

ORIGINAL

Psychometric properties of the Cuestionario de Evaluación de las Relaciones Familiares Básicas (CERFB) in substance use disorder: Marital and parental relationships

Propiedades psicométricas del Cuestionario de Evaluación de las Relaciones Familiares Básicas (CERFB) en el trastorno por consumo de sustancias: Relación conyugal y parental

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Abstract

Family therapy stands out among the main psychotherapeutic treatments for substance use disorder. Nonetheless, we should point out a deficit of psychometric instruments for family evaluation, specifically validated for this disorder in Spanish population. It is necessary to have questionnaires available to evaluate family dynamics, commencing with the quantification of the marital relationship and the parenting exercise which result in design-suitable interventions. The present study aims to validate and determine the clinical applicability of the Cuestionario de Evaluación de las Relaciones Familiares Básicas (CERFB; in English, Basic Family Relations Assessment Questionnaire) in substance use disorder. One hundred and fifty-two couples of Spanish nationality ($N = 304$ participants) with a child suffering from substance use disorder completed the CERFB as well as other means of family evaluation. The results of the CFA presented the validity of the two-factor structure model of the CERFB of the original version within the general Spanish population. The results of the invariance factor across sex allowed us to assume the configural invariance between the groups. However, the metric invariance based on the sex could not be assumed. The validity evidence based on relations to other variables determined significant correlations between the CERFB and the Dyadic Adjustment Scale and the Parental Bonding Instrument. The reliability of both scales was satisfactory: Marital ($\alpha = .93$; $\omega = .93$) and Parental ($\alpha = .82$; $\omega = .81$). Normative data are provided. The CERFB is the first instrument to come about which is validated within the clinical Spanish population and which evaluates the family within substance use disorder.

Keywords: validation, family relationships, marital relationship, parenting, substance use disorder

Resumen

Entre los principales tratamientos psicoterapéuticos en el trastorno por consumo de sustancias destaca la terapia familiar. No obstante, cabe señalar un déficit de instrumentos psicométricos de evaluación familiar específicamente validados en población española en dicho trastorno. Es necesario disponer de cuestionarios para evaluar las dinámicas familiares, a partir de la cuantificación de la relación conyugal y el ejercicio de la parentalidad, y, por consiguiente, diseñar intervenciones apropiadas. El presente estudio tiene como objetivo validar y determinar la aplicabilidad clínica del Cuestionario de Evaluación de las Relaciones Familiares Básicas (CERFB) en el trastorno por consumo de sustancias. Ciento cincuenta y dos parejas de nacionalidad española ($N = 304$ participantes) con un hijo con trastorno por consumo de sustancias completaron el CERFB y otras medidas de evaluación familiar. Los resultados del AFC presentaron la validez del modelo de estructura de dos factores del CERFB de la versión original en población general española. Los resultados de la invarianza factorial según el sexo permitieron asumir la invarianza configuracional entre los grupos. No obstante, no pudo asumirse la invarianza métrica en función del sexo. Las evidencias de validez de relación determinaron correlaciones significativas entre el CERFB y la Escala de Ajuste Diádico y el Instrumento de Vínculo Parental. La fiabilidad de ambas escalas fue satisfactoria: Conyugalidad ($\alpha = .93$; $\omega = .93$) y Parentalidad ($\alpha = .82$; $\omega = .81$). Se proporcionan datos normativos. El CERFB deviene el primer instrumento validado en población clínica española que evalúa la familia en el trastorno por consumo de sustancias.

Palabras clave: validación, relaciones familiares, conyugalidad, parentalidad, trastorno por consumo de sustancias

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The treatment of substance use disorder is made all the more complex by its biopsychosocial dimension and the global impact on the basic areas of individual functioning (National Institute on Drug Abuse [NIDA], 2018). Effective treatment programs are therefore framed within a multidimensional therapeutic process. As NIDA points out, family therapy is of particular importance as one of the main psychotherapeutic treatments, especially for adolescents, and the effectiveness of family interventions in substance use disorder is proven by existing empirical data, alongside clinical experience.

Given its involvement in the origin, maintenance, recovery and treatment, the study of the family in substance use disorder has historically generated broad interest in the clinical and research fields, and continues to do so today (Pedroza et al., 2020). As these authors point out, there is a diversity of intervention proposals based in systemic family therapy that have been shown to be effective.

Bellon-Champel and Varescon (2017), both generically and in line with publications focused on family functioning in substance use disorder (SUD) and on the nature of intrafamilial relationships (at marital and parental levels), argued that family dysfunction was more prevalent in families with SUD compared to families without a psychopathological diagnosis. This was particularly the case with greater marital disharmony and greater deterioration of parenting. Considering that family relationships are determining factors in mental health (Lebow, 2015; Staccini et al., 2015), the further study of marital relationships and the exercise of parenting in substance use disorder is essential.

In line with the global trend, Spain has designated substance use disorder as a priority area of intervention in the field of mental health (Ministerio de Sanidad, 2022) in a context of marked and growing incidence (Observatorio Español de las Drogas y las Adicciones, 2021) and associated severity (Degenhardt et al., 2011; Mathers et al., 2013; Miguel-Arias et al., 2016; Waal & Gossop, 2014). Moreover, as pointed out by the Ministry of Health, various national and international studies have highlighted the significant impact of the COVID-19 pandemic on the mental health of the population. The most frequent mental health consequences of the pandemic were linked to depression, anxiety, post-traumatic stress disorder, self-harm or suicide, and sleep-wake disorders (Brooks et al., 2020; Dubey et al., 2020; Marel et al., 2021). Czeisler et al. (2020) and Martinotti et al. (2020) suggested an increase in addictive behaviours, both substance-related and non-substance-related, due to increased stress levels and emotional problems resulting from isolation or lockdown. Similar results were obtained by Brooks et al. (2020) and Marel et al. (2021), who stated that the aforementioned

consequences increase the intention to use as a coping strategy.

