

BASIC PSYCHOLOGICAL NEEDS, PRECOMPETITIVE ANXIETY AND MOOD IN MALE AND FEMALE FOOTBALL PLAYERS

NECESIDADES PSICOLÓGICAS BÁSICAS, ANSIEDAD PRECOMPETITIVA Y ESTADO DE ÁNIMO EN HOMBRES Y MUJERES FUTBOLISTAS

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Abstract

The main objective of this research was to analyse how the level of satisfaction of basic psychological needs (BPN) affects anxiety levels and mood prior to competition in footballers. The influence on these variables was evaluated according to gender, years of experience, position and whether they are starters or substitutes. A total of 428 players participated in the study (206 men and 222 women). Participants completed the Basic Psychological Needs in Exercise Scale (BPNES) adapted to the sport context in the days before the match, the Competitive State Anxiety Inventory-2R (CSAI-2R) 1 hour before the match and the Profile of Mood States (POMS) questionnaire during the hour after the match. The main results showed higher levels of BPN satisfaction in men than in women, higher levels of pre-competitive anxiety in women compared to men and higher levels of anger, fatigue and depressed state in men compared to women. Players with 10-15 years of experience showed higher levels of BPN satisfaction than more experienced and less experienced players. Less experienced players showed higher levels of pre-competitive anxiety. This study shows how NPBs influence pre-competitive anxiety and mood differently depending on gender, experience, demarcation, and belief in being a starter or not. Therefore, the results may favour the application of interventions on NPB based on an understanding of their relationship with pre-competitive anxiety and mood.

Keywords: Mental toughness, psychological effects, sport performance, gender studies, football.

Resumen

El objetivo principal de esta investigación fue analizar cómo el nivel de satisfacción de las necesidades psicológicas básicas (NPB) afecta los niveles de ansiedad y el estado de ánimo previos a la competición en los futbolistas. Se evaluó la influencia en estas variables en función del género, los años de experiencia, la demarcación y si son titulares o suplentes. En el estudio participaron 428 jugadores (206 hombres y 222 mujeres). Los participantes completaron la Escala de Necesidades Psicológicas Básicas en el Ejercicio (BPNES) adaptada al contexto deportivo en los días previos al partido, el Inventario de Ansiedad Competitiva-2R (CSAI-2R) una hora antes del partido y el cuestionario Perfil de Estados de Ánimo (POMS) durante la hora posterior al partido. Los principales resultados mostraron niveles más altos de satisfacción de las NPB en los hombres que en las mujeres, niveles más altos de ansiedad precompetitiva en las mujeres y niveles más altos de ira, fatiga y estado depresivo en los hombres. Los jugadores con 10-15 años de experiencia mostraron niveles más altos de satisfacción en las NPB que los jugadores con más experiencia y los menos experimentados. Los jugadores menos experimentados mostraron niveles más altos de ansiedad precompetitiva. Este estudio muestra cómo las NPB influyen en la ansiedad precompetitiva y el estado de ánimo de manera diferente en función del género, la experiencia, la demarcación y la creencia en ser titular o no. Por lo que los resultados pueden favorecer la aplicación de intervenciones sobre las NPB a partir de la comprensión de la relación de estas con la ansiedad precompetitiva y el estado de ánimo.

Palabras clave: Fortaleza mental, efectos psicológicos, rendimiento deportivo, estudios de género, fútbol.

Introduction

Within the framework of self-determination theory (SDT) (Deci & Ryan, 1985a) is included the basic psychological needs (BPN) sub-theory (Deci & Ryan, 1985b). This theory states that human beings need to satisfy three basic needs: autonomy, being able to select and initiate their own actions with the feeling of acting without external pressure to make decisions (Pinker, 2002; Ryan & Deci, 2006; Taylor, 2005; Wegner, 2002); competence, to feel effective in their interaction with their surroundings, bearing in mind that high levels of competence would not be sufficient to achieve psychological well-being if behavior is not perceived as self-determined (Ryan et al., 1983); and relatedness, as a form of connection with others, with the mutual obligations required and the sense of belonging to the group (Deci & Ryan, 2000; Hernández-Andreo et al., 2021; Leary & Baumeister, 2000; Ryan & Deci, 2006). The motivational climates in which the conditions for satisfying BPN are present are usually generated by the authority figure, in this case the coach (Deci & Ryan, 2000). In this sense, support for BPN satisfaction is related to increased intrinsic motivation (Cecchini et al., 2019) and to participation in physical activity (Moreno-Murcia et al., 2021; Sevil-Serrano et al., 2017). In this way, the application of this theory makes it possible for the subject to increase their self-determined motivation in sport (Moreno-Murcia et al., 2021). Through the satisfaction of the three BPNs a state of intrinsic motivation is created (Moreno-Murcia et al., 2021), whereas frustration of the BPN is associated with lower intrinsic motivation and higher extrinsic motivation and demotivation (Deci & Ryan, 2000). In this sense, Deci and Ryan (2000) indicated that frustration of one of the BPNs would have negative consequences at a personal level, given that they would be essential for personal development and well-being (Hernández-Andreo et al., 2021).

