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DEVELOPMENT OF A QUESTIONNAIRE FOR THE ASSESSMENT OF SOURCES OF STRESS IN SPANISH SOCCER REFEREES

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Resumen: El objetivo de este estudio consistió en la elaboración de un instrumento de evaluación que identificara las principales fuentes de estrés en los árbitros de fútbol españoles, y que posibilitara la identificación de individuos con niveles elevados de estrés en este tipo de población. El Cuestionario de Estrés de Árbitros de Fútbol (CEAF) se desarrolló a partir de una muestra de 138 árbitros, y el análisis de componentes principales con rotación varimax produjo una solución de 5 factores que explicaban el 65.7% de la varianza. La versión definitiva del cuestionario obtuvo un alpha de Cronbach de 0.88. Los estresores más importantes se relacionaban con la competencia arbitral percibida y con la evaluación que el árbitro recibe del informador en los partidos.

Palabras Clave: fuentes de estrés, arbitraje y juicio deportivo, fútbol, evaluación psicológica, cuestionario

Abstract: The aim of the present study was to elaborate a self-report questionnaire to identify Spanish soccer referees' sources of stress and to provide a tool for the detection of referees with high levels of stress. The Soccer Referee Stress Questionnaire was administered to a sample of 138 referees, and a principal component analysis with varimax rotation revealed a 5-factor solution that accounted for 65.7% of the variance. The final version of the test had a Cronbach's alpha of 0.88. The most important sources of stress were related to the referee's perceived competence and, to the referee-supervisor's rating of matches.

Key words: Source of stress, Referees and sport officials, Soccer, Psychological assessment, Questionnaire

Title: *Elaboración de un Cuestionario de Evaluación de Estresores en Árbitros Españoles de Fútbol*

Introduction

The efficient detection of the causes which generate stress is a fundamental research area as identification of these sources of stress constitutes the basis for subsequent intervention. One of the groups which may benefit most from a psychological intervention aimed at helping them cope with stress successfully, are referees and sport officials (e.g., Anshel & Weinberg, 1995; Goldsmith & Williams, 1992; Rainey & Hardy, 1999). According to Weinberg and Richardson (1990), referees may suffer an enormous amount of chronic and acute stress, which in addition to affecting their health, also interferes with their performance as sport officials. In fact, these authors assert that an effective sport refereeing criterion could be based precisely on an individual's ability to cope successfully with the various sources of stress he or she has to face. For this reason, studies on the psychology of refereeing focus mainly on the study of stress (Cruz, 1997; Guillén, 2003) and, more specifically, on the detection of possible stressors (e.g., Anshel & Weinberg, 1995, 1999; Goldsmith & Williams, 1992; Kaissidis-Rodafinos, Anshel, & Sideridis, 1998).

The main sources of stress highlighted in research studies carried out with referees and sport officials are the following: fear of

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failure or of making a mistake, interpersonal conflict with coaches and players, and fear of physical aggression and verbal abuse from players, coaches and/or the public (e.g., Anshel & Weinberg, 1999; Goldsmith & Williams, 1992; Kaissidis-Rodafinos et al., 1998; Rainey, 1995a). Nevertheless, a more detailed analysis of the aforementioned studies also reveals that sources of refereeing stress vary depending on the country in which the research was carried out (Anshel & Weinberg, 1995; Kaissidis-Rodafinos et al., 1998), as well as according to the sport and level of competition (Goldsmith & Williams, 1992). Cross-cultural differences have been well-established in both cognitive and behavioural domains. In specific terms, such differences have been observed in three components of coping with stress: the cognitive appraisals of these stressors (Mauro, Sato, & Tucker, 1992; Sharma & Sud, 1990), the amount and ways of coping responses (Seiffge-Krenke & Shulman, 1990), and the sources and intensity of selected stressor (e.g., Keinan & Perlberg, 1987; Orth-Gomer, 1979; Tokar & Feitler, 1986). As for this last component, Kassidis-Rodafinos, Anshel, and Sideridis (1998) observed that Australian basketball officials, compared to Greek referees, reported several of the 15 sources of stress presented to be more upsetting. In that study, Australian referees were significantly more stressed than Greek officials about 'arguing with players', 'making a controversial call', 'verbal abuse from coaches', and 'verbal abuse from players'. However, Greek referees perceived 'presence of media' as a more stressful source of stress than Australian referees did. Anshel and Weinberg (1995) also found marked differences in the sources of stress that Australian and American basketball referees experienced. Thus, stressors such as 'making the wrong call', 'verbal abuse by players', 'verbal abuse by spectators', and 'arguing with players' were significantly different in the two cultures.