Despite the importance of the family in mental health, and specifically in SUD, there is a paucity of instruments for family assessment specifically validated in this Spanish clinical population (Carretero-Dios & Pérez, 2007; Costa et al., 2013; Martínez-Pampliega et al., 2006; Muñoz et al., 2013). Following Keszei et al. (2010), psychometrics in this field is necessary in clinical practice in order to design family interventions where appropriate, and to provide evidence of therapeutic progress, or failing that, no change in family relationships.

Given the identified need resulting from this shortfall of psychometrics in existing instruments assessing the family in SUD (Sanz et al., 2002), the present study was designed with the aim of providing a valid and reliable instrument that complies with psychological assessment guidelines (American Educational Research Association et al., 2014). The aim is thus to provide empirical evidence of the psychometric properties of an instrument in a specific population.

To the best of our knowledge, the *Cuestionario de Evaluación de las Relaciones Familiares Básicas* (CERFB) (Basic Family Relationships Assessment Questionnaire) by Ibáñez et al. (2012) is the first and only instrument – theoretically constructed and empirically validated in the Spanish population focused on the family – that simultaneously assesses and differentiates marital relationships and parenting, typical family functions in Linares' theory of basic family relationships (1996, 2012). The CERFB makes it possible to distinguish between functional and dysfunctional couples, and between an adequate and inadequate exercise of parental functions. It is a clinical instrument – brief, concise and easy to administer and correct – that assesses family dynamics. For Linares (2002), the only determining factor in the construction of a family unit is the conjunction of two independent relational functions: conjugality and parenting. In contemporary families, sex no longer determines the structure of couples, nor does the fact that the children are biological, adopted or conceived through assisted reproduction techniques. On the one hand, conjugality refers to the relationship between the partners and, on the other, parenting refers to the relationship between parents and children. In the theory of basic family relationships, Linares (1996, 2012) established that the two functions converge in the family's capacity for relational nutrition. Relational nutrition can be understood as the engine guiding the construction of a child's personality and mental health, continuously stimulating the maturation processes of the psyche.

The original version of the CERFB by Ibáñez (2016) and Ibáñez et al. (2012) was validated in the general Spanish population with satisfactory psychometric properties. In its first expanded use in the Spanish clinical population,

specifically in eating disorders, the CERFB again showed satisfactory psychometric properties (Campreciós, 2016; Campreciós et al., 2014; Campreciós et al., 2020). Likewise, Campreciós et al. (2014) reported the evaluative and discriminative capacity of the CERFB for greater marital disharmony and impaired parenting in families with a child with eating disorders, compared to functional families without a psychopathological diagnosis, based on the cut-off point of 55 for marital disorder and 42 for parenting. Given these results, Campreciós (2016) and Campreciós et al. (2020) were encouraged to continue the psychometric process by studying the adaptation and validation of the CERFB in other Spanish clinical populations.

Responding to the aforementioned approaches, the present study aims to validate and determine the clinical applicability of the original Spanish version of the CERFB in substance use disorder, through an analysis of the CERFB's validity evidence and reliability, and through the study of the scaling for said clinical population.

Method

Participants

The sample comprised 152 couples of Spanish nationality, with a family structure consisting of a father and a mother, making 304 participants equally divided by sex, aged between 33 and 70 years ($M = 54.34$; $SD = 7.87$). Regarding marital status, 95.4% were married and 3.9% lived with a partner (0.7% missing data). The average time of cohabitation of the couples was 31.62 ($SD = 9.02$) years and the average number of children living with the family of origin was 1.62 ($SD = 0.72$). Regarding the educational level of the partners, 18.1% had completed primary education, 63.1% secondary education, 15.8% higher education and 1% had none (2% missing data).

Focussing on the children diagnosed with substance use disorder, 78.3% were male and 20.4% female (1.3% missing data). The age range of all children was from 13 to 48 years ($M = 25.96$; $SD = 8.83$). As for educational level, 14.5% of the children had completed primary education, 72.3% secondary education and 9.9% higher education (3.3% missing data). At the clinical level, the predominant diagnosis was cannabis use disorder, in 48% of the children, followed by alcohol use disorder in 27.7%, stimulant use disorder in 19.7% and opioid use disorder in 3.9%, according to the diagnostic criteria of the DSM-5 (American Psychiatric Association [APA], 2014) (0.7% missing data). It should be noted that 66.4% of the children were diagnosed with different associated substance use disorders. Substance use onset in the children ranged from 11 to 29 years ($M = 16.48$; $SD = 3.63$), with a mean of 9.54 ($SD = 7.21$) years of use at the time of participation in the study.

Sampling and procedure

A descriptive correlational comparative study was conducted, with participants selected through non-probabilistic, intentional sampling, according to the inclusion criteria defined for the families under study (Hibberts et al., 2012). These inclusion criteria were: (a) born in Spain and of Spanish nationality; (b) heterosexual adult couple (both aged between 18 and 70) with at least one biological child together aged over 12, currently living in the family unit and diagnosed with a substance use disorder according to DSM-5 diagnostic criteria (APA, 2014); (c) couples are married, de facto or living together regularly; (d) children must not be parents; (e) family therapy must not have lasted longer than three months.

