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COMPETITIVE ANXIETY IN EXPERT FEMALE ATHLETES: SOURCES AND INTENSITY OF ANXIETY IN NATIONAL TEAM AND FIRST DIVISION SPANISH BASKETBALL PLAYERS[1]

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Summary.—State and trait anxiety levels in elite Spanish women basketball players were investigated and possible differences in sources of anxiety identified, comparing National Team and First Division players. 84 players participated (13 National Team members, 71 First Division players). A quantitative/qualitative design was used. Results indicated that National Team members had lower State and Trait Anxiety scores than did the First Division players and both groups had lower scores than established population norms. Playing time was significantly related to State and Trait Anxiety for both groups of players and those who had more minutes of playing time had lower scores. Qualitative analyses indicated that the primary sources of anxiety reported by these athletes related to personal issues pertaining to feeling physically and mentally unprepared for practice and games.

Anxiety is one of the most interesting and important areas of focus in sport psychology and has continued to attract great research interest (Weiss & Gill, 2005). A variety of studies have focused on anxiety experiences and characteristics of athletes, coaches, and referees (e.g., Kelley, Eklund, & Ritter-Taylor, 1999; Guillén & Bara, 2004). Numerous questions remain regarding the anxiety characteristics of athletes at higher levels of competitive sports (Woodman & Hardy, 2001b; Gould, Greenleaf, & Krane, 2002), particularly those of female athletes (Gan & Anshel, 2006).

Further knowledge is needed about the relationship between anxiety characteristics and elite sport performance. Some researchers have argued that low trait anxiety is necessary for sport success.[2] On the other hand, other researchers have proposed that athletes tend to display lower anxiety over time as a consequence of experience (Gould, Petlichkoff, & Weinberg, 1984). Questions also exist relative to the relationship of anxiety and performance with regard to the nature of the sport, i.e., individual or team sport (Kirkby & Liu, 1999; Thanopoulos, 2006), the sex of the athlete (Alansari, 2006; Lorimer, 2006; Halbreich & Kahn, 2007; Ridgers, Fazey, & Fairclough, 2007), the position played on the team, the amount of experience in the sport, and the ability of the athlete as it relates to anxiety outcomes. Studies have been conducted on individual sports, such as tae-

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kwondo (Finkerberg, DiNucci, McCune, & McCune, 1992; Rodríguez de Armenta, 1996), golf (Pons, Balaguer, & García-Merita, 1999), and swimming (Jones & Swain, 1992), as well as team sports such as basketball and indoor soccer (Jones & Swain, 1992; Márquez, 1994). More studies on anxiety across a variety of sports are needed to gain a greater understanding of sport anxiety. It is critical to know the sources that cause anxiety, as well as the way anxiety manifests.

The primary reason for conducting this investigation is that anxiety characteristics in elite women athletes have been examined in few studies. Research has been conducted primarily in North America. Understanding the specific factors that can cause stress in athletes is very important in informing applied psychological practice with female athletes at the elite level. The specific purposes were to compare state and trait anxiety scores of women playing at the two highest levels of competitive basketball in Spain, the National basketball team and the First Division of the Spanish Professional League. The second major purpose was to examine the sources of anxiety in these players using open-ended questions. Understanding the sources of anxiety for high-level players is essential to understanding how to intervene to control anxiety among expert athletes. In addition, other variables that may affect state and trait anxiety were examined in an exploratory manner: the athlete's position on the team, years of experience playing the sport, age, and amount of playing time per game.

Method

Participants

The sample consisted of 84 Spanish female basketball players who represented 11 of the 14 teams participating in the Spain Basketball First Division Women's League. No player from any other nationality was selected due to language and cultural differences. The participation of these individuals was voluntary; written approval was obtained. Ethics rules for human subjects of the Spanish Psychology Association were followed. The 71 First Division players ranged in age from 17 to 33 years old (M age = 23.2; SD = 4.0). The players had 5.3 yr. experience (SD = 4.9) in the First Division and averaged 18.5 min. (SD = 12.3 min.) of playing time per game. The second group consisted of the 13 players on the Spanish National Team who participated in the Pre-European Championship in 2001. Their ages ranged from 19 to 33 years (Mdn = 24.9; SD = 3.4). Their playing experience mean was 8.5 yr. (SD = 4.6) of continuous participation in the First Division.