Another important psychological factor related to sports performance is anxiety. Anxiety in sport is an unpleasant psychological state that appears as a response to perceived stress in tasks performed under pressure (Aldás et al., 2018; Cheng et al., 2009; Seco & de la Villa, 2023). In this sense, somatic anxiety manifests as physical activation, sweating, muscle tension, fatigue, increased heart rate, accelerated breathing, etc. and cognitive anxiety as apprehensions, worrying thoughts, etc. (Mediavilla, 2022; Seco & de la Villa, 2023). On the other hand, cognitive anxiety is defined by Milanés-Torres (2015) as the athlete's concern about possible failure and its consequences. An important factor in anxiety levels is self-confidence. Self-confidence is defined by Bandura (1997) as people's self-assessments of what they believe they are capable of doing. In addition, anxiety can also be presented as trait-anxiety, which would be considered a stable part of the personality of each individual; and as state-anxiety, which is more malleable and specific to a situation at a given moment in time (Weinberg & Gould, 2015). According to Dosil (2004), in the field of sport, anxiety-trait presents itself in the football player as the perception of some stimuli as threatening. His body responds by increasing the level of activation and his anxiety-state. On the other hand, state-anxiety appears at specific moments or in specific situations in which fatigue, increased activation, stress or fear are experienced (Dosil, 2004). Thus, in the field of sport, anxiety can be considered as a state and/or trait type response to a situation that is stressful for the athlete, who perceives it as potentially demanding and leads to a series of cognitive assessments and behavioural and/or physiological responses (Ford et al., 2017; Guerra et al., 2017). In this way, Kroll and Lewis (1970) stated that the appearance of pre-competition anxiety is favoured by the fear of failure, the absence of control, guilt, the feeling of incompetence or physiological symptoms such as digestive discomfort, trembling, etc. (Orozco & Aldás, 2023). Numerous studies have found differences in the level of pre-competitive anxiety between women and men in physical-sports activity, generally showing higher levels of anxiety and lower levels of self-confidence in women (Arbinaga, 2013; Días et al., 2010; Pozo, 2007; Ramaprabou, 2016; Rios, 2023; Rokka et al., 2009; Ruiz-Juan & Zarauz, 2013). Others have found no significant differences between sexes (Guillén & Álvarez-Malé, 2010; Rodríguez-Cayetano et al., 2017). In this sense, Guillén and Álvarez-Malé (2010) found higher values of self-confidence and somatic anxiety in men at the time prior to the competition, while the level of cognitive anxiety was lower than that of women. Similarly, Jones and Cale (1989) found a stable level of self-confidence in men at competition, while the level of self-confidence in women decreased. On the other hand, Rodríguez-Cayetano et al. (2022) found higher levels of precompetitive anxiety in female tennis players but found higher levels of precompetitive anxiety in male padel players and Tonato and Flores (2024) found higher levels of pre-competitive anxiety in female football players compared to male players.

The other variable studied in this research is mood. Mood is considered to be an emotional state that acts on the athlete due to how the events they experience affect them (Lane & Terry, 2000; Pérez-Muñoz et al., 2022; Videra-García & Reigal-

Garrido, 2013). The relationship between mood and the different psychological variables influencing sport has been studied for years (Arroyo et al., 2020). Thus, moods influence all human experiences (Arroyo et al., 2020). In turn, according to Barrios (2007), mood is influenced by different variables such as self-esteem, the role of the athlete in the team, the significance of the sport for the subject or the characteristics of his or her personality. There is insufficient evidence on gender differences in mood, while in some studies men show higher levels of mood (Balaguer et al., 1993), other studies have found no significant differences or have found them only in some factors, an example of this is the study by Jiménez et al. (2008) in which higher levels of stress were found in women compared to men or Arbinaga (2013) and Arroyo et al. (2020) who found higher levels of the vigour factor in males than in females.

For all these reasons, the main objective of this research is to study the effect of the level of BPN satisfaction, pre-competitive anxiety and mood in football players as a function of their gender, their experience, their playing position and whether they think they will play as a starter in the next match. A second objective is to understand the relationship between the factors included in each psychological aspect measured.

Materials and Methods

The research conducted is of a cross-sectional comparative type (Ato et al., 2013). The type of sampling was non-probabilistic by convenience, i.e. the selection of participants was based on the presence of characteristics that respond to the needs of the research (Otzen & Manterola, 2017).

Footballers were selected including those who trained for a minimum of 4.5 hours per week, in addition to matches, and who participated in regional and national federated competitions, both male and female, with similar levels of competitiveness. Players who did not participate in matches due to injury or technical decisions and those who did not complete the questionnaires correctly were excluded.

Participants

The population sample subjected to analysis was 428 semi-professional football players with an average age of 22.36 ± 2.93 years. According to the variables under study, a division was made according to sex (206 men with an average age of 21.26 ± 4.6 years and 222 women with an average age of $22.66 (\pm 4.72)$ years); according to years of experience in federated sport (189 players with 10 years or less, 182 players between 11 and 15 years and 57 players with 16 or more years of experience); according to playing position (43 goalkeepers, 59 full-backs, 90 centre-backs, 101 midfielders, 82 inside/outside players and 53 forwards); according to whether the players thought they would be starters (60 did not think they would be starters, 100 thought they would probably not be starters, 157 thought they would probably be starters and 110 thought they would be starters).

Instruments

Data collection in the present study was carried out using three questionnaires to measure the level of satisfaction of the BPNs, the level of pre-competition anxiety and mood:

For the quantification of the level of satisfaction of basic psychological needs, the Basic Psychological Needs in Exercise Scale, (BPNES) questionnaire (Vlachopoulos & Michailidou, 2006; Vlachopoulos et al., 2011) was used, following the Spanish version (Menéndez & Fernández, 2018; Moreno-Murcia et al., 2008) adapted to the sport context. The scale is composed of 12 items (four per factor) assessing autonomy, competence and relatedness. Responses were collected on a 5-point Likert-type scale ranging from strongly disagree (1) to strongly agree (5). In this study, the internal consistency analysis was satisfactory for the different subscales (autonomy satisfaction, $\alpha = .731$; satisfaction with competence, $\alpha = .736$; satisfaction with relationships with others, $\alpha = .709$), which is considered very good internal consistency (Nunnally & Bernstein, 1994; Vaughn & Bos, 2012).

