

Female Spanish athletes face pre-competition anxiety at the highest levels of competition

Antonio Sánchez Muñoz*, Alberto Rodríguez Cayetano*, Raimundo Castaño Calle*, José María Fuentes Blanco*, José Manuel De Mena Ramos*, Roberto Avilés Vicente* and Salvador Perez Muñoz*

ATLETAS FEMENINAS ESPAÑOLAS FRENTE A LA ANSIEDAD PRECOMPETITIVA EN LOS NIVELES MÁS ALTOS DE COMPETICIÓN

KEYWORDS: Cognitive anxiety, self-confidence, somatic anxiety, Spanish female athletes.

ABSTRACT: Pre-competition anxiety is one of the most common emotions experienced among athletes in high performance sport. It can cause both positive and negative effects, which makes the ability to manage this anxiety one of the most important parts of an athlete's preparation. This study analyzes the anxiety levels in athletes from the Spanish Women's National Track & Field Team who participated in the European Championships, the World Championships, and the Olympic Games. The study evaluates how these athletes cope with pre-competition anxiety by examining three variables in the moments prior to the competition—cognitive anxiety, self-confidence, and somatic anxiety—and the way these variables impacted the results achieved by these athletes. The study indicates that a significant difference exists between cognitive anxiety and self-confidence, which shows that the higher an athlete's self-confidence, the lower the levels of cognitive anxiety. Higher levels of self-confidence and lower levels of cognitive anxiety were also shown to have a positive impact on performance results.

Pre-competition anxiety affects cognitive, physiological and locomotor skills in athletes (Márquez, 1992) and is associated with negative effects on athletic performance.

Pre-competition anxiety was first analyzed in studies performed by Gould, Horn and Spreeman (1983) and Gould, Petlichkoff and Weinberg (1984). Arroyo (2015) makes reference to pre-competition anxiety level based on the athlete's perceived importance of the competition, and the studies carried out by Lowe and McGrath (1971) and Feltz and Albrecht (1986) also demonstrate that the more important the competition, the higher anxiety level in athletes.

Self-confidence is considered an influential factor in athletic performance, and it has been found that the higher the

levels of self-confidence in an athlete, the lower cognitive and somatic anxiety appear before a competition. Bejek and Hagtvet (1996), Chamberlain and Hale (2007), and Jones, Swain and Hardy (1993) have all found that self-confidence has a positive effect on athletic performance. Bandura (1997), Craft, Magyar, Becker and Feltz (2003), Weiss, Wiese and Klint (1989) and Woodman and Hardy (2003) regard self-confidence as the best predictor of athletic performance—even better than anxiety level and level of pre-competition activation (León-Prados, Fuentes and Calvo, 2014). Self-confidence regulates symptoms of anxiety in top level athletes (Mellalieu, Neil and Hanton, 2006). According to Robazza, Pellizzari, Bertollo and Hanin

39 Correspondence: Antonio Sánchez Muñoz, profesor de la Universidad Pontificia de Salamanca. Grado en Ciencias de la Actividad Física y del Deporte. Salamanca. España. E-mail: asanchezmu01@upsa.es

*Universidad Pontificia de Salamanca

Los autores agradecen a la Real Federación Española de Atletismo su colaboración para la realización de la investigación.

Reception date: 20-05-2017. Acceptance date: 17-06-2017

(2008), self-confidence can help counteract pre-competition anxiety symptoms in high level athletes.

Method

Participants

Participants in this study include every female Spanish athlete who was selected by the Royal Spanish Athletics Federation to represent Spain for international competitions during the years of 2014, 2015 and 2016. They totaled 92 women, ranging from the U18 category to the senior national team, between ages 16 and 38, with a mean age of 23.49 (\pm 5.504). The average amount of time spent training and competing in their respective sports was 12.67 years (\pm 5.453).

Table 1 shows the types of races and the percentage of participants who competed in each race. For example, more women take part in long distance and hurdles (33.7 %), whereas participation is considerably lower in throws and race walks (5.4 %).

Instruments

The starting point for the research was the Spanish version of the CSAI-2, developed by Jaenes, Caracuel and Pérez-Gil (1999) from the English version of the Competitive State Anxiety Inventory-2 by Martens, Vealey, Burton, Bump and Smith (1990). To analyze the data, this study used the shortened version of that questionnaire (CSAI-2R) developed by Arruza, González, Palacios, Arribas and Cecchini (2010).