Regarding to the assessment of different sources of stress, basketball, American football, and volleyball have been among the most frequently studied sports. Less evidence is available, however, in the case of soccer, and existing relevant studies are limited to the American continent. In a study of Canadian soccer referees, Taylor and Daniel (1988) identified 6 sources of stress, —expanded to 7 factors (including 'concerns over physical fitness') in a later study by Taylor, Daniel, Leith, and Burke (1990) —. The factors highlighted by these authors were as follows: interpersonal conflicts, fear of physical harm, time pressure, conflict with peers, fear of failure and conflicts with cultural roles. Samulski and Noce (2003) analysed the most important stressors in a sample of Brazilian soccer referees. The results of this study revealed similar elements to those obtained in the Canadian study by Taylor et al. (1990), with the 6 most important stressors being: 'inadequate physical preparation', 'being physically tired', 'making consecutive errors', 'making a mistake in a key play', 'sleeping badly the night before a match', and 'arriving late'.

At the same time, referees' different perception of stress is partly due to refereeing experience and to officials' age (e.g., Kassidis & Anshel, 1993; Rainey, 1995b). Rainey (1995b) looked into referees' levels of stress, and observed that experienced stress is negatively correlated with both referee's age and experience. Kassidis and Anshel (1993) also examined both intensity and sources of stress in basketball referees of diverse ages. Results showed that younger officials reported to be more stressed than older counterparts in 'making a wrong call' and 'administering a technical foul'.

Although we have data from studies carried out outside Spain, we lack direct in-

formation related to sources of stress for Spanish soccer referees, and more studies in all areas of refereeing are needed in Spain, as Guillén and Jiménez (2001) concluded after reviewing the literature on the topic. Garcés de los Fayos, Elbal and Reyes (1999) examined indirectly some sources of stress as a mean of studying burnout. In their study, they observed that two sources of stress (i.e., relationships with other referees and relationship with players) could be considered important factors for the onset of burnout. However, and despite the important sport and health consequences derived from them, no systematic studies have been carried out in Spain to find out the sources of stress in soccer referees. Duda and Allison (1990) pointed out the need of acknowledging cultural variations in the style and significance of participation in sport events. Following this framework, Anshel and Weinberg (1995) suggested that the differences between referees from various countries are a reflection of specific contexts and experiences; and these different experiences lead us to design training programmes for the handling of stress according to the specificity of each society. Thus, we think an analysis of the sources of stress to which Spanish soccer referees are most exposed is needed, since the style of the game and the attitude towards referees differ clearly from country to country, as observed by Torregrosa and Cruz (1999). These authors obtained evidence of differences in play between professional soccer matches in England (Premiere League, PL) and Spain (Liga de Fútbol Profesional, LFP); in that study more actions which included kicks, tripping, and especially, protests against the referee were observed in the LFP than in the PL.

The identification of sources of stress in soccer refereeing requires an assessment tool of adequate psychometric characteristics. Among the more frequently cited tools for the assessment of stress in officials, we have Anshel and Weinberg's (1995) BOSSI (Basketball Official's Sources of Stress Inventory). Through this measure, basketball referees rate the intensity of experienced stress in a 10-Likert scale for each of the 15 different situations presented in it. As for the assessment of stress sources in soccer referees, TEPA (*Test de Estrés Psíquico del Arbitraje*; Samulski & Noce, 2003) and SOSS (Soccer Officials Stress Survey; Taylor and Daniel, 1988) should be mentioned. TEPA (Samulski & Noce, 2003) comprises 35 situations that may be identified as stressful by Brazilian referees, and these situations are rated in a 7-point Likert scale (from -3 to +3), oscillating from a very negative influence to none influence at all. Designed to identify different sources of stress perceived by Canadian soccer officials, and the original version of the SOSS (Taylor and Daniel, 1988) contained 53 items grouped in a 6-factor structure (a new seven factor was added later). Officials are asked to respond to each item stating how much the situation causes them stress, using a 4-point Likert scale on which 0 = *did not*, and 3 = *strongly*. Cronbach alpha reliability coefficients ranged from .65 to .88 for the seven subscales (Taylor, 1990; Taylor et al., 1990). The present study is a response to the lack of instruments designed to measure stress among Spanish referees. Thus, the aim of our exploratory study was to develop a specific instrument of assessment: a) to identify the stressors that exert most pressure on Spanish soccer referees; b) to explore the possible existing differences regarding to age, experience, and officiating level; and c) to determine the total stress levels of referees. The identification of the most common stressors will lead to the detection of potential referees with high stress levels, and will enable us to design psychological interventions aimed at reducing stress levels in this population.