The second instrument used was the Competitive State Anxiety Inventory-2R (CSAI-2R) by Cox et al. (2003) in the Spanish version by Andrade et al. (2007) used to measure the level of pre-competitive anxiety of football players. This instrument is composed of 16 items using a Likert-type response format, with four different alternatives, numbered from 1 (not at all) to 4 (very much). These items make up a total of three subscales: cognitive anxiety, somatic anxiety and self-confidence. An

analysis of the instrument indicated that the reliability as measured by Cronbach's alpha was .857 for cognitive anxiety, .861 for somatic anxiety and .915 for self-confidence.

The third instrument was the Profile of Mood States (POMS) developed by McNair et al. (1971) in the reduced Spanish version composed of 30 items by Andrade et al. (2007) with internal consistency values expressed by Cronbach's alpha for the anger factor of .953, for the fatigue factor .917, for the vigour factor of .883, for the friendship factor of .951, for the tension factor of .901 and for the depressed mood factor of .874. The measurement scale is Likert-type with a range from 0 to 4, where 0 = not at all, 1 = a little, 2 = moderate, 3 = quite a lot, and 4 = very much.

Procedure

Participants were informed and parents or guardians of underage players were asked for permission prior to data collection.

Subsequently, the coaches of the teams were asked to use the first 15 minutes in one of the training sessions of the week prior to the match in which the following data collection would take place. During these 15 minutes, and after informing the participants, they were asked to complete the questionnaire of satisfaction of basic psychological needs in physical exercise (BPNES) adapted to the sport context. The next data collection was carried out 1 hour before the league match, the process being explained to the players by the coaches (who had been previously trained) and measured through a google forms questionnaire to all the players called for the match, in this case the data collection on pre-competitive anxiety (CSAI 2R) was carried out. Finally, between 15 and 30 minutes after the match, a new questionnaire was sent to the players via google forms in which the data relating to their mood (POMS) was collected.

The study respected anonymous data processing, as at no time will data be associated with your identity and statistical confidentiality is guaranteed under the terms of Organic Law 3/2018 of 5 December on the Protection of Personal Data and Guarantee of Digital Rights, as applicable, as well as in accordance with the provisions of Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of individuals with regard to the processing of personal data and on the free movement of such data. In all cases, the Helsinki Ethical Declaration (2024) was respected in all its terms.

Data Analysis

For the treatment of the data, the SPSS Statistics 28.0 statistical programme was used and the significance level was set at $p < .05$. The descriptive statistics are mean ranges, mean and standard deviation (SD). The data were found to be non-normally distributed by means of the Kolmogorov-Smirnov test, so a non-parametric analysis was determined. The Mann Whitney U test was used for comparison of mean ranges, and to determine if significant differences ($p < .05$) existed according to gender. The Kruskal Wallis H-test was also used to compare means and ranges, and to determine if there are significant differences ($p < .05$) according to experience, demarcation and the players' belief as to whether they will be starters. Finally, the correlation between all the factors analysed was calculated using Spearman's rho.

Results

Basic Psychological Needs, Pre-competition Anxiety and Mood as a Function of the Sex of the Players

Male players showed higher levels of satisfaction of basic psychological needs than female players, with significantly higher ($p < .05$) levels of autonomy and competence. Female players showed significantly ($p < .05$) higher levels of cognitive and somatic anxiety and significantly ($p < .05$) lower levels of self-confidence than male players before the competition. In terms of mood, men showed higher levels of anger, fatigue, vigour, friendliness and depressed mood than women, with significantly higher levels of anger, fatigue and depressed mood ($p < .05$). Female players showed higher levels of tension (Table 1).

Table 1

Sample Sizes, Means, Standard Deviation, Mean Ranges and Asymptotic Sig. in Psychological Variables as a Function of Sex Using Mann Whitney U

Psychological variables	Sex	N	Average	SD	Average Rank	Sig.
Autonomy	Men	206	4.33	0.493	236.13	.000**
	Women	222	4.15	0.563	194.43	
Competence	Men	206	4.37	0.438	263.48	.000**
	Women	222	3.97	0.566	169.05	
Relationships	Men	206	4.54	0.471	224.95	.085
	Women	222	4.47	0.444	204.81	
Cognitive Anxiety	Men	206	2.10	0.711	180.91	.000**
	Women	222	2.39	0.734	237.32	
Somatic Anxiety	Men	206	1.25	0.350	181.10	.000**
	Women	222	1.48	0.486	245.50	
Self-confidence	Men	206	3.31	0.520	275.33	.000**
	Women	222	2.68	0.641	158.05	
Anger	Men	206	2.43	1.203	241.72	.000**
	Women	222	1.99	1.138	189.24	
Fatigue	Men	206	2.13	0.972	228.79	.021*
	Women	222	1.91	0.868	201.24	
Vigour	Men	206	2.20	0.866	220.53	.330
	Women	222	2.14	0.870	208.91	
Friendship	Men	206	3.02	1.027	217.52	.625
	Women	222	2.98	1.002	211.70	
Tension	Men	206	1.45	0.755	211.90	.646
	Women	222	1.43	0.693	216.91	
Depressed mood	Men	206	1.71	0.819	231.92	.004*
	Women	222	1.56	0.815	198.34	

Note. * $p < .05$; ** $p < .01$

Basic Psychological Needs, Pre-competition Anxiety and Mood as a Function of the Players' Years of Experience

Players with ten years or less experience showed significantly higher levels ($p < .05$) of cognitive anxiety, somatic anxiety, and higher levels of friendship, with no significant differences, compared to players with more experience. Players with between eleven and 15 years of experience showed significantly higher levels ($p < .05$) of satisfaction of the three basic psychological needs, self-confidence and anger than other players. They also showed higher levels of vigour, tension and depressed mood, with no significant differences in these factors. Players with sixteen years of experience or more showed higher levels of fatigue than other players (Table 2).