The questionnaire is comprised of 27 items that assess three different variables: cognitive anxiety, self-confidence, and somatic anxiety (nine items for each variable). Elements are answered in a Likert scale from 1 to 4: 1 (nothing), 2 (a little), 3 (moderately) and 4 (a lot).

Procedure

The data was collected from individuals an hour before their warm-up exercises prior to each event in which they were to compete.

Data analysis

Means and standard deviation were calculated. Subsequently, an analysis of bivariate correlations was conducted. For this study, the statistical package SPSS v.21 was used.

Results

Table 2 shows the results. Significant difference was found ($p < .000$) between self-confidence and cognitive anxiety.

Similarly, there was a significant difference between self-confidence and somatic anxiety ($p < .005$).

Table 3 shows the results obtained in each of the categories. Only the existing correlations are shown. The outcome showed significant correlation ($p < .009$) between self-confidence and cognitive anxiety in U18-category female athletes (16 and 17 years old). Results in U20 category (18 and 19 years old) also showed significant difference ($p < .022$) between self-confidence and cognitive anxiety. Similarly, there was significant difference ($p < .011$) between self-confidence and somatic anxiety. There was significant difference ($p < .001$) between the two types of anxiety, cognitive and somatic (table 4). There was also significant difference ($p < .033$) between self-confidence and cognitive anxiety in U23 category (ages 20, 21, and 22). From the senior national team, athletes showed significant difference ($p < .004$) between self-confidence and cognitive anxiety.

Discussion

The CSAI-2R is a very useful tool for the assessment of pre-competition anxiety. However, like the other self-reporting tools, it has some limitations, the most important of which is biased questions. Thus, other methodologies exist to supplement the measuring of cognitive anxiety, self-confidence, and somatic anxiety, for instance, the observation of behaviors and/or the analysis of negative responses.

The complexity of the competitions analyzed by means of the CSAI-2R and the high number of athletes competing in different races and events have prevented us from making correlations between the race and the competition performance, which can be a future line of research.

Spanish female athletes have a high degree of self-confidence. The data show there is significant difference between the types of anxiety (cognitive and somatic) and self-confidence, just as it was concluded in previous studies (Jaenes, 1999; Jaenes and Caracuel, 2005; Jaenes, Peñaloza, Navarrete and Bohórquez, 2011; Silva and Hardy, 1986; Thornston, Cronholm, McCray and Webner, 2008). The conclusions of this study also match the results obtained by Cervelló, Santos-Rosa, Jiménez, Nerea and García (2002), who analyzed pre-competition anxiety in top level male and female tennis players.

Spanish women in the U18 category have a high degree of self-confidence. In U20 and U23 categories the degree of self-confidence is along the lines shown by Arbinaga (2013); Buceta,

López, Pérez-Llantada, Vallejo and Del Pino (2003); Cervelló, Santos-Rosa, Jiménez, Nerea and García, (2002); Ponce de León, López and Medina (2006); Ruiz-Juan and Zarauz (2014) and Ruiz-Juan, Zarauz and Flores-Allende (2016).

The findings show that female Spanish top-level athletes have a high degree of self-confidence, which helps them reduce

the symptoms caused by an increase of cognitive and somatic anxiety. It is a factor with which Spanish female athletes obtain better results in the most significant national and international championships.

Races	Frequency	Percentage
Sprints and hurdles	15	16.3
Middle distance	16	17.4
Long distance and hurdles	31	33.7
Marathon and road running	6	6.5
Jumps	14	15.2
Throws	5	5.4
Race walk	5	5.4
Total	92	100.0

Table 1. Sample distribution regarding the events in which female athletes compete.

		Cognitive anxiety	Self-confidence	Somatic anxiety
Cognitive anxiety	Pearson correlation	1	-.419**	.396**
	Sig. (bilateral)		.000	.000
	N	92	92	92
Self-confidence	Pearson correlation	-.419**	1	-.290**
	Sig. (bilateral)	.000		.005
	N	92	92	92
Somatic anxiety	Pearson correlation	.396**	-.290**	1
	Sig. (bilateral)	.000	.005	
	N	92	92	92

** . Correlation is significant at 0.01 level (bilateral)

Table 2. Correlation coefficient between cognitive anxiety, self-confidence, and somatic anxiety in Spanish female athletes.

