INFLUENCE OF THE RESULT ON THE ANXIETY OF FOOTBALL PLAYERS IN BASE FOOTBALL CATEGORIES

INFLUENCIA DEL RESULTADO EN LA ANSIEDAD DE FUTBOLISTAS DE CATEGORIAS DE FÚTBOL BASE

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Received on 13th of May 2022
Accepted on 4th of June 2022
DOI: 10.24310/riccafd.2022.v11i2.14410

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ABSTRACT

The main objective of the study is to know the levels of cognitive anxiety, self-confidence and somatic anxiety before and after the match and the impact on sports performance (victory-loss) in both sexes. 95 footballers participated (26 women and 69 men) belonging to the cadet, youth and senior categories of Vitoria Gasteiz clubs. The Sports Competitive Anxiety Inventory (CSAI-2) was used (19), made up of 27 items, adapted and validated into Spanish. The results reflect a greater self-confidence on the part of men in the moment prior to competing compared to women, who show high values of somatic anxiety. The correct reading of athletes' states of anxiety can help coaches and physical trainers to modulate the tone and content of motivational talks and technical-tactical instructions so that there is greater use.

KEY WORDS: anxiety, sex, soccer, sports initiation.

RESUMEN

INFLUENCIA DEL RESULTADO EN LA ANSIEDAD DE FUTBOLISTAS DE CATEGORIAS DE FÚTBOL BASE

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INFLUENCE OF THE RESULT ON THE ANXIETY OF FOOTBALL PLAYERS IN BASE FOOTBALL CATEGORIES
El objetivo principal del estudio es conocer los niveles de ansiedad cognitiva, autoconfianza y ansiedad somática previa y posterior al partido y el impacto en el rendimiento deportivo (victoria-derrota) en ambos sexos. Participaron 95 futbolistas (26 mujeres y 69 varones) pertenecientes a las categorías cadete, juvenil y senior de clubes Vitoria Gasteiz. Se utilizó el Inventario de Ansiedad Competitiva en el Deporte (CSAI-2). (19), formado por 27 ítems, adaptado y validado al español. Los resultados reflejan una mayor autoconfianza por parte de los hombres en el momento previo a competir respecto a las mujeres, las cuales, muestran elevados valores de ansiedad somática. La lectura correcta de los estados de ansiedad de los deportistas puede ayudar a entrenadores y preparadores físicos a modular el tono y el contenido de las charlas motivacionales y las consignas técnico-tácticas de manera que exista un mayor aprovechamiento.

PALABRAS CLAVE: ansiedad, sexo, fútbol, deporte base.

INTRODUCCIÓN

The sphere of affects, emotions, feelings and moods inexorably influence human experience and have been widely studied in the academic field (1). As a related construct, anxiety is another phenomenon that influences human behaviour and can be understood as a set of experiential, physiological and expressive manifestations of a situation or stimulus that is evaluated by the individual as potentially threatening, although objectively it may not be dangerous.

Sport and physical activity as a human activity does not escape the influence of this phenomenon and for years, anxiety has been the subject of study in the field of physical activity and sport. Thus, competitive state anxiety is defined as an immediate emotional situation characterised by feelings of apprehension and tension, associated with the activation of the organism that occurs in competitive situations(19). Years later, after the development of the Multidimensional Theory of Anxiety (19), this variable began to be considered as a multidimensional construct in which both cognitive and somatic aspects that influence sport performance in different ways should be distinguished. More specifically, the Multidimensional Anxiety Theory specifically predicts a strong negative linear relationship between cognitive state anxiety and performance, and to a lesser extent, an inverted-U relationship between somatic anxiety and performance (18,20).

In the context of sport, research on anxiety has taken several directions. State/trait anxiety has been shown to be linked to sports injuries, but this relationship has been inconclusive in some cases (12). Other researchers (13)
using Bayesian statistics, confirmed that high values of probability of occurrence of trait/state anxiety dimensions are not necessary for high values of probability that the athlete is injured. They also conclude that perceived anxiety directly influences the perception of self-efficacy, but not directly in relation to the probability of occurrence of sports injury. Likewise, (21) indicate that the causality of injury should be understood in a multifactorial way where psychological factors such as trait anxiety are associated with a higher number of injuries, and especially with a higher number of injuries sustained during matches. It is well known that physical activity is used to release tension and to generate situations of escape that help to control the anxiety generated by day-to-day life (2). There are many studies that indicate the inverse relationship between sports practice and the anxiety levels of subjects, finding that anxiety decreases greatly when the practice of recreational physical activity increases (7,10).