Families were selected from fourteen public and private centres and hospitals in Spain specialising in the treatment of substance use disorders between June 2011 and October 2016.

All families were undergoing treatment at the time of participation in the research. Those families were included who had a child with a substance use disorder enrolled in the different services and facilities involved in the treatment of the disorder. However, families who were unable to access the research sample because they were not undergoing treatment were excluded. Thus, the participation of all families who voluntarily agreed to participate and who had been selected by their clinical referents was recorded. The number of families who did not agree to participate in the research was not recorded.

To standardise the process, data collection always followed the same procedure. Prior to data collection, the research and its aims were presented to at least one participating member of the family, and they were given information on what their participation consisted of. The assessment material was also provided; this took approximately 30 minutes to complete, but it is specifically worth highlighting the brevity and ease of administration and response of the CERB, which only needs 10 minutes. The material, provided for each family unit, contained the written presentation of the research and the questionnaire blocks, preceded by the informed consent for each participating family member. The data collection process was carried out by members of the research team or by experienced professionals at the centres and hospitals, depending on their organisation. Various meetings were held with these professionals at the centres and hospitals, one initial and others to follow up. The initial meeting provided training that included the presentation of the research (including a brief reference to the theoretical framework), the presentation of the data collection material, and the details of the data collection process (including error prevention based on hypothetical situations). Regular coordination was maintained between the research team and the collaborating centres and hospitals, with the aim

of controlling the quality of the data collection process, as well as resolving any possible doubts or questions that might arise. In non-clinical families, the data collection material was administered in two formats, paper and online. In this particular case, quality control was carried out on the data collection process to control the effect of the participation format (Gosling et al., 2004; Granello & Wheaton, 2004; Hunter, 2012).

Instruments

Participants reported their own sociodemographic data regarding sex, age, place of residence, educational level, and their relationship with their partner and family (for example: marital status, years of cohabitation, number of children, sex and age of children), and completed the self-report measures presented below.

The Cuestionario de Evaluación de las Relaciones Familiares Básicas (CERFB) (Basic Family Relationships Assessment Questionnaire) by Ibáñez et al. (2012) comprises 25 items grouped into two scales assessing the parents' perception of family relationships: conjugality (14 items) and parenting (11 items). Likert-type item response scales range from 1 (never) to 5 (always). The conjugality score ranges from 1 to 70 and for parenting from 1 to 55. Higher scores indicate greater functionality and vice versa. The internal consistency of the CERFB items in the original version in the general Spanish population showed excellent reliability for both scales: conjugality ($\alpha = .91$) and parenting ($\alpha = .92$).

The Dyadic Adjustment Scale (DAS) by Spanier (1976) consists of 32 items grouped into four subscales assessing the perception of dyadic adjustment of each member of the couple (13 items), cohesion (5 items), satisfaction (10 items) and affective expression (4 items). The Likert-type item response scale range varies by question. The total dyadic adjustment score ranges from 0 to 151. Higher scores indicate greater dyadic adjustment and vice versa. The DAS version administered was the translation, adaptation and validation in the Spanish population (Spanier, 1976, 2017). The internal consistency of the items of the Spanish version of the DAS yielded excellent reliability with a Cronbach's alpha of .94 for the Total Dyadic Adjustment scale.

The Parental Bonding Instrument (PBI) by Parker et al. (1979) consists of 25 items grouped into two scales to assess two parental dimensions: care (12 items) and overprotection (13 items). The Likert-type item response scales range from 0 (not at all) to 3 (very much). The score for care ranges from 0 to 36 and the score for overprotection ranges from 0 to 39. Higher scores indicate greater care and overprotection and vice versa. The version of the PBI that assesses each parent's perception of their own current parental attitudes and behaviours was administered, in a translation and adaptation for the Spanish population by Ballús-Creus (1991).

Children's clinical data relating to the substance use disorder diagnosis, according to the diagnostic criteria of the DSM-5 (APA, 2014), were obtained from an ad hoc questionnaire completed by the reference professionals at the health centres and hospitals based on clinical records.

Data analysis

Item analysis was performed to study the psychometric properties of the CERFB items in substance use disorder. The mean, standard deviation, and skewness and kurtosis index was calculated for each item to verify the normal distribution of CERFB items. To this end, the mean should not be extreme, nor should the standard deviation be zero, and the skewness and kurtosis index should not be above 3.0 (Barbaranelli, 2007).

The Mantel-Haenszel method (Mantel & Haenszel, 1959) was used to analyze the differential functioning of CERFB items in relation to sex. The five categories in the response scale were combined to obtain a dichotomous format with 0 (represented by scores from 1 to 3) indicating low agreement with item content, and 1 (represented by scores 4 and 5) indicating high agreement with item content. This method allows the degree of agreement (low or high) to be assessed in relation to sex (male or female) through the calculation of χ^2 and odds ratio (OR). If these indices are significant ($p < .05$), the degree of agreement with item content varies by sex.

