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Influential Relationship Questionnaire (IRQ): psychometric characteristics of an abbreviated Spanish version

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Abstract

Background: The relevance of family relationships in the outcome of various disorders has been highlighted from different domains. Specifically, empirical studies on the relationship between the outcome of schizophrenia and various affective dimensions of family relationships have allowed the identification of particularly relevant aspects: criticism, hostility, and over-protection.

Aims: The present study aims to adapt and validate an abbreviated Spanish version of the Influential Relationship Questionnaire (IRQ), an instrument that measures the patient's own perception of the affective dimensions of family relationships.

Method: Participants were 188 patients (63.8% male) of the Public Health Service in Andalusia (Spain) with a diagnosis of schizophrenia or a related disorder. One hundred and thirty-six participants provided data related to both father and mother, and 52 only related to mother or father, so the analyses were carried out with a total of 324 questionnaires. Simultaneously, in 130 participants, the Perceived Criticism Scale was applied, and in 50 cases, relatives were asked to complete the Family Attitudes Scale.

Results: Principal component analysis allowed for the identification of four factors that explained 61.53% of the total variance (criticism, over-protection, restriction, and care). The values of Cronbach's alpha coefficient, as well as the omega coefficient, showed high consistency. The temporal reliability for an interval of 3 months was high. The correlations between the IRQ dimensions and the other variables included in the study were significant and in the expected direction.

Conclusions: The results support the reliability and validity of the abbreviated version of the IRQ.

Keywords: assessment; expressed emotion; family social support; parental bonding; psychosis

Introduction

The relevance of family relationships in the outcome of various disorders has been highlighted from different domains, both from Social Support studies (Clinton *et al.*, 1998; Erickson *et al.*, 1989; Vázquez Morejón *et al.*, 2018), and from research on expressed emotion (Vaughn and Leff, 1976). Empirical studies by Brown *et al.* (1972) on the relationship between the outcome of schizophrenia and various affective dimensions of family relationships have allowed for the identification of particularly relevant aspects: criticism, hostility, emotional over-involvement, warmth and positive comments. These five dimensions, which reflect very relevant characteristics of the emotional climate of the family environment, are integrated into one of the most influential

constructs of psychosocial research on schizophrenia, the concept of expressed emotion (EE). This construct refers to interaction patterns that are reflected in attitudes and communication styles of family members. The assessment of these dimensions by means of the Camberwell Family Interview (CFI) allows the identification of family environments of high or low expressed emotion, with particularly the environments of high expressed emotion being associated with the outcome of people with psychosis.

The robust predictive ability for relapses in individuals with schizophrenia has given this construct a special interest (Weintraub *et al.*, 2017). Two of these dimensions (criticism and emotional over-involvement) have been considered especially relevant in terms of this predictive capacity (Leff and Vaughn, 1985). Subsequent studies have also confirmed the role of this construct in the outcome of other disorders such as depression (Uehara *et al.*, 1996), anxiety (Chambless and Steketee, 1999) and eating disorders (Duclos *et al.*, 2012; Rienecke, 2018).

The assessment of the EE is carried out through the CFI, an interview that in its abbreviated version (Vaughn and Leff, 1976) takes an approximate application time of an hour and a half, and two or three hours of evaluation. This extensive duration, as well as the intense training required for its evaluation, significantly diminishes its usefulness and feasibility in clinical practice. For this reason, other assessment instruments have been developed that are shorter and more feasible in clinical contexts, such as the Family Assessment Scale (FAS) (Kavanagh *et al.*, 1997) and the Family Questionnaire (FQ) (Wiedemann *et al.*, 2002), both based on the family's perception. However, there are very few instruments that, for the evaluation of the dimensions of EE, are based on the person's own perception. The Perceived Criticism Scale (PCS) by Hooley and Teasdale (1989) does so, but in this case, it is exclusively focused on the perception of criticism.

The relative independence of the family perspective and the person's own perspective (Medina *et al.*, 2013) make it necessary to have specific instruments for each perspective, in order to explore the relationships they present with different variables and, very particularly, with the predictive capacity of each perspective. The interest in the patient's own perspective has been highlighted in various studies, emphasizing the importance of one's own subjective perception, as some studies indicate that this perspective might have more impact on the stress level of individuals with psychosis and on the risk of relapses (Cutting *et al.*, 2006; Lebell *et al.*, 1993; Tompson *et al.*, 1995; Warner and Atkinson, 1988).