On the other hand, in the field of sport performance (18) they found that the relative contribution of anxiety and self-confidence in explaining performance in the groups they investigated was weakly and partially supportive of what is established in the multidimensional theory of anxiety. That is, it predicts a negative linear relationship between cognitive state anxiety and performance, and with less strength, an inverted-U relationship between somatic anxiety and performance. With regard to high performance in sport, some researchers suggest that levels of self-confidence modulate the effects of anxiety, thus preventing significant fluctuations in the performance of female athletes (32).

Due to the interaction between technical-tactical, psychological, affective and social factors, football has become a good setting to study phenomena such as anxiety and its interaction with other psychological constructs such as motivational climate (14,17), stress and self-confidence (6). In formative ages, (8) found that six out of ten adolescent football players showed medium levels of state-anxiety and three out of ten high levels of state-anxiety, and as for trait-anxiety, half of them showed high and half medium levels of anxiety. Similar results were later found again (8). The study (8) with youth players aged between 15 and 17 concluded that the players had a similar behaviour in most of the variables with respect to anxiety and that there could be a capacity to adapt to it given that a decrease in somatic anxiety was evidenced in the course of the matches. For their part, (7), found that with regard to the levels of anxiety-state, six out of ten show medium levels of anxiety and three out of ten have high anxiety, and in anxiety-trait it has been found that half have high anxiety and the other half medium, normal figures in football players. Along the same lines, (14), with a sample of juvenile players aged between 9 and 10 years, found that both cognitive and somatic anxiety appeared.

The research is framed in the sport of football at formative ages (grassroots football), and its objective is twofold. Firstly, to find out the levels of cognitive anxiety, self-confidence and somatic anxiety among boys and girls prior
to the competition. And, secondly, to analyse the impact of the outcome of the match (victory-defeat) on the aforementioned dimensions in both boys and girls.

MATERIAL AND METHODS
The design of this work responds to an empirical research that has followed an associative strategy for a comparative study, as it aims to analyse the relationship between variables by examining the differences that exist between the groups created by different independent variables created by the situation studied, such as gender (men and women) and the outcome of the match (in this particular case victory or defeat). It is also a retrospective and prospective ex post facto study.

The research complies with the ethical principles (respect, justice and beneficence) for the protection of human research subjects, as established by the Belmont Report.

Participants
The sample consisted of 95 football players (26 females and 69 males) belonging to the cadet, youth and female categories of different football clubs competing in the league championships of the city of Vitoria Gasteiz. The ages of the subjects are between 14 and 19 years old (16.01±1.67), 57 of them are under the condition of "local" and 39 under the condition of "visitor". This is a sample of football players in training categories selected by convenience.

The research was carried out under the approval of the ethics committee of the University of the Basque Country.

Instruments
The Competitive Anxiety in Sport Inventory (CSAI-2) was used. (19), consisting of 27 items, adapted and validated in Spanish by (5) and subsequently revised and used by other researchers (3) with satisfactory results. In this version, the scales that make up the test are the following:

Cognitive Anxiety, Self-Confidence and Somatic Anxiety.

The measurement scale is Likert-type with a range of zero to four (0 to 4) distributed as follows: zero, 1 (Not at all); one, 1 (A little); two, 2 (Moderately); three, 3 (Quite a lot); four, 4 (A lot).