Validity evidence of the internal structure of the CERFB was determined by confirmatory factor analysis (CFA) to test the hypothesized two-factor structural model of the CERFB which emerged from the results of the exploratory factor analysis (EFA) with data from the general Spanish population, and which, in turn, supported Linares' (1996, 2012) theory of basic family relationships, i.e., the theoretical model of the instrument (Rial et al., 2006; Worthington & Whittaker, 2006). This is a two-factor latent model representing the two independent yet correlated constructs of conjugality and parenting. The sample size ($N = 304$) exceeded classic conservative recommendations (Kline, 2011). Data preparation for CFA also included the analysis and treatment of missing values and univariate and multivariate normality. The relative multivariate kurtosis (RMK) measure of 1.118 represents a reasonable fit of the collective data to normality. The hypothesized two-factor structural model of the CERFB was thus tested using the weighted least squares mean and variance adjusted estimator (WLSMV) estimation method with a variance-covariance matrix of CERFB items (Hair et al., 2006). The two-factor model was compared with the one-dimensional model, in which each item loaded on a single factor. Using the WLSMV estimation, the models were compared under the DIFFTEST procedure.

The goodness of fit of the CERFB's hypothesized two-factor structure model was assessed by combining various indices, subject to two types of overall fit indices: absolute and incremental fit indices. The root mean square error of approximation (RMSEA) and the standardized root mean square residual (SRMR) were calculated from the absolute fit indices, while the comparative fit index (CFI) and the Tucker Lewis index (TLI) were calculated from the incremental fit indices. According to recommendations in the literature (Browne & Cudeck, 1993; Hu & Bentler, 1999), RMSEA < .08; SRMR < .10 and CFI and TLI greater than or near .90 suggest an acceptable fit, while RMSEA < .05; SRMR < .08 and CFI and TLI > .95 suggest an excellent fit.

Furthermore, in order to verify the level of agreement of the two-factor structure based on sex, factorial invariance was analyzed. Following widely accepted recommendations and guidelines (Cheung & Rensvold, 2002; Vandenberg & Lance, 2000), configural, measurement (i.e., metric, scalar), and structural invariance were assessed sequentially. The WLSMV estimation method was used for invariance, and the DIFFTEST procedure was used to compare the models.

The determination of validity evidence based on the CERFB's internal structure was complemented with evidence of relational validity. The Pearson correlation coefficient was calculated between the scores on the CERFB conjugality and DAS dyadic adjustment scales, and between the scores on the CERFB parenting and PBI care and overprotection scales.

The reliability of the CERFB was analyzed through the internal consistency of each scale, marital and parental, by calculating the Cronbach alpha coefficient (1951) and the McDonald omega coefficient (1999).

The scaling for the two CERFB scales, marital and parental, in substance use disorder was obtained by differentiating according to sex. The total raw, base-10, and standardized scores, were converted to a percentile scale.

IBM SPSS statistics software, version 21, was used for statistical analyses, and M-PLUS, version 8.54, was used specifically for CFA and factorial invariance. Level of significance was set at $p < .05$.

Ethical questions

After the families were presented with the study, the voluntary nature of their participation in it was guaranteed. In accordance with the World Medical Association Declaration of Helsinki (2013), informed consent was obtained from each participating family member before the assessment material was administered, and no compensation was offered for participation. In addition, participant anonymity and data confidentiality were guaranteed. The relevance of the research and its scientific interest and suitability was guaranteed by the Comissió d'Ètica i Recerca de la FPCEE Blanquerna de la URL, the Comitè d'Ètica d'Investigació Clínica del Consorci Sanitari del Maresme (CEIC code: E04PRN67B200-1023-001) and the Comitè de Recerca del Consorci Sanitari de l'Anoia (code: PRCSA0078).

Results

Descriptive analysis of the items

Table 1 shows the descriptive statistics for the 25 CERFB items on substance use disorder. No item had an extreme mean, nor standard deviation close to 0. In addition, skewness and kurtosis indices were below 3.0, indicating normal distribution (Barbaranelli, 2007). To make the results easier to understand, Table 1 includes the item text.

Mantel-Haenszel method

The results of applying the Mantel-Haenszel method (Mantel & Haenszel, 1959) are shown in Table 2. These yielded significant indices in only 3 items, out of a total of 25, showing that differential functioning in relation to sex was limited for the 25 items of the CERFB in substance use disorder. In other words, men and women presented a very similar degree of agreement with the content of each item. Only the differential functioning of items 3 and 4 (where men agree more with the content) and of item 20 (where women agree more with the content) was examined.

Table 1
Descriptive statistics of the items, analysis of the items (n = 228)

