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# RELATIONSHIP BETWEEN THE ANXIETY AND PERFORMANCE OF A BASKETBALL TEAM DURING COMPETITION

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KEY WORDS: anxiety, efficacy, basketball, competition

ABSTRACT: The aim of the present study was to assess trait and state anxiety in a sample of basketball players and their performance in competition, in addition to comparing players' anxiety when playing against rivals of different levels. The sample was composed of 10 players from a basketball team of the Spanish Amateur Basketball League. The State-Trait Anxiety Inventory-S (STAI-S) was utilized for the evaluation of state and trait anxiety. Performance of the players was measured during two games utilizing the official statistics of the Spanish Basketball Federation (overall rating, which is the sum of total points, rebounds, fouls received, recovered balls, and assists; and the subtraction of missed shots, fouls made, and turnovers; fouls committed; free throw percentage; 2- and 3-point field goal percentages; and points scored). One game was against a rival of high performance level and one was of lower level. The results demonstrated a positive correlation between pre-competitive state anxiety and turnovers and a negative correlation between pre-competitive state anxiety and percentage of two-point field goals. The pre-competitive state anxiety was higher when the rival was higher ranked.

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## Introduction

Basketball, like any sport, is an emotional activity and a cognitive one, in which players have to make decisions or to execute an action using the knowledge that he or she already possesses, which "are coloured by the player's feelings and perceptions of competition" (Ruiz, Sanchez, Durán & Jiménez, 2006, p.136). This multidimensional approach of the athlete to know the motives of his or her excellence have led researchers to analyze the effect of emotions on sports performance (Arent & Landers, 2003), and anxiety has a notable presence in scientific literature (Arbinaga & Caracuel, 2005; Gould, Petlichkoff, Simons & Veveva, 1987; Gutiérrez, Estévez, García & Perez, 1997; Janelle, 2002; Jones, 1995; Jones & Hanton, 2001; Raglin, 1992). These studies have demonstrated that pre-competitive anxiety causes changes in the athlete that can provoke multiple consequences on his or her performance.

From a theoretical point of view, according to Spielberger (1966), athletes with a high degree of trait anxiety will also have a higher level of state anxiety and consequently a higher risk of performing below his or her potential in the competition. These athletes are predisposed to perceive a wide range of competitive circumstances as threatening and to respond to them with states of anxiety and a disproportionate magnitude with regard to the demand (Weinberg & Gould, 1996). On the other hand, competitive state anxiety entails an immediate emotional reaction characterized by feelings of apprehension and tension associated with the activation of the organism that takes place in situations of competition (Martens, Vealy & Burton, 1990), often producing an increase in muscular tension (Marquez, 2006). To

measure these two dimensions of anxiety, Spielberger, Gorsuch and Lushene (1970) designed the *State-Trait Anxiety Inventory-S (STAI-S)*.

The aim of the present study was to assess the trait and state anxiety in a sample of basketball players and to relate these variables with their efficacy in competition, in addition to comparing the state anxiety in two games with rivals of different performances (levels).

## Method

The sample was composed of 10 players from a basketball team of the region of Murcia belonging to the Spanish Amateur Basketball League. The type of sampling selected was a non-probabilistic or intentional sampling, the study was non-experimental, and a correlational transversal design was utilized. The material used was the State-Trait Anxiety Inventory-S (STAI-S) for the evaluation of the trait and state anxiety. The procedure involved was the following: for the measurement of pre-competition state anxiety, two games were chosen against very different rivals (one ranked 3rd and the other 15th), while the team from the sample was ranked 1st. The questionnaire was completed just before the warm-up, approximately 30 minutes before the beginning of the competition. The evaluation of trait anxiety was done before one of the training sessions. To measure the performance, some official statistics of the Spanish Basketball Federations (SPF) for each player and per minute played were used: overall rating (the sum of total points, rebounds, fouls received, recovered balls, and assists; and the subtraction of missed shots, fouls made, and turnovers), fouls committed, free throw percentage, 2- and 3-point field

goal percentages, and points scored. Statistical procedures involved the description of the data by means of frequency tables.

To find the possible linear correlations between the variables that do not follow a model of normal distribution, the non-parametric correlation Spearman procedure was carried out. To compare the state anxiety of the sample at different moments the Wilcoxon test was utilized, due to the two related non-parametric samples.

### Results

As demonstrated in table 1, significant correlations between the state anxiety of the two games were found for two-point field goal percentages ( $p = .006$ ) and turnovers ( $p = .013$ ). The first correlation was negative, that is to say, with higher state anxiety there was less success in two-

point field goal percentages; however, the second correlation was positive, that is to say, with higher state anxiety, there were more turnovers made. On the other hand, significant correlations were not found between the season's accumulated statistics and the trait anxiety of the players.

When comparing the state anxiety of the players before the game against the low-ranking rival with the state anxiety that they had when they played against the

### Discussion

The aim of the present study was to analyze whether anxiety was related to player performance during competition for the sample. The results were similar to other studies, both for individual sports (Buena, Capdevila, & Fernández-Castro, 2002; Buceta, López de la Llave, Pérez-Llantada, Vallejo, &

State Anx.	Fouls com.	Turnovers	FT %	2FG%	3FG%	Points	Rating
Correlation Coef	.605	<b>.747*</b>	-.104	<b>-.798**</b>	-.527	-.704	-.358
Sig. (bilateral)	.65	<b>.013</b>	.807	<b>.006</b>	.361	.776	.310
Trait Anx.	Fouls com.	Turnovers	FT %	2FG%	3FG%	Points	Rating
Correlation Coef	.082	-.028	-.197	-.423	.209	-.203	-.454
Sig. (bilateral)	.823	.939	.596	.223	.528	.564	.188

\* Correlational significance 0.05

\*\* Correlational significance 0.01

Table 1. Relationship between state and trait anxiety and player statistics.

State Anxiety	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
Low-ranked rival	7	18	18	14	7	9	10	21	4	11
High-ranked rival	10	18	20	13	12	14	14	22	6	13

Wilcoxon signed-ranks test. Asymptotic sig. (two-tailed) = .015

Table 2. Level of state anxiety by subject in two games.

del Pino, 2003; Guirado et al., 1995; Gutiérrez, Estévez, García, & Pérez, 1997) as well as team sports (López-Pérez, Labrador, Buceta & Bueno, 1992; Soriano & Menéndez 1999; Smith, Smoll & Cumming, 2007; Wang, Marchant, Morris & Gibbs, 2004) in that, after analyzing the relationships of anxiety (trait and state) with variables that were considered important for athletic performance in competitive situations, it is found that pre-competitive state anxiety negatively influenced athletes' performance. In some cases (Guirado et al., 1995), trait anxiety was not an influential factor in

performance, as occurred in this study.

The differences found between pre-competitive state anxiety depending on the level of the rival (which is higher when the rival has a higher performance level), as well as studies such as those by Geisler and Kerr, (2007), Lopez-Torres, Torregrosa and Roca (2007) and Pozo (2007) support the model of expectations by Carver and Scheier (1988), in which the people who believe they are capable of completing an action adequately will respond to the anxiety by being involved in the task, working with renewed effort, with greater persistence, and improving the execution.

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