Measures

The State-Trait Anxiety Inventory (STAI: Spielberger, Gorsuch, & Lushene, 1970).—The Spanish language translation by Seisdedos (1982) was

used to measure state and trait anxiety. The State-Trait Anxiety Inventory is among the most widely used measures of anxiety across various contexts and has also received considerable use in sport contexts (Morgan, 1980; Hanin, 1989, 2000; Pons, 1991). This inventory has been previously used by sport psychologists in Spain (Gutiérrez, Estévez, García, & Pérez, 1997; Guillén & Sánchez, 2001; Guillén, Sánchez, & Márquez, 2003) and has demonstrated good validity in this context. Although the inventory is a general measure of anxiety, it is also appropriate for use in sport contexts (Martens & Simon, 1976; Powell & Verner, 1982; Dowthwaite & Armstrong, 1984). Cronbach coefficients alpha were .70 and .71 for the State and Trait Anxiety scales, respectively, in this study. In addition, the athletes responded to three open-ended questions concerning the causes of their personal anxiety during practice, while they are competing in games, and other sources of anxiety surrounding their participation in the sport of basketball.

Procedure

The data were collected from players in the Spanish Women's First Division Basketball League, which was in preparation for the French Pre-European Championship. The players in the women's national basketball league completed their questionnaires 24 to 48 hours prior to a regularly scheduled game, and the coaches of all participants and the players themselves had already provided their consent. Previous research has indicated that anxiety patterns remain relatively stable at various temporal points for athletes prior to competition (Wiggins, 1998), and so anxiety characteristics were not anticipated to vary as a consequence of proximity to competition. The National Team data were collected at the training center for this team shortly before they left to compete in the European Basketball Championships.

In order to identify the sources of anxiety for these athletes, the players were asked, "What causes you anxiety during game situations?" The question was repeated with reference to practice sessions and to their general anxiety about participating in basketball. The players responded to this open-ended question by writing down the causes or sources of their anxiety in reference to these three areas. Three sport psychologists independently categorized these open-ended responses for each of the three contexts (practice, games, general) and then met to discuss their categorization decisions. Each statement was discussed and when unanimity was reached, the statement was placed in the corresponding category.

Data Analysis

Descriptive statistics were compiled for each group and t tests were conducted to compare the scores of the two groups of athletes. Subse-

quently, analysis of variance (ANOVA) was performed, comparing players by age, position, years of experience, and average playing time per game. Mean State and Trait Anxiety scores for the Spanish population as a whole, as compiled by Seisdedos (1982), were used as a reference.

Results

Descriptive and inferential statistics and qualitative data were examined in relation to the primary research questions. The mean State Anxiety scores were for the National Team members 15.07 ($SD=6.21$) and for the First Division players 20.07 ($SD=7.33$; $t_{82}=-2.30$, $p<.05$). These values are also considerably lower than the norms for the Spanish population as a whole as compiled by Seisdedos (1982) of 23.30 ($SD=11.93$). The mean Trait Anxiety scores for National Team members was 12.15 ($SD=4.70$) and for First Division players was 18.62 ($SD=7.96$; $t_{81}=-2.83$, $p<.05$). These values were also considerably lower than the general Spanish population mean of 24.99 ($SD=10.05$) as compiled by Seisdedos (1982). These findings suggest that the more elite players generally have lower anxiety than do the First Division players or Spanish citizens as a whole.

In accordance with *a priori* research questions, the mean State and Trait Anxiety scores for players were compared relative to their age, average minutes of playing time per game, years of experience, and position. Table 1 presents the results of this examination. There was no significant effect of age on either Trait or State Anxiety. However, playing time per game had a significant main effect on both State and Trait Anxiety. Follow-up Scheffé tests indicated that players averaging 30 min. or more per game had significantly lower State Anxiety scores ($p<.05$) than did players who averaged 11–29 minutes per game and players who averaged less than 10 min. per game. Significant differences in Trait Anxiety among the three groups of players were also apparent: Scheffé tests revealed that players averaging 30 min. or more of playing time per game had significantly lower Trait Anxiety ($p<.05$) than did players averaging 11–29 minutes per game or fewer than 10 min. per game. Years of experience did not have a significant main effect on State Anxiety, but did on Trait Anxiety. Follow-up Scheffé tests showed that players with 7 yr. or more of experience had significantly lower Trait Anxiety than did players with 1–2 years of experience or 3–6 years of experience.