Table 2

Sample Sizes, Means, Standard Deviation, Mean Ranges and Asymptotic Sig. in Psychological Variables by Kruskal Wallis Test According to Years of Experience

Psychological variables	Experience	N	Average	SD	Average Rank	Sig.
Autonomy	≤ 10years	189	4.14	0.594	194.61	.011*
	11-15 years	182	4.31	0.480	231.04	
	≥ 16 years	57	4.30	0.467	227.65	
Competence	≤ 10years	189	3.98	0.531	170.74	.000**
	11-15 years	182	4.33	0.452	252.78	
	≥ 16 years	57	4.25	0.676	237.37	
Relationships	≤ 10years	189	4.42	0.476	192.38	.003**
	11-15 years	182	4.57	0.446	233.74	

Psychological variables	Experience	N	Average	SD	Average Rank	Sig.
Cognitive Anxiety	≥ 16 years	57	4.56	0.393	226.42	.000**
	≤ 10years	189	2.40	0.709	241.23	
	11-15 years	182	2.15	0.776	197.92	
Somatic Anxiety	≥ 16 years	57	2.06	0.554	178.82	.006*
	≤ 10years	189	1.44	0.479	233.80	
	11-15 years	182	1.30	0.402	193.96	
Self-Confidence	≥ 16 years	57	1.36	0.395	216.07	.000**
	≤ 10years	189	2.73	0.585	164.77	
	11-15 years	182	3.20	0.700	256.76	
Anger	≥ 16 years	57	3.14	0.506	244.46	.000**
	≤ 10years	189	1.96	1.099	188.34	
	11-15 years	182	2.43	1.27	236.86	
Fatigue	≥ 16 years	57	2.27	1.050	229.86	.236
	≤ 10years	189	1.95	0.910	204.26	
	11-15 years	182	2.06	0.956	219.30	
Vigour	≥ 16 years	57	2.10	0.873	233.10	.952
	≤ 10years	189	2.17	0.907	212.72	
	11-15 years	182	2.18	0.867	216.64	
Friendship	≥ 16 years	57	2.13	0.743	213.56	.102
	≤ 10years	189	3.13	0.985	228.78	
	11-15 years	182	2.89	1.080	203.16	
Tension	≥ 16 years	57	2.91	0.832	203.38	.132
	≤ 10years	189	1.43	0.702	215.18	
	11-15 years	182	1.51	0.804	222.18	
Depressed mood	≥ 16 years	57	1.23	0.422	187.74	.101
	≤ 10years	189	1.58	0.808	202.25	
	11-15 years	182	1.73	0.880	228.67	
	≥ 16 years	57	1.49	0.604	209.86	

Note. * $p < .05$; ** $p < .01$

Basic Psychological Needs, Pre-competition Anxiety and Mood Depending on the Players' Demarcation

Goalkeepers showed higher levels of somatic anxiety and vigour, with no significant differences.

Players playing in the centre-back position had significantly ($p < .05$) higher levels of autonomy and relatedness; they also showed higher levels of tension than the rest of the players. Full-backs had significantly ($p < .05$) higher levels of competence; they also showed higher levels of self-confidence than players in the other positions. Players playing in the centre midfield position showed significantly ($p < .05$) higher levels of friendliness and depressed mood; they also showed higher levels of anger. Forwards showed significantly ($p < .05$) higher levels of cognitive anxiety and fatigue (Table 3 and Table 4).

Table 3

General Descriptive Data: Mean and Standard Deviation According to Demarcation

Psychological variables	Goalkeeper	Lat. Def.	Central defenders	Midfielders	Wings	Forwards
	N = 43 Average (SD)	N = 59 Average (SD)	N = 90 Average (SD)	N = 101 Average (SD)	N = 82 Average (SD)	N = 53 Average (SD)
Aut.	4.29 ± 0.534	4.13 ± 0.528	4.36 ± 0.417	4.26 ± 0.530	4.23 ± 0.704	4.07 ± 0.393
Compe.	4.02 ± 0.359	4.31 ± 0.692	4.26 ± 0.615	4.13 ± 0.607	4.13 ± 0.379	4.07 ± 0.411
Rel.	4.72 ± 0.292	4.30 ± 0.350	4.72 ± 0.352	4.44 ± 0.368	4.36 ± 0.621	4.52 ± 0.490
Cong. Anx	1.93 ± 0.687	2.27 ± 0.902	2.28 ± 0.627	2.36 ± 0.619	2.09 ± 0.775	2.47 ± 0.576
Som. Anx	1.44 ± 0.450	1.28 ± 0.336	1.42 ± 0.402	1.33 ± 0.355	1.39 ± 0.564	1.37 ± 0.523
Self-Confidence	3.03 ± 0.720	3.13 ± 0.814	3.02 ± 0.685	3.01 ± 0.623	2.84 ± 0.616	2.90 ± 0.515
Anger	2.01 ± 0.393	2.05 ± 1.195	2.32 ± 1.293	2.35 ± 1.186	2.17 ± 1.122	2.08 ± 1.160
Fatigue	1.43 ± 0.505	1.94 ± 0.943	2.02 ± 0.913	2.25 ± 1.070	1.99 ± 0.902	2.16 ± 0.721
Vigour	2.37 ± 0.892	2.04 ± 0.713	2.24 ± 0.840	2.22 ± 0.939	2.13 ± 0.897	2.01 ± 0.849