Item	Description	M	SD	Skew	Kurtosis
1	I am sure my child/children only think about getting their own way.	2.58	1.07	0.34	-0.28
2	I think that my child/children have major flaws.	2.37	0.77	0.15	-0.30
3	My partner helps me deal with everyday problems.	3.78	1.13	-0.72	-0.33
4	I think that my child/children are irresponsible.	2.22	1.03	0.58	-0.31
5	I feel that my child/children reciprocate my emotional needs.	1.75	1.06	1.61	1.05
6	I think that my partner does not understand me.	2.33	1.08	0.47	-0.41
7	My partner spoils things with his/her lack of subtlety.	1.95	1.05	1.11	0.71
8	I have calm conversations with my child/children.	3.94	1.04	-0.85	0.08
9	My partner takes other people's opinions into account more than my own.	2.23	1.15	0.67	-0.42
10	I find it difficult to enjoy intimacy with my partner.	1.68	1.04	1.34	0.58
11	My partner and I make a good team.	3.89	1.10	-0.94	0.18
12	My partner knows how to treat me.	3.66	1.10	-0.69	-0.17
13	I like to share free time with my child/children.	4.32	0.82	-1.14	1.04
14	My partner doesn't spend much time with me.	2.49	1.15	0.37	-0.72
15	I often have to shout at my child/children to get them to obey me.	2.54	1.12	0.41	-0.49
16	My partner knows how to listen to me.	3.69	1.02	-0.47	-0.36
17	My partner is very affectionate with me.	3.58	1.21	-0.53	-0.73
18	I think my child/children don't know how to treat me.	2.48	1.18	0.44	-0.70
19	My partner helps me to be stronger.	3.68	1.20	-0.57	-0.74
20	I openly acknowledge my child/children when they behave well.	4.40	0.87	-1.70	2.01
21	I feel like my child/children get on my nerves very often.	2.59	0.89	0.63	0.32
22	My partner and I argue heatedly on a daily basis about everything.	2.33	1.13	0.59	-0.53
23	I am convinced that my child/children only pay attention when they are threatened with punishment.	2.18	1.20	0.75	-0.46
24	I think my partner and I disagree on most things.	2.35	1.11	0.67	-0.26
25	My partner and I talk calmly about everything.	3.81	1.04	-0.53	-0.58

Table 2
Differential functioning of items by sex

Item	Sex	% agree- ment	χ^2	<i>p</i>	OR
1	Men Women	36,6 34,2	0.28	NS	0.87
2	Men Women	26,2 25,5	0.01	NS	0.98
3	Men Women	38,2 28,6	12.02	<.001	0.42
4	Men Women	32,1 37,7	5.32	<.001	1.79
5	Men Women	23,8 23,5	0.01	NS	0.99
6	Men Women	35,0 32,0	0.80	NS	0.78
7	Men Women	35,0 30,7	1.88	NS	0.70
8	Men Women	25,9 24,9	0.01	NS	0.96
9	Men Women	34,4 29,8	1.97	NS	0.69
10	Men Women	28,2 28,2	0.00	NS	1.01
11	Men Women	33,3 31,3	0.36	NS	0.84
12	Men Women	36,4 36,8	0.00	NS	1.03
13	Men Women	28,1 28,5	0.02	NS	1.06
14	Men Women	31,8 30,8	0.06	NS	0.92
15	Men Women	7,9 8,6	0.02	NS	1.10
16	Men Women	19,5 16,8	0.57	NS	0.81
17	Men Women	12,5 11,5	0.07	NS	0.90
18	Men Women	31,5 31,5	0.01	NS	1.04
19	Men Women	20,7 26,4	3.22	NS	1.56
20	Men Women	30,0 39,6	12.81	<.001	2.59
21	Men Women	23,7 22,3	0.06	NS	0.92
22	Men Women	18,3 18,6	0.02	NS	1.06
23	Men Women	40,1 42,4	0.82	NS	1.38
24	Men Women	17,5 13,8	1.66	NS	0.70
25	Men Women	32,3 30,0	0.17	NS	0.88