The Influential Relationship Questionnaire (IRQ), a modified version of the Parental Bonding Instrument (PBI), developed by Baker *et al.* (1984), includes, in addition to the dimensions of care and over-protection, a third dimension related to criticism. The IRQ takes as a reference period the last year of the parental relationship, allowing the assessment of the basic attitudes of the current parental relationship (a) quickly and therefore of interest to clinical practice, and (b) from a particularly important perspective: the person's own perception of parental attitudes. These characteristics, along with the inclusion of the criticism dimension, allow this instrument to be proposed as a possible alternative to the CFI.

Incorporating additional dimensions into the IRQ, such as over-protection and, more notably, positive aspects of family relationships like the care dimension, enhances its relevance. This is especially significant given the crucial role these positive affections play as protective factors across various cultures (Ivanović *et al.*, 1994; Lee *et al.*, 2014; López *et al.*, 2004).

Therefore, it seems of interest to have a Spanish version of the IRQ that confirms its psychometrics characteristics and facilitates studies in the Spanish language in this relevant research area, and to try to develop an abbreviated version of this instrument in order to make it more viable in clinical care contexts.

Table 1. Sociodemographic information ($n = 188$)

Variables	<i>n</i>	%
Marital status		
Single	164	87.2
Married	11	5.9
Separated/divorced	13	7.0
Education level		
Primary school incomplete	3	1.6
Primary school	10	5.3
Secondary school certificate/professional training	126	67
University	49	26.1
Employment situation		
Student	49	26.1
Employed	38	20.2
Unemployed	63	33.5
Homemaker	3	1.6
Pensioner	16	8.5
Other	19	10.1
Diagnostics		
Schizophrenia	98	52.1
Schizotypal disorder	5	2.7
Delusional disorder	10	5.3
Acute psychotic disorders	12	6.3
Schizoaffective disorders	10	5.3
Other disorders	36	19.1
Bipolar disorder	17	8.8

Method

Participants

One hundred and eighty-eight participants that were treated in a community mental health unit, with a diagnosis of schizophrenia or related disorders according to the ICD-10 criteria, of which 120 were men (63.8%) and 68 were women (36.2%) were selected for this study. Diagnosis was made according to the ICD-10 criteria by specialist in clinical psychology, following a clinical interview that included the collection of clinical history and a psychopathological examination.

The mean age of the participants was 32.05 years ($SD = 7.86$, range 16–52 years). Other sociodemographic and clinical characteristics of the participants are presented in Table 1. One hundred and thirty-six participants provided data related to both father and mother, and 52 only related to mother or father, so the analyses were carried out with a total of 324 questionnaires. For the application of the FAS to relatives, 50 parents participated: 32 mothers and 18 fathers.

Measures

Influential Relationships Questionnaire (IRQ; Baker et al., 1984)

This self-report measure consists of 37 items that describe a father or mother's behaviour or attitude towards their child. Twenty-five of the items originate from the Parental Bonding Instrument (Parker et al., 1979) and correspond to the dimensions of over-protection and care, while the remaining 12 were added by Baker et al. (1984) and correspond to the dimension of criticism. Each item is rated on a Likert scale ranging from 0 (never) to 3 (frequently). It is completed by the participants in relation to both the father and the mother. The sum of the items of each of the dimensions, after reversing the scoring of the corresponding items, allows obtaining the score corresponding to care, over-protection, and criticism. It displays adequate psychometric characteristics, with internal consistency between .77 in the criticism dimension and .84 in care, and a test-retest reliability ranging between .53 in over-protection and .63 in the criticism dimension. Subsequent studies have confirmed these adequate psychometric characteristics in

other populations as well as their predictive validity in relation to relapses in individuals with schizophrenia (Baker *et al.*, 1987).