Standard regression analyses were conducted to understand the extent to which the variables of age, playing time, years of experience, and position explained differences in both State and Trait Anxiety. For State Anxiety, the set of predictor variables explained 19.9% of the variance ($F_{4,78}=7.53$, $p<.001$; $\eta^2=.28$). The only individually significant predictor was playing time per game (*beta* $=-.33$, $p<.01$): less playing time was associated with higher pregame State Anxiety. The standard regression

TABLE 1

ANOVA, STATE ANXIETY, AND TRAIT ANXIETY BY ATHLETE CHARACTERISTICS

		State Anxiety	F	p	η^2	Trait Anxiety	F	p	η^2
Age, yr.	17–20	20.34	1.56	.22	.74	18.17	1.00	.37	.57
	21–25	17.40				18.60			
	26–33	20.36				15.70			
M playing time, min.	6–10	21.25	6.20	.003	.97	21.77	11.11	.001	.99
	11–29	21.42				18.64			
	30–40	15.80				13.16			
Experience, yr.	1–2	19.76	1.52	.22	.73	20.00	3.14	.048	.91
	3–6	20.70				18.23			
	7+	17.44				14.82			
Position	Point guard	15.95	2.26	.07	.84	16.63	.611	.66	.40
	Shooting guard	19.22				16.16			
	Small forward	19.55				17.80			
	Power forward	23.25				20.50			
	Center	21.68				19.00			

analysis predicting Trait Anxiety was also significant ($F_{4,79}=4.91$, $p<.01$; $\eta^2=.20$) and explained 27.9% of the variance in this variable. Three individual predictors were significant, age (*beta* = .48, $p<.01$), playing time per game (*beta* = –.46, $p<.01$), and years of experience (*beta* = –.41, $p<.03$), indicating that older players, those with less playing time, and those with fewer years of experience tended to have higher Trait Anxiety.

Qualitative Sources of Anxiety

Subsequent qualitative analysis was conducted to assess the sources of anxiety for these athletes during practice and game situations, as well as the general forms of influence upon anxiety in their sport. Multiple and varied sources of anxiety were identified for both groups of players.

The sources of anxiety that were identified by the athletes during practice are provided in Table 2 and have been grouped into general categories relative to personal, teammate, and coaches' influences as well as categories of "competitive results" and "others." As indicated in Table 2, personal sources of anxiety were mostly responsible for the anxiety that the athletes experienced during practice time. The National Team players reported that their sources of anxiety primarily revolved around personal factors related to not playing well, fatigue, poor feeling state, injuries, and personal issues. In fact, every comment related to personal sources of anxiety identified by the National Team players concerned poor performance or poor preparation. The First Division players reported a greater variety of sources of anxiety, including "things not going well," specific types of practice drills, and also about concerns related to not being at one's best to perform in practice. These results seem to indicate that, independent of

TABLE 2
SOURCES OF ANXIETY DURING PRACTICE TIME

National Team (N=13)	f	%	First Division Team (N=71)	f	%
Personal					
Poor practices	5	57.14	When things don't go well	17	67.81
Fatigue	2		Various types of drills	6	
Not feeling well	2		Simulation of competitive circumstances	5	
Being injured	2		When I am not feeling well	3	
When I have a bad day	1		Start of practice	3	
			When I know that I could be doing better	3	
			When I am feeling tired and practice drags on	3	
			Other	19	
Team					
My teammates don't want to practice	1	19.04	When there are conflicts or a tense atmosphere on the team	5	9.19
Rivalry with opponent	1		The team lacks concentration	1	
Bad attitudes	1		When my teammates don't give their best	1	
"Me first" attitude of teammate(s)	1		When the team lacks motivation	1	
Coach					
Coach shouting at me	2	19.04	The shouting and complaints of the coach	6	18.39
Coach constantly interrupting flow of practice	1		The attitude of the coach	3	
When fouls aren't called by coach	1		Differential and unjust treatment of players	2	
			Long and repetitive instructions	2	
			When I try hard and am criticized	1	
			Others	2	
Results					
When I lose	1	4.76			4.59
Others			Various	4	
Total	21			87	

the skill of the players, concerns about poor performance generated the greatest amount of anxiety during practice sessions for the elite women basketball players.