Psychological variables	Goalkeeper N = 43	Lat. Def. N = 59	Central defenders N = 90	Midfielders N = 101	Wings N = 82	Forwards N = 53
	Average (SD)	Average (SD)	Average (SD)	Average (SD)	Average (SD)	Average (SD)
Friendship	3.10 ± 0.970	2.90 ± 1.209	3.04 ± 1.048	3.24 ± 0.896	2.93 ± 0.894	2.62 ± 1.037
Tension	1.25 ± 0.578	1.45 ± 0.829	1.50 ± 0.696	1.50 ± 0.761	1.38 ± 0.657	1.42 ± 0.772
Dep. mood	1.41 ± 0.558	1.51 ± 0.827	1.62 ± 0.808	1.81 ± 0.882	1.73 ± 0.886	1.49 ± 0.713

Note. * $p < .05$; ** $p < .01$; Aut.: Autonomy; Compe.: Competence; Rel. Relationships; Cong. Anx.: Cognitive Anxiety; Som. Anx.: Somatic Anxiety.

Table 4

Range and Differences Between Demarcations Using the Kruskal-Wallis Test

Psychological variables	Goalkeepers N = 43	Lateral Defenders N = 59	Central Defenders N = 90	Midfielders N = 101	Wings N = 82	Forwards. N = 53	Sig.
	Average Rank	Average Rank	Average Rank	Average Rank	Average Rank	Average Rank	
Aut.	223.36	182.33	241.37	223.21	218.35	174.93	.011*
Compe.	169.07	269.70	238.34	209.81	197.73	184.30	.000**
Rel.	275.00	146.42	276.25	189.18	191.12	220.77	.000**
Cong. Anx.	160.03	209.73	221.72	235.88	188.13	251.79	.001**
Som. Anx.	240.52	194.49	234.11	212.89	202.89	203.68	.203
Self-Conf.	220.13	247.79	221.79	217.25	190.29	192.77	.083
Anger	194.05	194.37	221.82	234.57	214.68	202.54	.277
Fatigue	132.31	202.10	216.87	238.93	211.93	248.38	.000**
Vigour	240.63	202.97	228.78	214.73	207.62	192.09	.340
Friendship	224.80	202.30	221.98	244.92	201.37	169.38	.009*
Tension	175.86	204.63	228.16	228.12	207.32	218.80	.123
Dep. Mood	192.10	183.04	209.49	242.41	230.15	198.80	.019*

Note. * $p < .05$; ** $p < .01$; Aut.: Autonomy; Compe.: Competence; Rel. Relationships; Cong. Anx.: Cognitive Anxiety; Som. Anx.: Somatic Anxiety.

Basic Psychological Needs, Pre-competition Anxiety and Players' State of Mind Depending on the Belief That They Will Start

Players who were confident of starting the match showed significantly ($p < .05$) higher levels of satisfaction of basic psychological needs (autonomy, competence and relationships). In addition, they showed significantly ($p < .05$) higher levels of self-confidence, fatigue and friendship. Players who thought they were sure they would start showed higher levels of cognitive anxiety, being very close to the levels of players who thought they were sure they would not start. Players who were certain that they were not going to start had higher levels of somatic anxiety, anger, vigour, tension and depressed mood, showing significantly higher levels ($p < .05$) of vigour and depressed mood (Table 5 and Table 6).

Table 5

General Descriptive Data: Mean and Standard Deviation According to Whether Players Think They Will Be Starters or Substitutes

Psychological variables	No N = 60	Surely No N = 100	Surely Yes N = 157	Yes N = 110
	Average (SD)	Average (SD)	Average (SD)	Average (SD)
Aut.	3.83 ± 0.625	4.18 ± 0.467	4.27 ± 0.516	4.46 ± 0.439
Compe.	4.10 ± 0.568	4.12 ± 0.468	4.13 ± 0.600	4.29 ± 0.510
Rel.	4.33 ± 0.466	4.43 ± 0.456	4.49 ± 0.474	4.68 ± 0.372
Cong. Anx.	2.20 ± 0.769	2.26 ± 0.762	2.29 ± 0.688	2.20 ± 0.751
Som. Anx.	1.42 ± 0.472	1.37 ± 0.472	1.36 ± 0.396	1.36 ± 0.460
Self-Confidence	2.69 ± 0.852	2.89 ± 0.638	3.03 ± 0.580	3.17 ± 0.624
Anger	2.37 ± 1.23	2.10 ± 1.163	2.10 ± 1.117	2.33 ± 1.232
Fatigue	1.65 ± 0.766	1.91 ± 0.945	2.08 ± 0.882	2.20 ± 0.766
Vigour	2.46 ± 1.040	2.13 ± 0.776	2.04 ± 0.785	2.25 ± 1.040
Friendship	2.80 ± 0.886	2.86 ± 0.975	3.05 ± 1.046	3.17 ± 0.886

Psychological variables	No N = 60	Surely No N = 100	Surely Yes N = 157	Yes N = 110
	Average (SD)	Average (SD)	Average (SD)	Average (SD)
Tension	1.63 ± 0.899	1.35 ± 0.580	1.36 ± 0.628	1.51 ± 0.899
Dep. Mood	1.97 ± 0.924	1.52 ± 0.798	1.52 ± 0.690	1.70 ± 0.924

Note. Aut.: Autonomy; Compe.: Competence; Rel. Relationships; Cong. Anx: Cognitive Anxiety; Som. Anx: Somatic Anxiety.