		Pearson Correlation	Sig. (bilateral)	N
U18	Cognitive anxiety	1		7
	Self-confidence	-.881**	.009	7
U20	Cognitive anxiety	1		20
	Self-confidence	-.508*	.022	20
	Somatic anxiety	.667**	.001	20
U23	Cognitive anxiety	1		26
	Self-confidence	-.418*	.033	26
Senior	Cognitive anxiety	1		39
	Self-confidence	-.451**	.004	39

*. Correlation is significant at 0.05 level (bilateral)

** . Correlation is significant at 0.01 level (bilateral)

Table 3. Correlation per factors.

ATLETAS FEMENINAS ESPAÑOLAS FRENTE A LA ANSIEDAD PRECOMPETITIVA EN LOS NIVELES MÁS ALTOS DE COMPETICIÓN

PALABRAS CLAVE: Ansiedad cognitiva, autoconfianza, ansiedad somática, atletas femeninas españolas.

RESUMEN: La ansiedad precompetitiva es una de las emociones más generalizadas en el deporte de alto rendimiento deportivo. Provoca efectos tanto positivos como negativos, por lo que el control de la misma es uno de los objetivos más importantes dentro de la preparación del atleta de alto nivel. El objeto de este estudio es analizar los niveles de ansiedad en las atletas españolas del equipo nacional de atletismo que participan en la máxima competición tanto a nivel español como en campeonatos de Europa, del Mundo y Juegos Olímpicos. Se realizó un estudio desde la perspectiva de cómo afrontan las atletas españolas la ansiedad precompetitiva a partir de las variables ansiedad cognitiva, autoconfianza y ansiedad somática, y la manera en que estas tres variables inciden en el resultado obtenido por las atletas españolas en el momento previo a la competición. Los resultados obtenidos muestran diferencias significativas entre la ansiedad cognitiva y la autoconfianza, lo que provoca que, a mayores niveles de autoconfianza, los niveles de ansiedad cognitiva sean menores. Esto les permite evitar los signos negativos que causa la ansiedad cognitiva, con lo que esta no afecta a su rendimiento.

References

- Arbigana, F. (2013). Fisioculturismo: diferencias de sexo en el estado de ánimo y la ansiedad competitiva. *Revista de Psicología del Deporte*, 22 (2), 353-360.
- Arroyo del Bosque, R. (2015). *Análisis y valoración de las relaciones entre estado de ánimo y la ansiedad en relación al resultado en jóvenes futbolistas*. (Tesis inédita de doctorado). Universidad del País Vasco, Vitoria. España.
- Arruza, J.A, González, O., Palacios, M., Arribas, S. and Cecchini, J.A. (2010). Validación del Competitive State Anxiety Inventory 2 Reducido (CSAI-2 RE) mediante una aplicación web. *Revista Internacional de Medicina y Ciencias de la Actividad Física y el Deporte*, 12 (47), 539-556.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behaviour change. *Psychological Review*, 84 (2), 191-215.
- Bejek, K. and Hagvent, K. A. (1996). The content of pre-competitive state anxiety in top and lower level of female gymnasts. *Anxiety, Stress & Coping*, 9 (1), 19-31.
- Buceta, J., López, A., Pérez-Llantada, M., Vallejo, M. and Del Pino, M. (2003). Estado psicológico de los corredores populares de maratón en los días anteriores a la prueba. *Psicothema*, 15, 273-277.
- Cervelló, E., Santos-Rosa, F.J., Jiménez, R., Nerea, A. and García, T. (2002). Motivación y ansiedad en jugadores de tenis. *Revista Motricidad*, 9, 141-161.
- Chamberlain, S. T. and Hale, B. D. (2007). Competitive state anxiety and self-confidence: Intensity and direction as relative predictors of performance on a golf putting task. *Anxiety, Stress and Coping*, 20 (2), 197-207.
- Craft, L. L., Magyar, T. M., Becker, B. J. and Feltz, D.L. (2003). The relationship between the competitive state anxiety inventory-2 and sport performance: A meta-analysis. *Journal of Sport and Exercise Psychology*, 25 (1), 44-65.
- Feltz, D. L. and Albrecht, R.R. (1986). *Psychological implications of competitive running*. En M.R. Weiss y D. Gould (Eds.). *Sports for children and youth*, 225-230. Champaign, IL: Human Kinetics.
- Gould, D., Horn, T. and Spreeman, J. (1983). Sources of stress in junior elite wrestlers. *Journal of Sport Psychology*, 5, 159-171
- Gould, D., Petlichkoff, L. and Weinberg, R.S. (1984). Antecedents of temporal Changes in and relationships between CSAI-2 components. *Journal of Sport Psychology*, 6, 289-304.
- Jaenes, J. C. (1999). Adaptación española del test CSAI-2 (Competitive State Anxiety Inventory-2): Un estudio en corredores españoles de maratón. En G. Nieto-García y J Ginés de los Fayos (Coords.), *Psicología de la Actividad Física y del Deporte: Investigación y Aplicación*. Murcia: Sociedad Murciana de Psicología de la Actividad Física y del Deporte.
- Jaenes, J. C. and Caracuel, J.C. (2005). *Maratón. Preparación psicológica para el entrenamiento y la competición*. Córdoba: Almuzara.
- Jaenes, J. C., Peñaloza, R., Navarrete, K. G. and Bohórquez, M.A. (2011). Ansiedad y autoconfianza precompetitiva en maratonianos y triatletas. *Revista Internacional de Ciencias Sociales y Humanidades*, 21 (2), 95-110.
- Jones, G., Swain, A. and Hardy, L. (1993). Intensity and direction dimensions of competitive state anxiety and relationships with performance. *Journal of Sport Sciences*, 11 (6), 525-532.
- León-Prados, J.A.; Fuentes, I. and Calvo, A. (2014). Relación entre ansiedad estado, autoconfianza percibida y rendimiento en baloncesto. *Revista Internacional de Medicina y Ciencias de la Actividad Física y el Deporte*. 14(55), 527-543
- Lowe, R. and McGrath, J.E. (1971). *Stress, arousal and performance: Some finding calling for a new theory*. Report No. AF, 1161-1167.
- Márquez, S. (1992). Adaptación española de los cuestionarios de antecedentes, manifestaciones y consecuencias de la ansiedad ante la competición deportiva. I. Estructura factorial. *Revista de Psicología del Deporte*, 2, 25-38
- Martens, R., Vealey, R. S. and Burton, D. (1990). *Competitive anxiety in sport*. Champaign, III; United States: Human Kinetics Publishers.
- Mellalieu, S. D.; Neil, R. and Hanton, S. (2006). Self-Confidence as mediator of the relationship between competitive anxiety intensity and interpretation. *Research Quarterly for Exercise & Sport*, 77 (2). 263-270.