The reliability of the scales (calculated using Cronbach's Alpha coefficient) in the present research, yielded values of .84 for cognitive anxiety, 0.81 for somatic anxiety and 0.85 for self-confidence, at the time before the match. And 0.77 for cognitive anxiety, 0.77 for somatic anxiety and 0.71 for self-confidence, at the time after the match.
Statistical analysis of the data

The variables involved fulfilled the condition of normality with the exception of one of them (Post Somatic Anxiety) which violated this assumption moderately (As=-0.5; Cur= 2.9). The assumption of homoscedasticity of variances, tested by means of the Lévene test, yielded non-significant values. In view of these data, it was decided to use Student's t-tests for related and independent samples. Some researchers suggest that under these conditions the Student's t-test is a robust test. The Box's M-test used to test the equality of the covariance matrices yielded significant values and multivariate analysis was discarded. The proposed estimator (11) was used to measure the effect size (TE). This estimator was used to calculate the degree of population generality of an effect based on the difference observed between two sample means. A value of 0.2 is considered a poor TE, a value of 0.5 is considered a moderate TE and 0.7 and above is considered a strong TE. Statistical analyses were carried out with the SPSS statistical software.

RESULTS

Study 1. Difference between pre- and post-match anxiety when the result is a win.

By comparing means for related samples, we examined the difference in the different dimensions of anxiety between the time before the match (pre) and the time after the match (post) when the result was a win (Table 1) in the whole sample (men and women). Only somatic anxiety decreased after the match in a significant (t(32) = 4.177; p > .001) and intense way (d=0.8).

Table 1. Pre-Post Comparison with winning result (men and women)

<table>
<thead>
<tr>
<th></th>
<th>Pre(n=33)</th>
<th>Post(n=33)</th>
<th>Diff</th>
<th>95% CI</th>
<th>t(32)</th>
<th>p</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC</td>
<td>20.15 ± 6.04</td>
<td>20.27 ± 4.48</td>
<td>-0.121</td>
<td>[-2.55,2.30]</td>
<td>-0.102(32)</td>
<td>.920</td>
<td></td>
</tr>
<tr>
<td>AUT</td>
<td>24.63 ± 5.37</td>
<td>23.03 ± 4.26</td>
<td>1.606</td>
<td>[-.45,3.66]</td>
<td>1.585(32)</td>
<td>.123</td>
<td></td>
</tr>
<tr>
<td>AS</td>
<td>16.24 ± 5.42</td>
<td>16.93 ± 4.37</td>
<td>-0.696</td>
<td>[-3.20,1.81]</td>
<td>-0.566(32)</td>
<td>.575</td>
<td></td>
</tr>
</tbody>
</table>

Note. Table prepared by the authors. AC=Cognitive Anxiety, AUT=Self-Confidence, AS=Somatic Anxiety, Pre=Previous, Post=Post, Dif. Means=Mean difference, CI=Confidence interval, t(32)=degree of freedom, p=significance, d=Cohen's estimator.

Regarding men (figure 1), it is worth noting that self-confidence decreased significantly between pre and post-match (t(20) = 3.289; p = .004) and intensely (d=0.7). The opposite occurred with somatic anxiety, experiencing a significant (t(20) = -2.818; p = .011) and intense (d=0.8) increase between pre and post match. On the other hand, as far as women are concerned (figure 1), the only dimension of anxiety that experienced a significant (t(11) = 2.491; p = .030) and intense (d=0.9) decrease in anxiety was somatic anxiety.
Study 2. Difference between pre- and post-match anxiety when the result is a defeat.

By comparing means for related samples, we examined the difference in the different dimensions of anxiety between the time before the match and the time after the match (post) when the result was a defeat (Table 2) in the whole sample (men and women). Statistically significant differences were found in two of the three dimensions of anxiety. Cognitive anxiety increased in a significant ($t_{(59)} = -2.467; p=.017$) and weak ($d=0.2$) way. Self-confidence decreased significantly ($t_{(59)} = 5.256; p < .001$) and moderately ($d=0.6$).

![Figure 1. Comparative graph of the average scales of the CSAI-2, showing the differences Pre-Post Competition Victory in Men and Women. Note: Figure produced by the authors.](image)

<table>
<thead>
<tr>
<th>Table 2. Pre-Post Comparison with Defeat Result (Men and Women)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pr(n=60)</strong></td>
</tr>
<tr>
<td>AC</td>
</tr>
<tr>
<td>AUT</td>
</tr>
<tr>
<td>AS</td>
</tr>
</tbody>
</table>

**Note.** Table prepared by the authors. AC=Cognitive Anxiety, AUT=Self-Confidence, AS=Somatic Anxiety, Pr=Previous, Post=Post, Diff Means=Mean difference, CI=Confidence interval, $t_{(gl)}$=degree of freedom, p=significance, d=Cohen's estimator.