Perceived Criticism Scale (PCS; Hooley and Teasdale, 1989)

The PCS is a simple and quick measure to evaluate perceived criticism, a dimension considered one of the most relevant in studies on EE. It consists of a single question (PCS1) in which the participants are asked to evaluate, on a 10-point Likert scale, to what extent their family member is critical towards him/her. Additionally, a second question (PCS2) is added in which they are asked to value to what extent they consider themselves to have been critical towards their family member, following the same 10-point Likert scale. The correlations found in various studies in relation to EE, assessed using the CFI, and what could be more important, its predictive ability concerning the outcome of various disorders has come to support the interest in this measure (Hooley and Miklowitz, 2017; Hooley and Teasdale, 1989). It presents satisfactory temporal reliability ($r = .75$), and its concurrent validity has been confirmed by its correlation with the global level of EE (high-low), measured with the CFI. Its predictive ability concerning the outcome of different disorders gives particular interest to this measure. A third question (PCS3) was added in this study about the degree of satisfaction in their relationship with the family member, with the same scoring procedure as in previous questions: 'In general, how do you feel about your relationship with your father/mother/relative?', ranging from 1 (very dissatisfied) to 10 (very satisfied).

Family Attitudes Scale (FAS; Kavanagh et al., 1997)

The FAS is an instrument composed of 30 items that measure the emotional family climate in patients with schizophrenia. The scale seeks to provide a valid and cost-effective alternative to assess environmental stress factors (criticism and rejection) associated with the course of schizophrenia. Relatives report how frequently each of the items presented in the scale occurs, answering on a scale ranging from 4 (every day) to 0 (never). In ten of the items, the scores are reversed, and subsequently, a total score is obtained by summing all the items. The total score ranges between 0 and 120, with higher scores indicating higher levels of criticism. The scale shows high internal consistency, and its score correlates with various dimensions of the Camberwell Family Interview, supporting its convergent validity. This study utilizes the Spanish adaptation (Jiménez García-Bóveda *et al.*, 2007) in which its reliability and validity are also confirmed.

Procedure

After conducting a double translation of the questionnaire, differences between both translations were reconciled, taking into consideration the Spanish terminology related to studies on EE. Subsequently, a translation into English was performed by an independent translator, and both versions were compared, resulting in minor adjustments in certain terms. The questionnaire was then administered to 10 participants to identify any potential comprehension difficulties, and appropriate corrections were made.

From 2013 to 2017, all patients diagnosed with schizophrenia or related disorders, who lived with family members and were receiving treatment at the community mental health unit, were asked to complete the scales. After being provided with information and upon obtaining informed consent, including permission for the results to be published, the questionnaire was distributed along with routine evaluation scales. Instructions were both orally explained and written on the questionnaire itself, which was to be completed independently by the patients. Simultaneously, data relating to age, marital status, living arrangements, and diagnosis were collected. Of the 324 questionnaires conducted, 183 (56.5%) referred to the mother, and the remaining 141 (43.5%) were related to the father.

Simultaneously, the PCS was applied to 130 participants, and in 50 cases, family members were asked to complete the FAS. In 80 participants, the completion of a second application of the

questionnaire was requested within a period of 3 months to explore its temporal reliability. Once the collection was completed, the responses were scored and coded, and statistical analyses were conducted using SPSS v22.

The entire procedure was carried out in accordance with the Helsinki Declaration, and the study was approved by the Andalusian Biomedical Research Ethics Committee under code no. 1384-N-19.

In this adaptation, the possible reduction of the scale was considered by selecting exclusively those items that met saturation criteria for a single dimension, as specified in the 'Statistical analysis' section below.

Statistical analysis

Factorial analysis was conducted using the Kaiser-Meyer-Olkin (KMO) test and Bartlett's test of sphericity. Subsequently, principal components analysis (PCA) with Oblimin rotation was conducted. Items with a saturation greater than .50 and less than .20 in other dimensions were selected, also checking content validity and apparent validity, as well as the effect on Cronbach's alpha coefficient when eliminating each item. In this way, items that did not meet the appropriate saturation conditions in their factor were eliminated, and a new PCA with Oblimin rotation was conducted using only the selected items.

As the scale does not aim to obtain a global score but scores in different dimensions, the internal consistency and factorial structure of each of the dimensions were explored using Cronbach's alpha coefficient and omega coefficient in the first case, and through one-factor factorial analysis with Oblimin rotation in the second. For temporal reliability, the intraclass correlation coefficient was used, and for concurrent validity, Pearson's correlation was employed.