- Ponce de León, Y., López, J. and Medina, M. (2006). Habilidades psicológicas en los atletas de primera fuerza en atletismo. *Revista de Ciencias del Ejercicio – FOD-*, 2, 42-57.
- Pozo, A. (2007). Intensidad y dirección de la ansiedad competitiva y expectativas de resultados en atletas y nadadores. *Revista de Psicología del Deporte*, 16 (2), 137-150
- Quercetani, R. (1992). *Historia del Atletismo Mundial 1860/1991*. Madrid. Editorial Debate.
- Robazza, C., Pellizzari, M., Betollo, M. and Hanin, Y. L. (2008). Functional impact of emotions on athletic performance: Comparing the IZOF model and the directional perception approach. *Journal of Sports Sciences*, 26 (10), 1033-1047.
- Ruiz-Juan, F. and Zarauz, A. (2014). Ansiedad en maratonianos en función de variables socio-demográficas. *Retos*, 25, 28-31.
- Ruiz-Juan, F., Zarauz, A. and Flores-Allende, G. (2016). Ansiedad precompetitiva en corredores de fondo en ruta en función de sus variables de entrenamiento. *Retos*, 30, 110-113.
- Silva, J. M. and Hardy, C. J. (1986). Discriminating contestants at the United States Olympic maratón trials as a function of precompetitive affect. *International Journal of Sport Psychology*, 17 (2), 100-110.
- Thornton, E., Cronholm, P., McCray, L. and Webner, D. (2008). Does Marathon training adversely affect baseline anxiety levels? *American Medical Athletic Association Journal Fall*, 21 (3), 5.
- Weiss, M.R., Wiese, D. M. and Klint, K. A. (1998). Head over heels with success: the relationship between self-efficacy and performance in competitive youth gymnastics. *Journal of Sport & Exercise Psychology*, 11 (4), 444-451.
- Woodman, T. and Hardy, L. (2003). The relative impact of cognitive anxiety and self-confidence upon sport performance: A meta-analysis. *Journal of Sports Sciences*, 21 (6), 443-457.