Table 6

Rank and Differences According to Whether Players Think They Will Be Starters or Substitutes, Using the Kruskal-Wallis Test

Psychological variables	N = 60	Surely No N = 100	Surely Yes N = 157	Yes N = 110	Sig.
	Average Rank	Average Rank	Average Rank	Average Rank	
Aut.	129.96	195.48	221.78	265.57	.000**
Compe.	201.43	195.74	210.69	242.19	.031*
Rel.	167.32	195.74	209.70	262.20	.000**
Cong. Anx.	207.60	215.17	221.82	205.26	.714
Som. Anx	230.13	212.68	215.32	204.52	.616
Self-Confidence	142.41	196.00	218.46	246.68	.001**
Anger	233.53	203.64	205.40	225.04	.271
Fatigue	162.13	195.25	227.74	239.73	.000**
Vigour	247.32	211.37	196.42	223.31	.040*
Friendship	189.09	195.20	221.67	233.74	.041*
Tension	247.81	202.38	205.59	218.14	.058
Dep. Mood	267.18	193.75	201.19	221.68	.001**

Note. * $p < .05$; ** $p < .01$; Aut.: Autonomy; Compe.: Competence; Rel. Relationships; Cong. Anx.: Cognitive Anxiety; Som. Anx.: Somatic Anxiety.

Relationship Between Basic Psychological Needs, Pre-competitive Anxiety and Mood

The psychological variables under study correlate with each other, highlighting the relationships between the factors of each of them. Thus, the three basic psychological needs correlate significantly ($p < .01$) positively with each other. In addition, cognitive and somatic anxiety correlate positively and significantly ($p < .01$) with each other and significantly ($p < .01$) negatively with self-confidence (Table 7)

Table 7

Spearman's Rho Correlations by Factors

	Aut	Comp	Rel	Cog. Anx	Som Anx	Self-conf.	Ang	Fat.	Vig	Friendship	Ten	Dep. Mood.
Aut.	Correlation 1 Sig. . (Bilateral)											
Comp.	Correlation .501** Sig. .000 (Bilateral)	1										
Rel.	Correlation .544** Sig. .000 (Bilateral)	.184**	1									
Cong. Anx.	Correlation -.007 Sig. .883 (Bilateral)	-.144**	.054	1								
Som. Anx.	Correlation -.063 Sig. .193 (Bilateral)	-.150**	-.058	.443**	1							
Self-Confidence	Correlation .299** Sig. .000 (Bilateral)	.446**	.137**	-.297**	-.280**	1						

		Aut	Comp	Rel	Cog.Anx	Som Anx	Self- conf.	Ang	Fat.	Vig	Friend- ship	Ten	Dep. Mood.
Anger	Correlation	.075	.141**	.012	.068	.174**	-.280**	1					
	Sig. (Bilateral)	.119	.003	.812	.163	.000	.000	.					
Fatigue	Correlation	.127**	-.039	.037	.159**	.095*	.174**	.349**	1				
	Sig. (Bilateral)	.008	.423	.442	.001	.049	.000	.000	.				
Vigour	Correlation	.064	.190**	.028	.107*	.102*	.095*	-.099*	-.195**	1			
	Sig. (Bilateral)	.185	.000	.562	.027	.035	.049	.040	.000	.			
Friend- ship	Correlation	.019	.027	.037	.154**	.036	.102*	-.125**	.044	.575**	1		
	Sig. (Bilateral)	.689	.574	.445	.001	.453	.035	.010	.366	.000	.		
Tension	Correlation	.023	.012	.004	.317**	.364**	.036	.452**	.261**	.111*	.017	1	
	Sig. (Bilateral)	.629	.810	.936	.000	.000	.453	.000	.000	.021	.729	.	
Dep. Mood	Correlation	.011	.063	-.019	.128**	.234**	.364**	.768**	.335**	-.118*	-.178**	.551**	1
	Sig. (Bilateral)	.813	.192	.689	.008	.000	.000	.000	.000	.015	.000	.000	.

Note. *Correlation is significant at the .05 level (bilateral); **Correlation is significant at the .01 level (bilateral).

Discussion

The main objective of the research was to study how the level of BPN satisfaction, pre-competitive anxiety and mood affected football players as a function of gender, experience, their playing demarcation and thinking about whether they would play as a starter.

The higher levels of satisfaction with autonomy and competence in men compared to women found in the present study differ from the research of Hernández-Andreo et al. (2021) and Amado et al. (2014) who found no significant differences between sexes. The results do correspond with the results of Mosqueda et al. (2022) and Parra-Plaza et al. (2018) who found higher levels of BPN satisfaction in men than in women, however, in the case of Parra-Plaza et al. (2018) and Leytón et al. (2018) they found differences in the level of satisfaction of the relationship factor, an aspect not found in our study.

The levels of pre-competitive anxiety, both somatic and cognitive, were higher in women than in men, data that coincide with those of Seco and de la Villa (2023), Menéndez et al. (2020), Ponseti et al. (2017) and Sámano (2020), in addition, Menéndez et al. (2020) and Sámano (2020) obtained results in the same line as those of the present study, in which self-confidence in men showed significantly higher levels. Thus, following Seco and de la Villa (2023) this may be due to the different coping resources of the sport situation between men and women. In addition, the self-confidence shown by men would be determinant for the lower levels of anxiety shown by men.