Results

Descriptive statistics

The scores on the 37 items ranged between 0 and 3, with the highest mean score on item 22 ('Made me feel I wasn't wanted') at a mean of 2.3, and the lowest on item 31 ('Let me go out as often as I wanted') with a mean of 0.35 (see Table 2).

Factorial structure

The results of the Kaiser-Meyer-Olkin test (.937), and Bartlett's test of sphericity (.000), confirmed the appropriateness of the data for factorial analysis. Through an initial PCA, a structure composed of six factors was obtained (see Table 2), with two of the factors made up of a single item. In both cases, these are items worded as negations, and due to their content without clear differentiation, both factors could be considered as artifacts.

After eliminating both items (2 and 13) and those items that did not meet the saturation conditions ($>.50$ in their own factor and $<.30$ in other factors), 24 items were selected, and a second PCA with Oblimin rotation was performed from these 24 items (Table 3). This PCA allowed the identification of four factors explaining 61.53% of the total variance and, by the contents of the items, they can be clearly defined and thus termed: criticism (7 items), over-protection (6 items), restriction (5 items), and care (6 items).

Factorial validity

The items of each of the four dimensions of the IRQ displayed a single factor explaining between 55.35% in the restriction dimension and 65.49% in the care dimension, with items that saturate above .50 in all cases (see Table 4).

Table 2. Descriptive statistics and principal component analysis of the 37 IRQ items

	Descriptive statistics				Principal component analysis					
	Mean	SD	Skewness	Kurtosis	1	2	3	4	5	6
Item 1	2.19	.87	-.75	-.38	.73	-.26	.00	-.11	.10	.01
Item 2	1.73	1.05	-.25	-1.15	.28	-.30	-.10	.04	.64	-.01
Item 3	1.46	1.05	.01	-1.19	-.28	.67	.22	.09	.11	.06
Item 4	.56	.75	1.25	.97	-.24	.27	.16	.61	.10	-.02
Item 5	1.96	1.03	-.50	-1.01	.63	-.46	-.17	.00	.12	.14
Item 6	1.11	1.06	.45	-1.07	-.27	.64	.25	.14	-.07	-.12
Item 7	2.00	.93	-.59	-.57	.49	-.37	-.16	-.20	.23	-.06
Item 8	2.22	.92	-.90	-.26	.78	-.23	.01	-.06	.12	.04
Item 9	.71	.86	1.07	.40	-.30	.00	.50	.44	.02	.17
Item 10	1.12	.84	.51	-.17	-.40	.45	.09	.39	.18	.27
Item 11	1.17	1.16	.42	-1.33	-.12	.00	.75	.04	-.11	-.09
Item 12	1.56	1.10	-.04	-1.33	-.05	.30	.69	.26	-.03	-.17
Item 13	1.72	1.17	-.28	-1.41	.03	-.16	-.01	-.04	.04	.82
Item 14	1.31	1.11	.26	-1.28	-.08	.44	.59	.23	.07	-.17
Item 15	2.14	.89	-.76	-.31	.76	-.11	.00	-.21	.07	.07
Item 16	2.23	.85	-.82	-.20	.79	-.25	.02	-.12	-.01	-.05
Item 17	1.52	1.11	-.06	-1.34	-.01	.25	.78	.09	-.04	.09
Item 18	.75	.96	1.00	-.10	-.47	.55	.24	.27	-.11	-.06
Item 19	1.45	1.01	.14	-1.06	.19	-.53	-.27	.05	.26	-.07
Item 20	.72	.82	.96	.23	-.21	.19	.34	.62	.10	.11
Item 21	.70	.78	.90	.23	-.66	.38	.00	.25	.16	.11
Item 22	2.32	.95	-1.14	.04	.42	-.53	.02	-.04	.31	.18
Item 23	.79	1.02	.97	-.41	-.16	.65	.13	.32	-.13	-.03
Item 24	2.13	.95	-.75	-.52	.66	-.23	.00	-.23	.29	-.06
Item 25	1.60	1.05	-.15	-1.17	.47	-.08	-.25	.10	.47	.07
Item 26	.82	.99	.87	-.48	-.40	.57	.17	.20	-.16	-.06
Item 27	1.09	1.12	.47	-1.22	-.05	.24	.76	.16	-.19	.04
Item 28	1.12	1.10	.48	-1.12	-.08	.31	.69	.25	-.13	-.02
Item 29	1.40	1.09	.06	-1.31	-.20	.64	.33	.14	-.03	.04
Item 30	.76	.84	.83	-.17	-.18	.24	.29	.70	-.09	-.04
Item 31	.35	.69	2.12	4.30	-.07	-.01	.00	.71	-.33	-.13
Item 32	.96	1.04	.70	-.78	-.04	.24	-.10	.42	-.38	.44
Item 33	1.68	1.08	-.24	-1.22	.19	.08	.69	-.06	.17	.14
Item 34	1.95	1.10	-.58	-1.06	.39	-.66	-.14	-.14	.19	.09
Item 35	1.47	1.16	.03	-1.45	-.43	.60	.27	.13	-.07	-.05
Item 36	.43	.79	1.79	2.25	-.09	.08	.06	.67	.13	.02
Item 37	.60	.86	1.30	.79	-.45	.15	.22	.38	-.03	.05