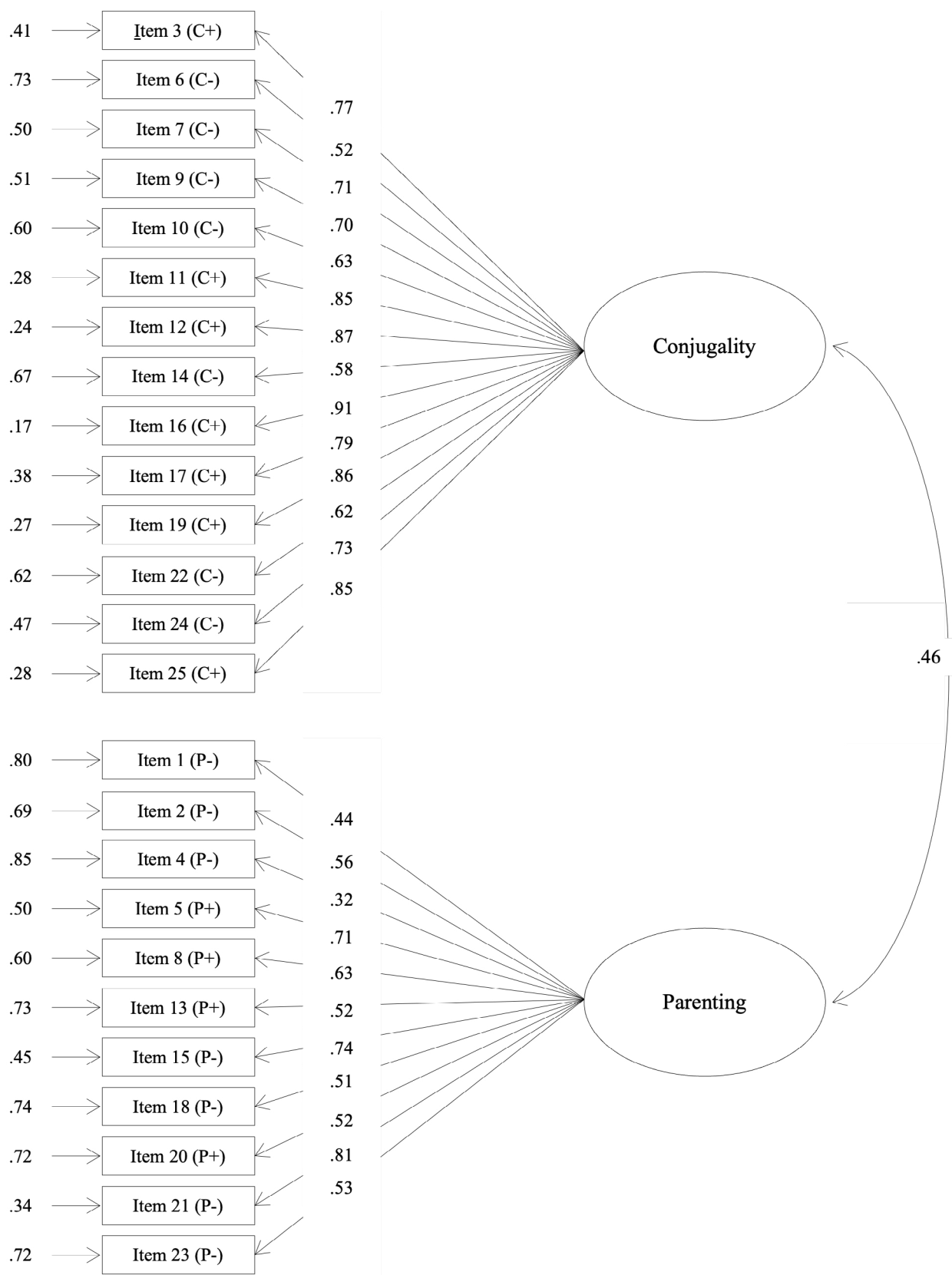
Confirmatory factor analysis

The goodness of fit of the CERFB's hypothesized two-factor structure model to the data of the sample of participants was good, as shown by the overall fit indices obtained: χ^2 (274) = 690.78; RMSEA = .07 [90% CI = .06; .08], SRMR = .06; CFI = .96 and TLI = .95. The two-factor model was compared with the one-dimensional model, which presented the following overall fit indices: χ^2 (275) = 1135.70; RMSEA = .13 [90% CI = .12; .14], SRMR = .10; CFI = .86 and TLI = .85. The comparison between the two models showed a significant DIFFTEST value, χ^2 (1) = 164.33, suggesting that the two-factor model achieved a significantly better fit than the one-dimensional model.

Indeed, CFA showed the validity of the two-factor structural model of the CERFB, in line with the original version of the CERFB in the general Spanish population by Ibáñez (2016) and Ibáñez et al., (2012) and in clinical families with a child with substance use disorder. The model is composed of two latent factors, marital and parenting, and 25 observable variables (items). Figure 1 presents factor loadings (standardized solution) and measurement errors, and factor correlations.

Figure 1

Structural representation of the CERFB two-factor model in substance use disorder



Note. Items (observable variables) are represented in the rectangles, and latent factors in the circles. Numbers on the arrows from latent factors to their indicators reflect factor loading coefficients, and numbers to the left reflect measurement errors (standardized solution). The bidirectional arrow represents a correlation, and unidirectional arrows represent hypothesized directional or causal relationships. Standardized maximum likelihood estimates. C+ = positive conjugality item; C- = negative conjugality item; P- = negative parenting item; P+ = positive parenting item.

Factorial invariance by sex

First, configural invariance (M0), i.e., an unrestricted baseline model in which all parameters differ between men and women, was analyzed. The goodness of fit of M0 to the data was good, as shown by the overall fit indices obtained: $\chi^2_{(648)} = 1064.82$; RMSEA = .065; SRMR = .060; CFI = .978 and TLI = .980.

Second, metric invariance (M1), i.e., a model in which all factor loadings are simultaneously forced to be equivalent between the two groups according to sex, was examined and compared to M0.

The M1 versus M0 comparison yielded a significant DIFFTEST value. This result suggested significant group differences in factor loadings, refuting metric invariance. This means that men and women attributed different meanings to the latent constructs under study. Since metric invariance was not established, neither scalar invariance nor structural invariance were examined. Table 3 shows goodness-of-fit indices and comparisons between models.

Evidence of relationship validity

The correlations reporting adequate evidence of relationship validity between the CERFB and the DAS and the PBI complemented the validity evidence. Positive and significant correlations were established between the CERFB's conjugality and DAS's dyadic adjustment scales ($r(202) = .84$; $p < .001$), and the CERFB's parenting and

PBI's caregiving scales ($r(240) = .50$; $p < .001$). In turn, a negative and significant correlation was found between the CERFB's parenting and PBI's overprotection scales ($r(242) = -.52$; $p < .001$).

Reliability analysis

The analysis of the CERFB's internal consistency in substance use disorder, using Cronbach's alpha coefficient and McDonald's omega coefficient, respectively, yielded excellent homogeneity between the items of the conjugality scale ($\alpha = .93$; $\omega = .93$) and good homogeneity between the items of the parenting scale ($\alpha = .82$; $\omega = .81$). It was assumed that the items of the conjugality scale and the parenting scale correctly measured the construct, and that they were highly correlated with each other. The good internal consistency coefficients obtained for the CERFB did not improve by deleting any item.

Scaling

Tables 4 and 5 present the percentile scales for the raw scores, the base-10 scores, and the standardized (T) scores of the CERFB's marital and parenting scales for clinical families with a child with a substance use disorder for men and women, respectively. The scales are provided by sex since men and women attribute different meanings to the latent marital and parenting constructs of the CERFB.