The results in terms of mood do not correspond to the "iceberg profile" established by Morgan (1980a, 1980b) and O'Connor (2006) since the vigour factor was not shown to be the highest for either men or women. The results of the present study reflected significant differences in the factors Anger, Fatigue and Depressed mood, not coinciding either with the results of Arroyo et al. (2020). On the other hand, this research coincides with the study by Oirabide et al. (2014) who found differences in mood between men and women, although in contrast to the study by Oirabide (2014) and Arbinaga (2013), the differences in our study do not seem to be related to the invigorating effect of physical activity, since no significant differences are shown in this factor. Following Hellin (2003) these differences could be due to the greater tradition of men's participation in oppositional cooperative sports, as opposed to the greater tradition of women's participation in individual sports.

Regarding the modulation of BPN satisfaction according to the athletes' level of experience, our results are consistent with those of Parra-Plaza et al. (2018) who showed that the levels of satisfaction with autonomy and competence were significantly higher in more experienced athletes compared to less experienced ones. Although in the present study, it appears that athletes with more than 16 years of experience have a slightly lower level of BPN satisfaction than those with 11-15 years of experience. This could be due to the fact that at a certain level of experience, BPN satisfaction remains the

same or even decreases. The results would not coincide with those of Dobrijević et al. (2020) and Nascimento et al. (2020) who establish that the satisfaction of the relationship of athletes is higher in younger players, a result contrary to that obtained in this study.

The results found are in partial agreement with those of Godoy-Izquierdo et al. (2009), López (2011) and Martín (2003) who stated that more experienced athletes may have greater emotional self-regulation, thus increasing self-confidence, which in turn would lead to a decrease in anxiety. This study would confirm that the players with the lowest level of self-confidence are the least experienced, however it seems that this effect of experience on self-confidence is reduced once experience of more than 15 years has been gained. Thus, following Orozco and Aldas (2023), it seems that the lack of experience in the control of anxiety could alter sporting performance, so it seems important to take into account the experience of football players in pre-competitive anxiety situations. Thus, in line with López (2011), the age of the footballer could be a determinant for anxiety control, given that, as our data show, footballers with less experience would have higher levels of pre-competitive anxiety, with younger footballers generally having lower levels of experience.

Experience does not seem to be determinant for most of the mood component factors (fatigue, vigour, friendliness, tension and depressed mood), finding significant differences in the anger factor. These results do not correspond to those of Arroyo et al. (2020) who highlighted the existence of a significant relationship between age and mood. In this sense, age would have a modulating effect on mood throughout the match, an effect that could correspond with the results of the anger factor, but not with the rest of the factors.

The playing position of the players is, according to the results of the present study, a fundamental factor for the satisfaction of BPNs, however, no previous studies have been found on which to make a comparison.

Following the study of the effect of position on players' anxiety, our results do not coincide with the results of Castillo-Rodríguez et al. (2022), who, unlike the present study, found significant differences in somatic anxiety and self-confidence as a function of players' position. Castillo-Rodríguez et al. (2022) shows the highest level of somatic anxiety in central defenders, being in the case of the present study the players with the lowest level of anxiety, although no significant differences were found. Thus, the results of the aforementioned authors showed lower levels of somatic anxiety and self-confidence in players who have defensive roles, with these results partially coinciding with those of this research, in which it is the side defenders who have the lowest level of somatic anxiety, however they would not coincide in terms of self-confidence given that the lowest levels of self-confidence appeared in the positions of inside/outside defenders and forwards, although no significant differences were found.

In the same sense, the fact that full-backs are the players with the highest self-confidence would coincide with the study by Barreiro et al. (2014) which explains that players with a defensive role are more self-confident and have lower levels of anxiety than offensive players, an aspect that would explain the significantly higher levels of cognitive anxiety of forwards compared to goalkeepers in this research.

In the case of cognitive anxiety, the study by Castillo-Rodríguez et al. (2022) establishes that forwards have the lowest levels of cognitive anxiety, contrary to our results, given that forwards had the highest levels of cognitive anxiety.

The demarcation of the players is shown as a determinant aspect in the mood of these after the competition, so the level of fatigue of the goalkeepers would be significantly lower, an aspect that could be related to the lower activity of these in the competition. On the other hand, the friendship factor was significantly lower in players playing in the striker position, which could be related to their more individualistic behaviour (Barreiro et al., 2014). Both goalkeepers and forwards obtained significantly lower data in the depressed mood factor, while it was the centre midfielders who obtained a higher level in this factor, and this data could be related to the type of interactions on the field of the players in these positions, who are more individualistic than the centre midfielders who have a greater collective interaction in their game.

Players who were certain that they were going to play as starters had significantly more satisfied needs for autonomy, competence and relationship than the rest of their teammates. The significantly lower level of satisfaction of the relationship factor of the players who were certain that they would not play as starters may raise a reflection on the group integration of those players with less participation, since this could be due to a lower identification with the team of those players who are not regular starters.

The self-confidence of the players was higher the clearer it is that they are going to be starters, so it seems that starting is a determining factor for the increase in the self-confidence of the players, however, there were no significant differences in the levels of anxiety, so it seems that the starting position of the players does not affect the levels of pre-competitive anxiety.

In the same sense, mood would clearly be influenced by the belief of being a starter or not. These results coincide with those of De la Vega et al. (2011) who found significant differences between players who believed they were going to be starters and those who did not. Thus, De la Vega et al. (2011) results coincide especially in the case of depressed mood where significantly higher levels were found in players who thought they would not be starters so our data would confirm that substitute players have higher levels of depressed mood.