The mean scores of each of the dimensions ranged between 2.82 in restriction and 13.22 in care dimensions (Table 4), indicating in all cases a higher score, reflecting greater intensity in that dimension. The analysis of the distribution of the data showed that they were spread across the entire range of scores, for both the items and the various dimensions.

Internal consistency

The values obtained through Cronbach’s alpha coefficient, as well as through the omega coefficient, revealed high consistency within each of the four dimensions of the IRQ (Table 4), ranging between .80 for restriction and .89 for care in the case of Cronbach’s alpha, and between .81 for restriction and .89 for care with respect to the omega coefficient.

Temporal reliability

Temporal reliability, assessed through the Intraclass Correlation Coefficient, exhibited strong correlations (Table 4), ranging between .73 and .78, all cases above .70, thus confirming the reliability of the various dimensions of the IRQ.

Table 3. Principal component analysis of the 24 IRQ items

		1	2	3	4
Item 1	Spoke to me with a warm and friendly voice	-.03	-.04	.03	.81
Item 3	Criticizes me	.66	.07	-.03	-.11
Item 4	Let me do those things I liked doing	.17	.00	.67	-.07
Item 6	Get angry at me for no reason	.71	.04	.04	-.07
Item 8	Was affectionate to me	-.06	-.00	.08	.84
Item 11	Did not want me to grow up	-.19	.86	-.06	-.19
Item 12	Tried to control everything I did	.19	.63	.18	.00
Item 15	Enjoyed talking things over with me	.03	.02	-.11	.76
Item 16	Frequently smiled at me	-.09	.04	.00	.80
Item 17	Tended to baby me	.12	.79	.02	.00
Item 19	Did not seem to understand what I needed	.64	.13	-.18	-.06
Item 20	Let me decide things for myself	.18	.14	.63	.01
Item 21	I seldom feel he/she dislikes me	-.27	.11	-.17	.55
Item 23	Talks about my illness in a way that hurts me	.75	-.10	.25	.07
Item 24	Could make me feel better when I was upset	-.02	-.04	-.06	.76
Item 26	Puts me down	.57	.02	.07	-.27
Item 27	Tried to make me dependent on her/him	.18	.72	.09	.01
Item 28	Felt I could not look after myself unless	.23	.62	.20	.00
Item 29	Makes me nervous	.65	.17	.03	-.02
Item 30	Gave me as much freedom as I wanted	.15	.15	.69	-.04
Item 31	Let me go out as often as I wanted	-.22	.04	.71	-.15
Item 33	Was overprotective of me	.00	.71	-.01	.25
Item 34	Did not praise me	.67	-.03	.03	-.24
Item 36	Let me dress in any way I pleased	-.03	-.05	.75	.06