Method

Description of the instrument

The development of the *Cuestionario de Estrés de Árbitros de Fútbol* (CEAF, Soccer Referees Stress Questionnaire) was carried out in a number of different phases. First, various discussion groups were set up during which referees from Valencia were asked to talk about situations which had caused them stress during their sporting career. Subsequently, a group of experts gathering by psychologists with experience in working with soccer referees and a former international referee, categorised and separated the situations into groups. Afterwards, the resultant elements were complemented with other items appeared in sport refereeing literature (BOSSI, Anshel & Weinberg, 1995; SOSS, Taylor & Daniel, 1988), thereby producing an initial pool of 42 items that are shown in Table 1.

Table 1. *Deleted Items and Selected Items included in the First Version of the Questionnaire*

Items (Original version in Spanish)	*English Translation of the Items*	*S.I.*
1. *Tener demasiadas cosas que hacer*	1. Having too many things to do	N.A.
2. *Tener que aguantar el politiqueo de la organización*	2. Having to put up with the political maneuvering of the organization	S.
3. *Las tarifas arbitrales*	3. Economic compensation of refereeing	D.
4. *Que mis ideas choquen con las de los directivos del comité*	4. My ideas being different from those of the members of the committee	S.
5. *Las posibilidades de promoción*	5. Possibilities of promotion	D.
6. *La falta de apoyo de los dirigentes arbitrales*	6. Lack of support from the referees' staff	D.
7. *La falta de información*	7. Lack of information	N.A.
8. *La incapacidad de desconectar sobre temas arbitrales en casa*	8. Inability to forget refereeing problems when at home	S.
9. *Mantenerse al día en relación con las innovaciones y cambios de reglas de juego*	9. Keeping up to date with innovations and changes in the rules of the game	S.
10. *Asistir a reuniones, pruebas físicas y técnicas,...*	10. Attending meetings, and physical and technical tests	D.
11. *La falta de ayuda de mis compañeros de arbitraje*	11. Lack of support from my colleagues in refereeing	D.
12. *La actitud de la pareja (o familia) hacia el arbitraje*	12. Attitude of partners (or family) towards refereeing	S.
13. *La dificultad que supone arbitrar bien*	13. Difficulty of officiating well	S.
14. *Que pueda haber favoritismos más o menos claros*	14. Presence of clear or more subtle favouritism	S.
15. *Las actas y otras tareas administrativas*	15. Reports and red tape matters	D.