Some interesting outcomes appeared in relation to the question about sources of anxiety during competition. Athletes' responses were classified and grouped according to the themes of personal factors, team factors, coaches, referees, competitive results or outcomes, situational factors, and other factors. Table 3 indicates that the most common sources of anxiety during games for both National Team and First Division players were related to personal factors. For the National Team, the most frequently cited cause was not playing one's position well, whereas for the First Division players, not playing, not being sharp, and not playing their position well

TABLE 3
SOURCES OF ANXIETY DURING GAMES

National Team ($N=13$)	n	%	First Division Team ($N=71$)	n	%
Personal					
I don't do my job well	5	41.6	Not playing or sitting on the bench	4	38.5
When the opponent takes advantage of my mistake	1		Not being sharp or feeling apathetic	3	
When I feel in poor physical condition	1		When I am not playing at my level	3	
Failure to accomplish the goal of the week	1		Nervous	3	
Failure to read correctly the flow of the game	1		Not doing my job well	3	
To be in the right place at the right time	1		Others	26	
Team					
When the team doesn't play well	2	33.3	To see that another is not performing well and knowing that she does not want to	1	3.6
When we don't play as a team	1		When the team doesn't play the way we know how to	1	
Teammate that plays independently of the rest of the players	1		When a teammate disregards a coach's instruction	1	
The lack of sacrifice by the team on the court	1		Not receiving a pass when I am in a good position	1	
When players who have poor training are allowed to play	1				
Coach					
When they get upset with the team	1	8.3	Fail to respond to the coach's expectation	3	5.5
The coach plays favorites	1		The coach's yelling and screaming	2	
			The coach takes too long to put me back in the game after a change	1	
Referee					
Referee decision perceived to be unjust	4	16.6	Not having an impartial referee	5	5.5
			A bad referee	1	
Results					
When we are losing	1	4.1	To lose or be losing	6	11.0
			Others	6	
Situational					
When the game is complicated	1	4.1	Game of extreme importance or complicated	10	27.5
			The game is very close and the outcome is in doubt	9	
			The beginning of the game	8	
			Final and decisive moments	3	
Others			Various	9	8.2
Total	24			109	

all reflected a general lack of satisfaction with their involvement. Overall, a perceived lack of preparation and performance was associated with the

players' responses. A second important source of anxiety for the National Team players involved poor performance by the team. Although this category comprised 33.3% of all the anxiety sources identified by the National Team players, only 3.6% of the cited anxiety sources identified by the First Division players reflected concern for team performance. The other major difference between the National Team and the First Division players was that situational aspects of the game (e.g., close and important games) were anxiety-provoking for First Division players (27.5% of all sources of anxiety cited) but only constituted 4.1% of the anxiety sources mentioned by the National Team players.

Table 3 provides information on the general aspects of basketball participation that contribute to anxiety in high ability players. The National Team players reported that the most common sources of anxiety for them were personal factors (55%), which included injuries and not feeling well, not feeling valued, and time and daily routine issues. In addition, general organizational concerns related to the poor treatment of female basketball players comprised 20% of the comments provided as well as concern for competitive results which was cited 15% of the time. For the First Division players, personal issues comprised 41.5 % of the comments and other various concerns (16.9%), team issues related to poor cohesion (13.8%) and competitive results (12.3%) were the next most frequently cited.

The responses from the athletes in Table 4 indicated that the athletes clearly differentiated causes of anxiety relative to practice, competition, and general participation. With regard to the general sources of anxiety surrounding their basketball involvement, the comments made by the players were numerous and varied. In the majority of cases, the predominant comments related to personal physical and emotional concerns. There was also an interesting observation that these women athletes perceived sex discrimination and inequality. This perception was mentioned by some athletes at both levels of competition.

Discussion

The present study investigated characteristics of anxiety in elite women basketball players. Additionally, the players on the National Team were compared with other professional players playing in the Spanish First Division. In comparing both groups to established population norms, it is evident that the professional players had lower state and trait anxiety. More important for sport psychologists was the finding that lower state and trait anxiety were found for players competing at the higher level of competition. Although participation at a higher level would logically seem to be more stressful, these findings suggest that the more elite players might have learned to better control their anxiety than have the less-elite players.