Table 4. Reliability and intercorrelations of the IRQ

Subscales	Criticism	Over-protection	Restriction	Care
Number of items	7	6	5	6
Mean	8.18	8.14	2.82	13.22
SD	5.48	5.20	2.89	4.25
Range	0-21	0-18	0-15	0-18
Eigenvalue	3.93	3.67	2.77	3.93
% explained variance	56.22	61.17	55.35	65.49
Factor loading range	.56-.78	.59-.82	.51-.82	.72-.84
Cronbach's alpha ($n = 324$)	.87	.87	.80	.89
Omega	.87	.87	.81	.89
Test-retest reliability ($n = 80$; 6 weeks)	.75**	.77**	.78**	.73**
Correlation with: ($n = 324$)				
Criticism				
Over-protection	.52**			
Restriction	.49**	.42**		
Care	-.62**	-.15**	-.43**	

**Correlation is significant at the .01 level (2-tailed).

Correlation among dimensions

The four dimensions showed very significant moderate correlations, with positive correlations observed between criticism, over-protection, and restriction, while the care dimension displayed negative correlations with the other three dimensions (see Table 4), as might be expected given the content of each dimension.

Concurrent validity

The scores obtained in the dimensions of the IRQ exhibited significant and strong correlations with those obtained in the PCS (Table 5). As expected, the criticism dimension of the IRQ

Table 5. Concurrent validity, correlations between IRQ dimensions and PCS

		Criticism	Over-protection	Restriction	Care
PCS1	Pearson correlation	.59**	.40**	.38**	-.37**
	<i>N</i>	132	132	132	132
PCS2	Pearson correlation	.48**	.36**	.27**	-.29**
	<i>N</i>	132	132	132	132
PCS3	Pearson correlation	-.63**	-.28**	-.43**	.68**
	<i>N</i>	133	133	133	133

**Correlation is significant at the .01 level (2-tailed).

presented the most intense correlation, with a large effect size, with the score on the perception of criticism in PCS1. The care dimension of the IRQ also showed a significant correlation with the perception of criticism in PCS1, and as expected, of a negative nature, with lower scores in criticism as higher scores in care are observed.

On the other hand, both the overprotection and the restriction dimensions of the IRQ showed significant correlations with the three PCS scores, positive in relation to the two regarding criticism, PCS1 and PCS2, and negative with the one related to satisfaction (PCS3), with a more intense negative relationship in the case of the restriction dimension.

Construct validity

Construct validity was analysed based on the correlation between the scores obtained in the FAS, an instrument that assesses family criticism through the family's self-report, and the dimensions of the IRQ in 50 participants. A moderate and significant correlation was observed with the criticism dimension ($r = .38, p < .005$) and restriction ($r = .41, p < .005$), and moderate but negative ($r = .42, p < .005$), between the score in FAS and the care dimension. There was no correlation between the score in FAS and the overprotection dimension of the IRQ.

Discussion

The findings of the present study exhibit satisfactory psychometric characteristics of this abbreviated Spanish adaptation of the IRQ, with data that affirm its reliability and validity.

A primary aspect to highlight is the differences regarding the factorial structure in relation to the original scale. On the one hand, in relation to the number of items ultimately included, various items were discarded due to their lack of clear saturation in any of the dimensions, or because they formed a dimension that was nonsensical in its content and could represent an artifact due to their negative wording. Therefore, it is essential to note that, unlike the original IRQ, this version consists of a reduced 24 items instead of 37. On the other hand, it is necessary to underline that, unlike the factorial structure obtained by Baker *et al.* (1984), which was formed by two dimensions from the PBI, care and over-protection, plus the one added by the authors related to criticism, the present study identified a fourth dimension that, due to its content, can be termed restriction. While the three dimensions of criticism, over-protection, and care are similar to those found in the original scale, the fourth dimension seems to identify a variant of over-protection, related to a type of control that is characterized not by excessive care, but by a restriction and limitation of the patient's behaviours, impeding their autonomy.

These results align with those observed by other authors. In a Spanish adaptation by Gómez-Beneyto *et al.* (1993) and a Japanese adaptation by Sato *et al.* (2021) of the PBI, a restraint dimension was identified. This third dimension, which is not present in the original version of the PBI (Parker *et al.*, 1979), includes the same five items.

Regarding the internal consistency of each of the four dimensions, it must be pointed out that the obtained values confirm the high consistency of the items forming each of these dimensions, with Cronbach's alpha values ranging between .80 and .89, very similar to those found by Baker *et al.* (1984), with values between .76 and .91, although in this case obtained from the three dimensions found in their study.