16. *Sentirme aislado*	16. Feeling isolated	D.
17. *Los informes y la evaluación del/la informador/a*	17. Referee-supervisor's reports and assessment	S.
18. *Ser poco valorado*	18. Being underestimated	D.
19. *Tener que asumir riesgos*	19. Having to assume risks	D.
20. *Los viajes y estancias fuera de casa*	20. Travelling and being abroad	D.
21. *Las perspectivas de promoción poco claras*	21. Prospects for promotion not being very clear	S.
22. *Las exigencias que el arbitraje plantea en mi vida privada/social*	22. Demands of refereeing in my private/social life	D.
23. *Los factores que no están bajo mi control directo*	23. Factors that are not under my direct control	N.A.
24. *Compartir la responsabilidad con otros*	24. Sharing responsibilities with others	D.
25. *Tener que afrontar situaciones delicadas (en el terreno de juego)*	25. Having to cope with delicate situations (on the pitch)	S.
26. *El ambiente que se respira en el colectivo arbitral*	26. Atmosphere within the refereeing family	D.
27. *Actuar con acierto en los partidos*	27. Officiating without mistakes during matches	S.
28. *Las consecuencias de mis propios errores*	28. Consequences of my own errors	S.
29. *Tener que tomar decisiones importantes*	29. Having to make important decisions	S.
30. *El comportamiento y actitudes de los/as jugadores/as*	30. Players' behaviour and attitudes	S.
31. *El comportamiento y actitudes de los/as entrenadores/as*	31. Coaches' behaviour and attitudes	S.
32. *El comportamiento y actitudes de los/as directivos/as*	32. Managers' behaviour and attitudes	S.
33. *El comportamiento y actitudes del público*	33. Behaviour and attitudes of the fans	S.
34. *Falta de reconocimiento social del arbitraje*	34. Lack of social recognition of refereeing	D.
35. *Medios y recursos disponibles*	35. Means and resources available	D.
36. *La simulación de los jugadores*	36. Simulation of fouls by players	D.
37. *Cometer un error técnico*	37. Making a technical error	S.
38. *La influencia de la prensa y los medios de comunicación en general*	38. Influence of media	N.A.
39. *La posibilidad de recibir una agresión violenta*	39. Possibility of being violently assaulted	S.
40. *La mirada desafiante o amenazante ante una decisión*	40. Defiant or threatening looks in response to a decision	S.
41. *La designación para un partido especialmente trascendental*	41. Appointment to a crucial match	D.
42. *Designación para un campo reconocidamente problemático*	42. Appointment to officiate in a pitch recognized as problematic	S.

Note: S.I.= Status of the Item; N.A. = Not administered; S. = Selected; D= Deleted

Finally, two researchers, one of whom had first-hand experience as a referee, revised the items, eliminating four of them (1, 7, 23, and 38) for reasons of non-specificity and lack of clear formulation, and modifying the final wording of another item (25, adding 'on the pitch'). The ques-

tionnaire, as it was administered to the sample, consisted of 38 items.

The total stress level would be calculated by adding the value given for each item in a Likert-4 scale of intensity (1 = *not at all*, 2 = *a little*, 3 = *quite a lot*, 4 = *a lot*) reflecting the level of pressure generated by each event. The obtained scores would range between 38 and 152.

Participants

The sample comprised 138 referees (134 men and 4 women) from the Valencia Technical Committee of Referees, aged between 16 and 44 (χ = 25.5, *SD* = 6.84). The experience of the referees ranged between 1 season and 27 seasons (χ = 7.3, *SD* = 4.71). Of these referees, 115 worked at a regional level and 23 at a national level.

Procedure

The questionnaire was administered to participants during a clinic organized by the Valencia Technical Committee of Referees, and they were asked to complete it as honestly as possible. The time used was 10-15 minutes.

Psychometric analyses

In order to obtain an approximation of the construct validity, a principal component analysis with varimax rotation was carried out. The criteria to select the items to be included in the final version of the instrument were as follows: 1) items with a weight in the factors of an eigenvalue equal to or higher than one, 2) factors which contribute to at least 5% of the total variance of the questionnaire, and 3) saturation of the item in any factor higher than .40. Along with these criteria, an item-level analysis of means, standard deviations, and item-total correlations was conducted in order to delete items with low discrimination index.

After deletion of some weak items according to the criteria mentioned above, a new principal component analysis was carried out in order to examine the dimensionality of the questionnaire and to extract the subscales and items loading in them for the subsequent analysis of the sample. The reliability of this instrument was studied through the analysis of its internal consistency, which was obtained by calculating the Cronbach alpha coefficient.

We also calculated a Pearson correlation with an ad-hoc measure of stress symptoms to test the empirical validity of the questionnaire.

Finally, we conducted some descriptive analyses of the sample: a) to assess the relationship between refereeing experience, age, stress levels, and factors of the scale; b) to explore differences in stress levels due to the level at which referees officiated; and c) to examine the principal sources of stress.

Results

Exploratory factor analysis and descriptive analysis of items

In order to examine the dimensionality of the questionnaire, an analysis of the principal components with Varimax rotation was conducted. Prior to the analysis, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the Bartlett sphericity test were calculated. KMO index showed a value of .76, which may be considered acceptable, and Bartlett test turned out statistically significant, χ^2 (703) = 2120.46, $p <$ .0001. Besides, the determinant of the matrix of coefficients of Pearson correlations among all items gave us a value of $4.474e^{-10}$. Therefore, the principal component analysis was considered appropriate.