TABLE 4

ASPECTS OF THE GAME IN GENERAL, NOT SPECIFIC TO PRACTICE OR COMPETITION, THAT GENERATE ANXIETY IN ELITE BASKETBALL PLAYERS

National Team (n=13)	f	%	First Division Team (n=71)	f	%
Personal					
Injuries	2	55	When I can't do the skill	4	41.53
Not valuing the effort and work that we do	2		Decisive moments of the game	4	
Not feeling well physically	1		Lack of free time (study, see family)	3	
The daily and annual routine	1		Don't give what is expected of me	2	
Fatigue before games	1		Injuries and recovering from injuries	2	
Feel tired	1		Have no motivation or enthusiasm	2	
Lack of free time	1		Others	10	
Do things without desire or for obligation	1				
When I am going through a bad time	1				
Results					
To lose	1	15	A bad result, to lose	5	12.30
To feel obligated to win	1		To do things well but get a negative result	2	
To end losing a game unfairly	1		Others	1	
Referee					
Unfair officiating	1	5			
Gender					
Poor organization in women's basketball	1	20	The low status that is given to women's basketball	2	3.07
Inequality between the males' and females' sport	1				
The machismo	1				
When the referees think that they are calling a game of little girls and not a professional women's game	1				
Coach					
Not have the confidence of the coach	1	5	When they don't count on you	3	6.15
			The coach has no confidence in me	1	
Teammate					
			The competitiveness and the rivalry	4	13.84
			Not a good climate in the team	4	
			Disputes and arguments with teammates	1	
Situational					
			Important games or decisive games	4	6.15
Others			Various	11	16.92
Total	20			65	

These results differ somewhat from the findings obtained by Neil, Mellalieu, and Hanton (2006) who did not find differences in the magnitude of anxiety between male rugby players at different levels of play but did find

differences in the direction of this anxiety. They found that the more elite players perceived anxiety to be more facilitative, whereas non-elite players were more likely to perceive anxiety to be debilitative to their performance.

The lower anxiety among the National Team members could also be the result of greater years of experience in the sport. It is possible that these players acquired coping skills through experiences that have helped them to successfully adapt to stressful circumstances, and have learned how to overcome and control their anxiety. Alternatively, low anxiety could be a selection factor, whereby those players who are less prone to experience stress tend to perform higher or to better negotiate some of the interpersonal conflicts that can be sources of stress. Greater playing time was also associated with lower anxiety. This finding might be attributed to the more simplistic notion that more talented players receive more playing time. However, the finding may also be due to the fact that coaches play those individuals of whom they have more favorable expectations and, in turn, these players may be judged less harshly by coaches than other players. In addition, players who receive more playing time have more opportunities to recover from mistakes and thus should be less anxious about making any particular mistake.

Identifying, understanding, and addressing the sources of anxiety are of utmost importance for sport psychologists and coaches for the purpose of improving athletic performance. Researchers such as Fletcher and Hanton (2003a, 2003b), Jones (2002), and Woodman and Hardy (2001a, 2001b) have suggested that applied sport psychologists need to augment their competencies to deal effectively with the stress experiences of elite athletes. It is critical to better understand sources of anxiety, particularly in relation to the specific team or context in which the athlete participates. One very interesting finding from the present study was that female athletes had a certain amount of anxiety related to their treatment in the world of women's basketball. Athletes referred to poor organization of women's basketball, machismo, and patronizing attitudes of male administrators, coaches, and referees as causes of stress for them. These findings in relation to stressors caused by the organizational aspects of sport also coincide with those identified by Hanton, Fletcher, and Coughlan (2005). Thus, it is important to consider context-specific and cultural factors that may be relevant to anxiety experiences in working with any given team (Anshel & Delany, 2001).

A number of important findings resulted from this study. First, differences existed among the National Team and First Division players in state and trait anxiety even though all players competed at an elite level. This finding suggests that the ability to control anxiety may be an important

contributor to the likelihood of reaching the highest levels of basketball competition for female players. Second, the primary sources of anxiety for elite women basketball players revolved around personal concerns and this finding parallels recent work with male athletes conducted by Hanton, *et al.* (2005). Specifically, players frequently identified concerns about poor personal performance as an important source of anxiety for them. Structural and organizational issues related to women's sport constituted an additional source of anxiety for many female athletes. Specifically, players mentioned negative encounters related to gender stereotypes and treatment of women athletes and the women's professional game.

Research should further explore the question of whether state and trait anxiety differentiate among athletes competing at higher levels of competition. Furthermore, more research is needed on the specific sources of anxiety in accordance with sport type, age, and experience so that sport psychology interventions can be structured accordingly. Qualitative research can provide important new insights into understanding sources of anxiety, as was apparent in the present study where gender-related issues were identified.

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