Additionally, the results confirm test-retest reliability by the correlations obtained between both applications, with values that in all cases are above the .70 recommended for temporal reliability (Nunnally and Bernstein, 1994). The effect size is large, even more significant when considering the 3-month interval used in the present study. Baker *et al.* (1984), in the three dimensions, obtained correlations that fluctuated between .53 and .85, although it concerned a very reduced sample ($n = 26$) where higher reliability was observed concerning the second person chosen as most influential by the participants.

As for concurrent validity, it must be noted that the results also support this validity, with significant correlations between the dimensions of IRQ and the scores obtained on items of an evaluation instrument of perceived criticism, such as the PCS. In this sense, the correlations between the criticism dimension of IRQ and the item of perception of criticism of PCS show values with a large effect size, endorsing the concurrent validity of the IRQ. Considering that PCS is an instrument for the assessment of criticism equally assessed from the patient's perception, it is predictable to expect significant and intense correlations, results that coincide with those obtained in the present investigation. The care dimension, on the other hand, correlates negatively with PCS1 ($r = -.37$), very similar to the correlation obtained by Lee *et al.* (2014) ($r = -.39$).

Likewise, the construct validity is supported by the significant correlation between the dimensions of IRQ and the item related to satisfaction with the relationship, with values that, as expected, are negative in relation to the dimensions of criticism, over-protection, and restriction, and positive with the care dimension.

Furthermore, the construct validity is equally supported by the observed correlation between the criticism dimension of IRQ and the scores obtained on the FAS, correlations of a moderate effect size, as is expected to proceed from a different information source, provided from the perception of the relatives and not by the participants themselves. Equally moderate correlations have been observed between the criticism dimension of CFI and the Level of Expressed Emotion Scale (Cole and Kazarian, 1988). Although correlated, various studies show that the perception of the family's emotional climate by the patients differs from the perception obtained from the parents' interview (Bachman *et al.*, 2006; Medina *et al.*, 2013; Onwumere *et al.*, 2009). The lack of correlation observed between the FAS score and the over-protection dimension of the IRQ could be due to the different sources of information of the instruments as well as the greater complexity of the over-protection dimension.

Limitations

One primary limitation of this study is its sample composition, which includes only individuals with psychosis. Consequently, the findings cannot be generalized to other diagnostic groups. It should also be noted that it has not been possible to validate in relation to the CFI, the reference instrument for the evaluation of EE. Another important limitation is the absence of data regarding the predictive ability of this adaptation of the IRQ. Moreover, as to the factorial structure of the scale, the results allow for identifying a structure with four relatively independent dimensions, although its confirmation through confirmatory factor analysis remains pending.

Future research

In future studies, therefore, it would be of interest to confirm the validity and reliability of the IRQ in more diverse samples, including other diagnostic groups, particularly in groups where

relationships with father and mother are particularly relevant, as is the case with individuals with eating behaviour disorders. Additionally, it is particularly important to confirm the factorial structure in new samples using confirmatory factor analysis and to evaluate the predictive capacity of the IRQ regarding the outcomes of various disorders. This aspect is of significant interest for clinical practice. This was already confirmed by the authors in their original version concerning relapses in a specific group such as people with schizophrenia (Baker *et al.*, 1984).

Also, it would be of interest to explore the predictive capacity of the care dimension, a particularly intriguing aspect given how scarcely explored this area is and the suggestive results of some studies on the role of positive affections as protective factors in the early stages of psychotic episodes in certain cultural contexts (Butler *et al.*, 2019; González-Pinto *et al.*, 2011; Ivanović *et al.*, 1994; Lee *et al.*, 2014; López *et al.*, 2004).

As Baker *et al.* (1984) show, only the current representation of relationships with significant others shows a relationship with relapses, allowing differentiation between participants who relapse from those who do not experience relapses. Therefore, it is particularly important to have instruments like the IRQ that facilitate the assessment of the perception of the family emotional climate by the patients themselves. As pointed out by Leff and Vaughn (1985), evaluating patients' perceived attitudes towards the most significant people in their environment is particularly crucial, as these attitudes can exacerbate symptomatology, impacting the outcome of vulnerable individuals.

Data availability statement. Research data are not shared.

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