A principal component analysis with varimax rotation produced a five-factor solution which accounted for 67% of the vari-

ance. We conducted then item-level analyses to select the more appropriate items for an improved version of the questionnaire.

Thirteen items were eliminated (5, 6, 10, 11, 16, 18, 19, 20, 22, 24, 26, 34, and 41) because their weight in the aforementioned factors was less than .40, as specified previously in the selection criteria. Four items were eliminated (3, 15, 36, and 38) due to their low discrimination index (as explained in the following paragraph), and they were excluded from the principal component analysis. The specific weights of the items in each factor are given in Table 2.

Table 2. Factor Weights of Items from the Principal Component Analysis with Varimax Rotation

	Factors				
Item	1	2	3	4	5
2	-0.048	-0.022	0.661	-0.005	0.326
4	-0.003	-0.048	0.656	0.118	0.377
8	0.257	-0.108	0.161	0.053	0.701
9	0.569	0.176	0.118	-0.364	0.178
12	0.026	0.262	0.029	0.187	0.757
13	0.730	0.195	-0.040	0.187	-0.032
14	0.100	-0.087	0.732	0.260	-0.165
17	0.285	0.211	0.523	0.056	-0.141
21	0.233	0.246	0.735	-0.161	0.051
25	0.554	0.346	0.013	0.379	-0.018
27	0.829	0.058	0.125	0.117	0.031
28	0.788	0.086	0.269	0.097	0.001
29	0.780	0.209	-0.072	0.186	0.240
30	0.262	0.786	0.001	0.050	0.300
31	0.121	0.877	0.091	0.209	-0.038
32	0.094	0.885	0.067	0.186	-0.041
33	-0.012	0.623	0.042	0.591	0.003
37	0.750	-0.129	0.186	0.079	0.134
39	0.398	0.040	0.144	0.660	0.152
40	0.097	0.414	0.179	0.659	0.159
42	0.227	0.351	-0.010	0.641	0.144

The means, standard deviations and item-total correlations for each of the elements selected for the final version of the questionnaire are given in Table 3. The item-total correlations of the items ranged between .32 (item 17) and .58 (item 29), with correlations of over .45 being obtained in 62% of cases. Items 3, 15, 36, and 38 were eliminated because the level of stress generated in the participants of the sample was very low, as was their discrimination index (means of between 1.48 and 1.59, standard deviations of between .37 and .45).

As a result of the deletion of items mentioned above, a new principal component analysis with varimax rotation comprising only the selected items was carried out; at this time, a five-factor solution was obtained, which still accounted for 65.7% of the variance.

Table 3. Descriptive Data of Items of the Final Version of the Cuestionario de Estrés de Árbitros de Fútbol (CEAF, Soccer Referees Stress Questionnaire)

Item	χ	*SD*	*Item-Total Correlation*	α *if Item Deleted*
2	2.04	.89	.3419	.8781
4	1.96	.88	.3768	.8758
8	1.55	.83	.3529	.8752
9	1.97	.88	.4724	.8747
12	1.77	.94	.3685	.8748
13	2.50	.99	.4581	.8683
14	2.32	1.02	.3224	.8769
17	2.69	1.00	.3326	.8730
21	2.23	.88	.5080	.8717
25	2.24	.91	.5777	.8666
27	2.58	.96	.5486	.8663
28	2.50	.95	.5536	.8654
29	2.29	.96	.5790	.8649
30	2.04	.89	.5347	.8679
31	1.91	.82	.4648	.8694
32	1.75	.81	.4598	.8704
33	1.80	.86	.4366	.8714
37	2.62	.98	.5283	.8700
39	2.28	1.01	.5206	.8679
40	1.74	.83	.5171	.8685
42	2.14	.90	.5203	.8693

The first factor, *technical aspects of refereeing competence*, contributed to 19.85% of the variance, and comprised 7 items (9, 13, 25, 27, 28, 29, and 37) related to the pressure generated by referees' demands on themselves and their desire to be a good referee. The second factor, *behaviour and attitudes of other actors*, contributed to 15.77% of the variance, and comprised 4 items (30, 31, 32, and 33) related to the behaviour and attitudes of other people present on the pitch (players, coaches, managers, supporters). The third factor, *refereeing organization and assessment /promotion* contributed to 11.69% of the variance, and comprised 5 items (2, 4, 14, 17, and 21) linked to the internal rules of the refereeing organization and to internal promotion criteria within the refereeing system. The fourth factor, *threats to physical integrity*, contributed to 10.64% of the variance, and comprised 3 items (39, 40, and 42) related to situations which may pose a threat to the referee's physical integ-

rity due to the possibility of assault. The fifth factor, *interference with family life*, contributed to 7.78% of the variance, and comprised 2 items (8 and 12) linked to the problems that his/her professional activities may generate in the referee's family life, due to his/her inability to switch off from work at home or rejection by family members. These 5 factors with their respective items and percentage of variance are outlined in Table 4.

