. The results showed the pre-competition cognitive anxiety and somatic anxiety of gymnasts increased significantly, whereas the self-confidence declined; the cognitive anxiety of golfers declined, the self-confidence increased, and there was no significant change in the somatic anxiety.

The results of this study showed that "pre-competition cognitive state anxiety" was positively correlated with "pre-competition somatic state anxiety"; and negatively correlated with "pre-competition self-confidence", consistent with the findings of Krane [6].

**3.3. "Pre-competition somatic state anxiety" was negatively correlated with "pre-competition self-confidence".**

The aforesaid findings showed that the table tennis players of division B of Taiwan with higher

"pre-competition somatic state anxiety" had lower "pre-competition self-confidence"; on the contrary, the players with lower "pre-competition somatic state anxiety" had higher "pre-competition self-confidence".

Burton [7] indicated that the self-confidence was an important variable for predicting the sports performance. Hardy and Jones [5] also indicated that the self-confidence somehow resisted potential negative cognition in the relationship between intermediate anxiety and sports performance.

Martens et al. [1] indicated that the self-confidence was opposite to anxiety, namely, the higher the player's self-confidence was, the lower the cognitive or somatic anxiety was.

The results of this study showed that "pre-competition somatic state anxiety" was positively correlated with "pre-competition self-confidence", consistent with the findings of Hardy and Jones [5].

## **4. CONCLUSIONS AND SUGGESTIONS**

This study concluded the findings and made suggestions according to the conclusions, so as to provide reference for Taiwanese scholars to make further studies and for coaches to train and instruct players.

### **4.1 Conclusions**

Taiwan division B table tennis players: 1) "trait anxiety" was positively correlated with "pre-competition cognitive state anxiety" and "pre-competition somatic state anxiety"; negatively correlated with "self-confidence"; 2) "pre-competition cognitive state anxiety" was positively correlated with "pre-competition somatic state anxiety"; negatively correlated with "self-confidence"; 3) "pre-competition somatic state anxiety" was negatively correlated with "self-confidence".

### **4.2. Suggestions**

4.2.1 The coaches or teachers may often use SCAT scale

and CSAI-2 scale designed for athletes, and use the measurement results of scales as reference frame of training or competition.

4.2.2. It is difficult for athletes of whichever grade to avoid anxiety and pressure when they face a formal match. In this case the coaches can often use imagery training or some mental skill training methods in routine training to improve the pressure resistance of athletes, so as to improve the performance.

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