Table 3
Testing factorial invariance across sex (men = 152 vs. women = 152)

Model	χ^2	df	CFI	TLI	SRMR	RMSEA	χ^2_{DIFFTEST}	df _{DIFFTEST}	p
M0. configural invariance	1064.82	648	.978	.980	.060	.065			
M1. invariance metric	943.44	673	.986	.988	.051	.067	39.88	25	.02

Table 4
Percentile scaling of the CERFB Marital and Parental scales in substance use disorder for men

Percentile	Marital			Parental		
	Raw score	Base-10 score	T score	Raw score	Base-10 score	T score
1	25.38	1.25	25.39	19.36	0.10	22.30
2	27.52	1.67	27.34	20.00	0.28	23.29
3	29.00	1.96	28.70	23.00	1.11	27.91
4	29.52	2.06	29.17	23.44	1.23	28.58
5	30.00	2.16	29.61	24.00	1.39	29.45
6	30.28	2.21	29.87	25.16	1.71	31.23
7	32.32	2.61	31.73	26.00	1.94	32.53
8	33.04	2.75	32.39	26.88	2.19	33.88
9	34.00	2.94	33.27	27.24	2.29	34.43
10	34.80	3.10	34.00	28.00	2.50	35.60
15	39.70	4.06	38.48	30.40	3.17	39.30
20	42.00	4.51	40.58	31.20	3.39	40.53
25	44.00	4.90	42.41	33.00	3.89	43.30
30	48.00	5.69	46.07	34.00	4.17	44.84
35	51.00	6.27	48.81	35.00	4.44	46.38
40	53.00	6.67	50.64	36.00	4.72	47.92
45	54.00	6.86	51.55			
50				37.00	5.00	49.46
55	55.00	7.06	52.47	38.00	5.28	51.00
60	57.00	7.45	54.30	38.60	5.44	51.92
65	58.00	7.65	55.21	39.00	5.56	52.54
70	61.00	8.24	57.95			
75	62.00	8.43	58.87	40.00	5.83	54.08
80	63.00	8.63	59.78	41.80	6.33	56.85
85	65.00	9.02	61.61	43.60	6.83	59.62
90						
91				46.00	7.50	63.32
92	66.00	9.22	62.53			
93	67.00	9.41	63.44			
94	67.72	9.55	64.10	47.00	7.78	64.86
95	68.00	9.61	64.35	48.00	8.06	66.40
96	68.48	9.70	64.79	48.56	8.21	67.26
97	69.00	9.80	65.27	49.92	8.59	69.35
98	69.24	9.85	65.49	51.56	9.04	71.88
99				54.28	9.80	76.07
100	70.00	10.00	66.18	55.00	10.00	77.17

Note. T score = standardized score. The grey shaded area indicates family dysfunction in substance use disorder, compared to nonclinical families.

Table 5*Percentile scaling of the CERFB Marital and Parental scales in substance use disorder for women*

Percentile	Marital			Parental		
	Raw score	Base-10 score	T score	Raw score	Base-10 score	T score
1	21.66	0.52	21.99	23.40	1.22	28.52
2	28.28	1.82	28.04	26.00	1.94	32.53
3	31.00	2.35	30.52			
4	31.52	2.45	31.00			
5	32.90	2.73	32.26	27.00	2.22	34.06
6	33.28	2.80	32.61	27.20	2.28	34.37
7	34.00	2.94	33.27			
8	35.00	3.14	34.18			
9	35.42	3.22	34.57			
10	36.80	3.49	35.83	29.00	2.78	37.14
15	40.00	4.12	38.75	31.00	3.33	40.22
20	42.00	4.51	40.58	32.00	3.61	41.76
25	44.50	5.00	42.87	33.00	3.89	43.30
30	46.00	5.29	44.24	34.00	4.17	44.84
35	49.00	5.88	46.98	35.00	4.44	46.38
40	50.00	6.08	47.90	36.00	4.72	47.92
45	52.00	6.47	49.73	37.00	5.00	49.46
50	54.00	6.86	51.55	38.00	5.28	51.00
55	56.00	7.25	53.38	39.00	5.56	52.54
60	56.80	7.41	54.11	40.00	5.83	54.08
65	58.00	7.65	55.21	41.00	6.11	55.62
70	59.00	7.84	56.13	42.00	6.39	57.16
75	60.00	8.04	57.04	43.00	6.67	58.70
80	61.40	8.31	58.32			
85	63.00	8.63	59.78	44.00	6.94	60.24
90	64.00	8.82	60.70			
91	64.58	8.94	61.23			
92						
93						
94	65.00	9.02	61.61	46.00	7.50	63.32
95				47.00	7.78	64.86
96	67.00	9.41	63.44	47.60	7.94	65.78
97	67.86	9.58	64.23	48.95	8.32	67.86
98	69.24	9.85	65.49	50.20	8.67	69.78
99						
100	70.00	10.00	66.18	53.00	9.44	74.10

Note. T score = standardized score. The grey shaded area indicates family dysfunction in substance use disorder, compared to nonclinical families

Discussion

The inclusion of the family in diagnosing and treating of substance use disorder (SUD) is key within current psychotherapeutic intervention programs (NIDA, 2018), yet a contradiction should be noted: there is a paucity of valid and reliable assessment instruments specifically assessing family relationships in the Spanish population with this disorder. In response to the identified need for new assessment measures, this study aims to validate and determine the clinical applicability of the CERFB in SUD. The main strength of the study is that it complies with the recommendations of the American Educational Research Association et al. (2014) for providing empirical psychometric evidence of an instrument for use in a specific population.