Table 4. Items Grouped by Factors as Saturation Solution in the Principal Component Analysis

Factor	% V.	Item
1 Technical aspects of refereeing competence	19.85	9. *Mantenerse al día en relación con las innovaciones y cambios de reglas de juego*
		13. *La dificultad que supone arbitrar bien*
		25. *Tener que afrontar situaciones delicadas en el terreno de juego*
		27. *Actuar con acierto en los partidos*
		28. *Las consecuencias de mis propios errores*
		29. *Tener que tomar decisiones importantes*
		37. *Cometer un error técnico*
2 Behaviour and attitudes of other actors	15.77	30. *El comportamiento y actitudes de los/as jugadores/as*
		31. *El comportamiento y actitudes de los/as entrenadores/as*
		32. *El comportamiento y actitudes de los/as directivos/as*
		33. *El comportamiento y actitudes del público*
3 Refereeing organization and assesment / promotion	11.69	2. *Tener que aguantar el politiqueo de la organización*
		4. *Que mis ideas choquen con las de los directivos del comité*
		14. *Que pueda haber favoritismos más o menos claros*
		17. *Los informes y la evaluación del/la informador/a*
		21. *Las perspectivas de promoción poco claras*
4 Threats to physical integrity	10.64	39. *La posibilidad de recibir una agresión violenta*
		40. *La mirada desafiante o amenazante ante una decisión*
		42. *Designación para un campo reconocidamente problemático*
5 Interference with family life	7.78	8. *La incapacidad de desconectar sobre temas arbitrales en casa*
		12. *La actitud de la pareja (o familia) hacia el arbitraje*

Reliability of the scale

The reliability of the instrument for this sample can be labelled as satisfactory since the Cronbach alpha coefficient of the final version of the questionnaire (comprising 21 items) was .88. We analysed the possible increase of Cronbach alpha by means of deleting any of the items, but it appeared that the deletion of none of the 21 items would have increased the reliability of the scale (See Table 3.)

Empirical validity

The approach we have adopted in this study to examine the construct validity of the questionnaire was through the assessment of

its empirical validity. An index of symptoms of stress can be considered as an appropriate criterion of empirical validity for the CEAF. Thus, we administered to the sample an ad-hoc questionnaire for the measurement of unhealthy condition composed of 12 items (cognitive and behavioural symptoms of stress). Officials were asked to rate those symptoms in a 4-point Likert-type scale according to the frequency they were experiencing at that time (1 = *never or seldom*, 2 = *sometimes*, 3 = *often*, 4 = *very often*). The items were as follows: 1- *Sometimes I feel worried without any reason*, 2- *It has become difficult for me to think as quick as I used to do*, 3- *I often feel stomach-ache or indigestion*, 4- *I feel life is too demanding*, 5- *I often feel uneasy*, 6- *My appetite has decreased recently*, 7- *I wake up too early in the morning without reason or I have difficulty to sleep in the night*, 8- *I tend to worry to much*, 9- *I feel unusually tired*, 10- *I swear a lot very often or my heart rates increase frequently*, 11- *My sexual appetite has been altered*, 12- *I take tranquillisers or anxiolytics*. Cronbach alpha for the scale was .78.

A moderate positive correlation between stress symptoms and level of stress as measured by CEAF was found (r = .41, p < .01). This gives support to the prediction of the questionnaire as a valid assessment tool of referees' stressors.