Regarding men (Figure 2), it is noteworthy that self-confidence decreased significantly between pre and post match ($t_{(45)} = 4.810; p > .001$) and intensely ($d=0.8$) when the result was defeat.
On the other hand, with regard to women (Figure 2), the only dimension of anxiety that experienced a significant ($t_{(13)} = 2.189; p = .047$) and moderate ($d=0.5$) decrease was self-confidence.

![Figure 2. Comparative graph of the average scales of the CSAI-2, showing the differences Pre-Post Competition Victory in Men and Women. Note: Figure produced by the authors.](image-url)

Study 3. Comparison according to the competitive moment (pre or post) as a function of gender.

By comparing means for independent samples, the difference in the different dimensions of anxiety between men and women at the pre-match time was examined (Table 3). A statistically significant ($t_{(91)} = 7.200; p < .001$) and strong ($d=1.6$) difference was found between males and females in the self-confidence dimension and in the somatic anxiety dimension ($t_{(91)} = -4.984; p < .001; d=1.0$).

Table 3. Comparison Men-Women Pre-competition

<table>
<thead>
<tr>
<th></th>
<th>Men (n=67)</th>
<th>Women (n=27)</th>
<th>Diff Med</th>
<th>95% CI</th>
<th>$t_{(gl)}$</th>
<th>P</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC</td>
<td>21.46 ± 5.94</td>
<td>21.80 ± 5.83</td>
<td>-0.34</td>
<td>[-3.05, 2.36]</td>
<td>-0.253_{(91)}</td>
<td>.801</td>
<td></td>
</tr>
<tr>
<td>AUT</td>
<td>27.40 ± 4.26</td>
<td>20.84 ± 2.90</td>
<td>6.55</td>
<td>[4.74, 8.36]</td>
<td>7.200_{(91)}</td>
<td>&lt;.001</td>
<td>1.6</td>
</tr>
<tr>
<td>AS</td>
<td>15.14 ± 3.68</td>
<td>20.00 ± 5.36</td>
<td>-4.85</td>
<td>[-7.17, -2.52]</td>
<td>-4.984_{(91)}</td>
<td>&gt;.001</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Note. Table prepared by the authors. AC=Cognitive Anxiety, AUT=Self-Confidence, AS=Somatic Anxiety, Pre=Previous, Post=Post, Diff. Means=Mean difference, CI=Confidence interval, $t_{(gl)}$=degree of freedom, p=significance, d=Cohen’s estimator.

By comparing means for independent samples, we examined the difference in the different dimensions of anxiety between men and women at the time after the match when the outcome was a win (Figure 3) and when the outcome was
a loss (Figure 3).

When the result was victory, no statistically significant differences were found between men and women in any of the dimensions analysed: cognitive anxiety, self-confidence and somatic anxiety.

On the other hand, when the outcome was defeat, the only dimension of anxiety that showed a statistically significant and strong difference between males and females in favour of the former was self-confidence ($t_{(58)} = 3.514; p < .001; d=1.0$).

![Figure 3. Comparative graph of the average scales of the CSAI-2, showing the Pre-Post Competition Victory-Defeat differences in Men and Women. Note: Figure produced by the authors.](image)

**DISCUSSION**

The objectives of the present study were (1) to find out, firstly, the type of anxiety profile presented by non-professional female and male football players at the moment before competing and (2) to check the effect that the outcome variables of the match generate in the anxiety profile of men and women.

The anxiety profile of men. Pre-competition. Characterised by high self-confidence scores. Followed by cognitive anxiety and somatic anxiety. Regarding the three dimensions of anxiety analysed in the present study, cognitive anxiety, self-confidence and somatic anxiety, the results are similar to other research conducted with tennis players (26), handball players (23) and amateur golfers (4).
On the other hand, the pre-competition anxiety profile of the women in the present research shows a rather flat profile in which cognitive anxiety is slightly higher than self-confidence and somatic anxiety. This contrasts with the results found by the aforementioned researchers (4,24) who obtained an anxiety profile in which self-confidence scores were higher than cognitive anxiety and somatic anxiety. It should also be noted that statistically significant differences were found between the self-confidence scores of men and women.