Overall, results show that the psychometric properties of the CERFB are appropriate for SUD, being consistent with the original version in the Spanish general population (Ibáñez, 2016; Ibáñez et al., 2012) and the version in the Spanish clinical population with eating disorders (Campreciós, 2016; Campreciós et al., 2014; Campreciós et al., 2020). It is reassuring that the CERFB's good psychometric properties are maintained in its second use, expanded to the Spanish clinical population, thus contributing to advance the process of accumulating empirical evidence (Keszei et al., 2010).

The CFA presents the validity of the CERFB two-factor structure model, comprising the two scales corresponding to conjugality and parenting in relation to SUDs. This result is consistent with the original version by Ibáñez (2016) and Ibáñez et al. (2012) in the general Spanish population, and supports the theory of Linares (1996, 2012). The CFA shows a good fit to the data. The results of the factorial invariance according to sex determine the configural invariance between the groups, but not the metric invariance, suggesting that men and women attribute different meanings to the CERFB scales, conjugality and parenthood, as basic family relationships. A plausible explanation for these results can be found following Cancrini (1982), Cancrini and La Rosa (1991), Cancrini et al. (1988) and Cócola (2018). These authors report that family structure in SUD is configured through one of the parents (normally of the opposite sex to the child) being more strongly involved and the other parent playing a peripheral role, so it is common for specific family dynamics to be generated, which cause role mixing, and show triangulations between the child and a parent.

Validity evidence based on internal structure is complemented by the correlations that report the CERFB's relationship validity evidence with satisfactory results. As expected, associations with the DAS (Spanier, 1976, 2017) and PBI (Ballús-Creus, 1991) were shown.

Reliability measured by the Cronbach alpha coefficient and the McDonald omega coefficient suggest good levels for both CERFB scales.

Finally, the results of the scaling and the results of the cut-off points established for the conjugality and parenting scales as a whole allow the interpretation of the CERFB scores in relation to SUD. The empirical discriminatory capacity of the CERFB in SUD, with respect to non-clinical families, is established from the cut-off point of 57 in men and 56 in women for conjugality, and 40 in men and 41 in women for parenting.

In the series of basic procedures for the validation and scaling, participant scores were differentiated by sex, given the divergence recorded between men and women in the understanding of the conjugality and parenting scales as basic family relationships in the analysis of factorial invariance by sex. This was in line with the presence of specific family dynamics in SUD (Cancrini, 1982; Cancrini & La Rosa, 1991; Cancrini et al., 1988; Cócola, 2018).

The positive results obtained should be considered in the light of some limitations. In particular, the conditions of the sample limit the generalizability of results to families not included in the study, such as the new forms of family resulting from multiple transformations in its organization and structure (Linares, 2002). Furthermore, factorial invariance analysis does not determine scalar invariance.

In response to these limitations, future studies should consider the new forms of family with a child diagnosed with SUD based on the study of coparenting. Along these lines, Mollà et al. (2020) highlight the importance of studying coparenting in the assessment of family functioning. In response to the need identified by previous authors to develop psychometric instruments to assess coparenting and contribute to the theoretical knowledge of the subject, Mollà et al. (2022) have developed and validated the Cuestionario para la Evaluación de la Coparentalidad (CECOP) (Questionnaire for the Evaluation of Coparenting). The CECOP allows coparenting to be assessed in its triadic mother-father-child conceptualization in all types of family structure. Future studies should analyze the existence of differences in the results according to the type of substance consumed. Regarding factorial invariance, this should be analyzed in greater depth. In addition, the present study could be complemented with a longitudinal study of the CERFB's test-retest reliability, with the aim of determining the consistency of the assessment of basic family relationships, conjugality and parenting, after a period of time. In addition, the evidence based on relationships to other variables, such as the test-criterion relationships of the CERFB, should be analyzed in order to provide an instrument that allows the assessment of psychotherapeutic effectiveness (Keszei et al., 2010). Future studies should also analyze the discriminant evidence using questionnaires that assess other types of

family relationships. These results, taken together, would demonstrate the stability of the cut-off points, taking into account the possible adaptations of the family to the SUD, making family therapy effective in its treatment (NIDA, 2018). In order to determine the specificity of basic family relationships in substance use disorder using the CERFB, it would be necessary to design the present research in samples of clinical families with children with SUD, differentiated by the type of drug, to simultaneously clarify the relational patterns of different clinical samples. In accordance with the changes incorporated in the diagnosis of substance-related disorders in DSM-5 (APA, 2014), the subcategory non-substance-related disorders, which includes pathological gambling, could be incorporated.

In conclusion, the CERBF can be used to assess family dynamics by quantifying conjugal relationships and the exercise of parenting in Spanish families with a child with substance use disorder, compared to non-clinical families, both in clinical and research contexts. It is the first validated instrument to assesses the family as a whole in SUD in the Spanish population, and the CERFB's valuable brevity and ease of use in its administration, response and scoring is worth noting. The general characteristics of the CERFB facilitate its inclusion in assessment systems, either alongside other self-administered instruments or with clinical interviews and observation (Fernández-Ballesteros, 1992; Fernández-Ballesteros, 1993), both for clinical and research purposes. The consistent use of a valid and reliable instrument that specifically assesses family relationships in SUD is essential at a theoretical level to expand knowledge of the subject. The use of the CERFB allows for a holistic assessment which considers the relevance of family relationships in substance use disorder, among other aspects.

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Conflicts of interest

The authors of this article declare no conflict of interests.

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