Descriptive analysis of the sample

We conducted some Pearson correlations to study how age and refereeing experience related to stress levels and to scale factors. When analysing the variables of the sample, no statistically significantly relationship was observed between experience in refereeing and stress levels, although such a relationship was observed between both age and stress level (r = -0.20, p < 0.05), and age and experience in refereeing (r = 0.60, p < 0.01). As for the sub-dimensions of stress, an inverse relationship between stress and age was observed in the factors: *behaviour and attitudes of other parties* (r = -0.21, p < 0.05), *refereeing organization and assessment/promotion* (r = -0.21, p < 0.05), and *threats to physical integrity* (r = -0.17, p < 0.05), although there was no reduction in the stress generated in older referees in the factors: *technical aspects of refereeing competence* and *interference with family life*. Even though no relationship was observed between stress levels and experience in refereeing, an inverse relationship was found in the dimensions: *behaviour and attitudes of other parties* (r = -0.20, p < 0.05) and *refereeing organization and assessment/promotion* (r = -0.18, p < 0.05). These correlations are shown in Table 5.

We were also interested in exploring possible differences in stress levels due to the level at which referees officiated. No such differences were observed in the total stress levels as a result of the level or category of officiating. Nevertheless, when the underlying dimensions were taken into account, a statistical significant difference of means was found in the factor *technical aspects of refereeing competence*, $t(136)$ = 2,07, p < 0.05, between regional referees (χ = 16,66, SD = 4,75) and those officiating at a national level (χ = 18,91, SD = 4,29).

As for gender differences, no analysis offering the necessary guarantees could be established, given the low number of women in the sample.

Finally, we also examined the main sources of stress for Spanish soccer referees. The principal sources of stress in the sample were as follows; item 17: Reports and assessment of the referee-supervisor (χ = 2,69, SD = 1,00); item 37: Making a technical error (χ = 2,62, SD = 0,98); item 27: Officiating without mistakes during matches (χ = 2,58, SD = 0,96); item 28: The consequences of my own errors (χ = 2,50, SD = 0,95); and item 13: Difficulty in officiating well (χ = 2,50, SD = 0,99). These sources of

stress are related to the demands referees place upon themselves and their desire to officiate well (professionalism), as well as to the assessment made by the referee-supervisor, upon which the referee believes his/her future career rests.

Table 5. Correlations Among Age, Officiating Experience, Stress Levels, and Factors of Stress

	Officials' Age	Officiating Experience
Officiating Experience	.60**	—
Stress Levels	-.20*	-.13
Technical Aspects of Refereeing Competence	-.06	.01
Behaviour and Attitudes of Others Actors	-.21*	-.20*
Refereeing Organization and Assessment/Promotion	-.21*	-.18*
Threats to Physical Integrity	-.17*	-.15
Interference with Family Life	-.14	.02

* $p < .05$, two-tailed; ** $p < .01$, two-tailed.

Discussion

The instrument designed for this study comprised 5 factors, which for the most part coincided with the 6-factor structure presented by the SOSS (Taylor & Daniel, 1988) for Canadian soccer referees. However, there were a number of differences between the components of the two questionnaires. In specific terms, 4 factors of our instrument (*Technical aspects of refereeing competence, Behaviour and attitudes of other actors, Threats to physical integrity* and *Interference with family life*) encompass sources of stress common also to the SOSS.

The new factor included in our study refers to *Refereeing organization and assessment/promotion*, an aspect not considered in the study by Taylor and Daniel (1988). Somehow, Spanish soccer referees find their relationship with the refereeing organization stressful, due to both the assessment aspects involved in their actions and to a lack of confidence towards managers of the refereeing organization, as deduced from obtained data. In contrast, Canadian referees are stressed by the low consideration shown by individuals outside the refereeing world, or in other words, by the low esteem in which soccer referees are held socially. One possible explanation for this cultural difference —as referred in the absence of this external assessment element among the stressors in our study— may be that Spanish soccer referees understand a priori, from the moment they embark on a career as a sport official, that their function within the world of soccer is grossly undervalued and carries pejorative connotations. Therefore, Spanish soccer referees do not find this lack of acknowledgement stressful, although, on the other hand, they would like greater support from their superiors within the refereeing world.

Another cultural difference is that the factor we have called *Threats to physical integrity* does not appear in the TEPA questionnaire for Brazilian soccer referees. Unfortunately, the pressure of media together with the passion displayed by supporters during Spanish soccer matches, even in lower divisions, have caused and

increase in aggressions to officials in lower divisions, this resulting in an important stressor.