Pre- and post-match anxiety when the result is a win.

In the total sample, there is nothing remarkable, the scores of the three dimensions of anxiety remain stable and no statistically significant differences were found between pre and post. This may be beneficial from the perspective of the result, as high levels of pre-competitive anxiety are associated with poor sporting performance, and even a high level of anxiety can have negative repercussions, given that it affects psychomotor skills, acting as a technical-tactical and gestural sporting limiting factor (25,33).

When analysing the men’s sample separately, a strange phenomenon is found. Self-confidence decreases significantly between pre and post match despite winning, somatic anxiety increases from pre to post. For women, it decreases significantly between pre and post when the result is a victory.

In contrast, other studies analysing similar psychological dimensions state that athletes who show greater self-efficacy experience less competitive anxiety (25,27), with this circumstance becoming more acute in the pre-competition phase (23,27). In a similar vein, it seems that anxiety decreases over time, with footballers experiencing more anxiety in their first competitions compared to later times (30).

Pre- and post-match anxiety when the result is a defeat.

In the total sample, it is noteworthy that cognitive anxiety is significantly higher in the post than in the pre. Cognitive anxiety has recently been empirically associated with responsibility and personal commitment (14), so this increase in
the levels of cognitive anxiety may actually indicate a perception of responsibility and personal commitment of the players after the negative result obtained. On the other hand, self-confidence decreases significantly after the match, but somatic anxiety presents similar scores before and after the match. This can also be interpreted as a logical result. After the match, the organism still maintains an important activation given that the moment of competitive tension has passed and at the same time, the belief in one’s own abilities decreases given that the result of defeat is still very recent (9).

For both men and women, self-confidence decreases significantly between pre and post. The other two dimensions do not show statistically significant differences.

Conclusions, limitations and future prospects

As a conclusion of this study, the dimensions of anxiety remain stable and unchanged for the sample as a whole when the result is a victory, while when the result is a defeat, cognitive anxiety increases and self-confidence decreases with respect to the start of the match. With respect to gender, the outcome has a different impact on the anxiety of men and women.

The present study has some limitations that should be taken into consideration. Firstly, the fact that it was carried out only once and the anxiety state of the athletes was not recorded for more matches. This would allow us to assess the consistency of the anxiety state over time using time series analysis. Secondly, the fact of not having controlled in some way for the starter-substitute figure. This fact can camouflage the results, since it is logical to think that the anxiety profile of the player who knows that he is a starter will not be the same as the one who knows that he will play half an hour in the second half. Thirdly, and along the same lines, it would also be interesting to quantify the number of minutes played by each player over the course of the season, as this may be another variable that mediates the player's state of anxiety; and fourthly, although the statistical tests used largely resolve the sample imbalance between the sexes, it would be advisable to balance the number of men and women in future samples.
Therefore, the future lines that the research would have to take would coincide on this occasion with the limitations indicated. Controlling for a greater number of variables (starter-substitute, number of minutes, team’s ranking situation) in order to include them in the explanatory models of players’ anxiety states both before and after the match. Likewise, taking into account the circumstances surrounding a given match can also shape the anxiety state of the player. Therefore, considering variables such as the importance that the player attaches to the match, the team's position in the league table or the importance of the match may be dimensions to be taken into account in future work on anxiety.

Cross-sectional correlations between different theoretical constructs such as mastery climate and anxiety could also be studied (24).

At the applied level, the results presented provide new information for the design of intervention programmes aimed at coaches (32). The present study helps in the correct reading of the anxiety states of athletes, and can help coaches and physical trainers to modulate the tone and content of motivational talks and technical-tactical instructions so that the athlete can make better use of the information that the coaches convey to them. A harsh harangue after a defeat is of little use when the levels of cognitive anxiety are already high, and the players' self-confidence is at rock bottom.

This paper calls for the attention of coaches and trainers to integrate psychological variables into their training programmes in the same way that they train physical, conditional, technical and tactical aspects.
REFERENCES


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