Furthermore, in the present study, players who thought they were going to be starters had significantly higher levels of fatigue after the match, which could be due to the fact that they played more minutes during the matches. Friendship levels were also significantly higher in players who were certain to start, this may be related to relationship satisfaction which is also higher in this group. Vigour levels were significantly higher in players who were certain not to start, this could be related to the competition having a de-invigorating effect.

Thus, it seems that the higher level of self-confidence is positively correlated with the satisfaction of basic psychological needs, so it could be argued that the higher level of satisfaction of the BPNs favours self-confidence and decreases pre-competition anxiety. This aspect could mean that a relationship with football players that favours the satisfaction of the BPNs not only has a direct effect on the BPNs but would also have a positive effect by decreasing anxiety and increasing self-confidence.

The effects of BPN on mood do not seem to be determinant in most of the factors, however, autonomy presents a significant positive correlation with the fatigue factor which could be due to the fact that the player who has greater freedom to initiate his own actions (Deci & Ryan, 2000; Hernández-Andreo et al., 2021) would make greater efforts to achieve success in the competition.

The level of satisfaction with competence shows significant positive correlations with anger and post-competition vigour, which could be due to a greater relationship between anger and post-competition energy in those players who feel more competent, which could be due to the responsibility they assume for post-competition success or failure.

A significant positive correlation was found between relationship satisfaction and autonomy, which may be due to the fact that greater freedom in decision-making favours peer relationships over more controlled environments. As for friendship, our study does not coincide with that of Ramón-Aldáz et al. (2023) who, although, as in the present study, found a significant positive correlation between the three BPN, they found a correlation between BPN and friendship that is not reflected in our data.

The correlations between pre-competitive anxiety and mood are significant and positive for almost all factors, so it seems that the level of anxiety would be a determinant in the mood of football players favouring both positive and negative factors. Taking into account the correlations found in three BPN and pre-competitive anxiety and in turn between BPN and mood, it seems that the three variables could be correlated, so that generating a climate of satisfaction of the BPN could involve a wide range of positive effects on the other psychological variables under study. An exception is found in the relationship between self-confidence and anger, since they are significantly negatively correlated, so it seems that self-confidence would lead to less post-competition anger than lack of confidence.

Among the different mood factors measured, we found coincidences between our study and that of Borges et al. (2017) who, as in our study, found significant positive correlations between tension and fatigue and between depressed mood and anger. Our data also coincides with those of Borges et al. (2017) regarding the significant negative relationship between depressed mood and vigour, this may be due, following Borges et al. (2017), to being in different groups of emotional states. For the same reason, belonging to the same emotional state group, there would be a significant positive correlation between depressed mood, tension, fatigue and anger.

Conclusions

From the set of data recorded and analysed in this study on the psychological conditions affecting football players, the following conclusions have been drawn:

Gender is a determining factor in the psychological conditions of the players, with higher levels of BPN satisfaction in men than in women and higher levels of anxiety and lower levels of self-confidence in women than in men. Gender differentiation in post-match mood does not appear as clearly.

Players with less experience in football have lower levels of satisfaction of basic psychological needs and suffer higher levels of anxiety and lower levels of self-confidence before matches than more experienced players.

Demarcation determines the level of satisfaction of basic psychological needs.

Players who think they will be a starter have a higher level of satisfaction of basic psychological needs than players who do not think they will be a starter.

Players' basic psychological needs are positively correlated with each other and with self-confidence, while they are negatively correlated with cognitive and systematic anxiety.

Players' pre-competitive anxiety has a positive correlation with levels of fatigue, vigour, tension and depressed mood after the match. Furthermore, there is a negative correlational relationship between pre-competition anxiety and self-confidence.

During the study, some limitations were detected, such as the non-randomness of the sample and the cross-sectional design of the study, which could cause bias due to the time of year when the study was conducted. Other limitations included the smaller number of subjects acting as goalkeepers and the lack of control over whether the players ultimately participated in the match as starters or not, which could affect the results regarding post-match mood.

In developing future research based on this study, it is proposed to conduct longitudinal research throughout an entire season. It is also proposed to take measurements at a specific moment during the competition, repeating this over several seasons. A third proposal for future research is to study the modification of the other variables after interventions on basic psychological needs.

Practical implications of the study

Understanding the relationship between NPB, anxiety, and mood can facilitate the creation of strategies that, through intervention in one of the factors (especially NPB), can improve the parameters of the others.

Furthermore, understanding how psychological variables affect players based on gender, experience and position can help to tailor psychological training programmes for footballers.

Ethics Committee Statement

The study was conducted in accordance with the Declaration of Helsinki and was approved by the Ethics Committee: Quality Service of the Fray Luis de León University School of Education, affiliated with the Catholic University of Ávila, on 26 September 2024.

Conflict of Interest

The authors declare that there is no conflict of interest.

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Authors' Contribution

Conceptualization F.H. & A.R.; Methodology F.H., A.R. & S.P.; Software S.P. & A.R.; Validation F.H., D.S. & S.G.; Formal Analysis F.H. & S.P.; Investigation F.H. D.S. & A.R.; Resources D.S. & S.P.; Data Curation F.H., A.R. & S.P.; Writing – Original Draft F.H.; Writing – Review & Editing A.R. & S.P.; Visualization D.S. & S.G.; Supervision A.R., D.S. & S.P.; Project Administration S.P., & A.R.. All authors have read and agree with the published version of the manuscript.

Data Availability Statement

Data available upon request from the corresponding author (felixhazme@gmail.com)

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