In addition to these specific elements of our instrument, we should also highlight two other aspects that deserve special attention because they appeared in other instruments of soccer officials' stress and are absent in ours. First, the Soccer Referees Stress Questionnaire (CEAF) used in our study failed to include elements of a dimension that did appear in the SOSS and that were also represented by some items of the TEPA: Conflict with peers. Although initially a number of items referring to possible conflicts with other referees were considered, those items were eliminated from the questionnaire since they lacked clear cohesion all through the questionnaire. Furthermore, they were almost always rated as generating only a small amount of stress. This may indicate a strong sense of comradeship within the group. This level of unity may be due to the special bond that links referees as the result of their common experiences of coping with adverse situations (possible verbal and physical assaults). After all, the only social support referees get comes from colleagues on the field, as relatives and friends do not usually attend matches during which their loved ones are constantly disparaged.

The second element absent in the questionnaire developed in this study is the inadequate physical preparation, which appeared as one of the most important stressors in the TEPA. This is not a stressing element for Spanish referees anymore. On the whole, great efforts have been made in the last years from the lowest levels of officiating to have physically well prepared referees. Therefore, we may confidently say Spanish officials are both athletes and referees.

The five main stressors for referees in our study were linked to two aspects: demands placed upon themselves to be a good referee, and the assessment carried out by the referee-supervisor. Professional competence or fear of failure is a recurrent topic that appears as one of the most important stressors not only in studies of soccer referees (Samulski & Noce, 2003; Taylor & Daniel, 1988), but also in those focusing on other sports, such as American football (Goldsmith & Williams, 1992), baseball (Rainey, 1995a), volleyball (Goldsmith & Williams, 1992; Stewart & Ellery, 1998), basketball (Anshel & Weinberg, 1995; Kaissidis & Anshel, 1993; Kaissidis-Rodafinos et al., 1998) and rugby (Rainey & Hardy, 1999), etc.

The knowledge of 'being assessed' also appeared in the TEPA and BOSSI questionnaires, and this factor had already been identified by Kaissidis-Rodafinos et al. (1998) as the second most important stressor in the ranking of Greek and Australian basketball referees. The Greek referees called the value of the supervisors into question, because they received no feedback regarding their assessment, whereas the Australian referees received a report on their performance at the end of the first half. Regarding to Spanish soccer referees, those officiating at a regional level do not usually receive feedback during the match, and even supervisors working at a national level are denied entry into the changing rooms. This is different from what happens during international matches, in which the supervisors are obliged to discuss the referee's performance with the referee him/herself. According to Rotella, McGuire, and Gansneder (1985, in Kaissidis-Rodafinos et al., 1998), referees who see their supervisors as help providers find their presence less stressful and state that they feel more satisfied with their work. In this sense, we might conclude that the feeling of being assessed by supervisors constitutes a

special source of stress for Spanish soccer referees.

If we analyse the dimensions of the questionnaire in detail, we see that some elements may generate lower levels of stress as time goes by (experience or age of the referee). It seems that as they become older or acquire more experience, referees tend to pay less attention to the attitudes and behaviour of other actors (players, coaches, fans, etc.), and to find aspects related to the refereeing organization and assessment less stressful. Nevertheless, elements related to refereeing competence, which constitute the main source of stress, as well as those which interfere with family life, continue to generate the same levels of stress throughout a referee's entire career. This supports the idea that an intervention is required to deal with those situations that do not improve simply as the referee grows older or acquires more experience on the pitch.

The *Cuestionario de Estrés de Árbitros de Fútbol* (CEAF, Soccer Referees Stress Questionnaire) is the first instrument that assesses the stress levels suffered by Spanish soccer referees in potentially stressful situations. Nevertheless, it is important to warn of the limitations of our study. These limitations include the small size of the sample, as well as the calculation of a single index for the validity and reliability of the instrument. Therefore, future research should focus on obtaining representative data from wider samples and regional committees, which should include the groups under-represented in our study (i.e., elite referees, women referees, assistant referees). In future studies, temporal stability and discriminating should be explored and converging validity indexes should be obtained, as well as confirmatory analyses carried out to ratify the model. The aim of developing the CEAF was to define the most important sources of stress and to identify those referees who would most benefit from a psychological intervention aimed at improving their ability to cope with stressful situations. As our results show, some stressors continue to exert similar pressure levels on referees throughout their career, regardless of their acquired experience, thus justifying the need for psychological intervention.

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