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Validation in Spanish population of the family objective and subjective burden interview (ECFOS-II) for relatives of patiens with schizophrenia

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Introduction. The family burden experienced by caregivers of people with schizophrenia is one of the most relevant consequences of this disorder. This paper aims to show the validity and reliability of the Spanish version of the Family Burden Interview Schedule (FBIS) designed to assess objective and subjective family burden for people with schizophrenia.

Method. Design: cross sectional study. Participants: 356 patients fulfilling DSM-IV criteria for schizophrenia from four Spanish geographic areas (Barcelona, Madrid, Pamplona and Granada) and 205 main caregivers of these patients were assessed. Material: caregivers were assessed with the Family Burden Interview Schedule (FBIS) Spanish version (ECFOS-II), which assesses family burden in eight different modules: activities of daily living, disrupted behaviors restraint, expenses, caregiver's routine, concern, help, repercussions on health, and assessment of general burden. Patients were also assessed with PANSS, DAS-sv and GAF. Statistical analysis: in order to assess internal consistency, parametrical tests of Cronbach's alpha were undertaken. To compute test-retest reliability Cohen's kappa and Weighted kappa were used. A principal component analysis was undertaken for assessing construct validity. Convergent validity was assessed with Spearman and Pearson correlation coefficients respectively, relating the instrument with the psychopathological (PANSS) and disability scale (DAS-sv) and general functioning (GAF). Moreover, a description of the viability of the ECFOS-II was described by a questionnaire especially designed for this purpose.

Results. Cronbach's alpha coefficient was 0.85 for the global assessment. Test-retest coefficients were very high, both for Cohen's kappa and for Weighted kappa, most values being between 0.61 and 1. Principal component analysis detected four factors that coincide with the modules of the original schedule. In the convergent validity we found that these factors are related with the symptom, disability and global functioning characteristics of the patients.

Conclusions. ECFOS-II results in a valid and reliable instrument for assessing family burden experienced by caregivers of people with schizophrenia.

Key words:
Schizophrenia. Family burden. Validity. Reliability.

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Validación en población española de la entrevista de carga familiar objetiva y subjetiva (ECFOS-II) en familiares de pacientes con esquizofrenia

Introducción. La carga familiar experimentada por los cuidadores de personas afectas de esquizofrenia constituye una de las consecuencias más relevantes del trastorno. Debido a esto se ha llevado a cabo la validación de la versión castellana del instrumento *Family Burden Interview Schedule* (FBIS) de carga familiar objetiva y subjetiva para personas con esquizofrenia.

Método. Diseño: estudio de corte transversal. Participantes: se evaluaron 356 pacientes con diagnóstico DSM-IV de esquizofrenia de cuatro áreas geográficas españolas (Barcelona, Madrid, Pamplona y Granada) y 205 cuidadores principales de estos pacientes. Material: Entrevista de Carga Objetiva y Subjetiva ECFOS-II, que mide la carga familiar en ocho módulos distintos: actividades de la vida cotidiana, contención, comportamientos alterados, gastos, rutina del cuidador, preocupación, ayuda, repercusión en la salud y evaluación del nivel de carga global. Además se evaluaron a los pacientes con la PANSS, la DAS-sv y el EEAG. Análisis estadístico: para evaluar la consistencia interna se utilizaron las pruebas paramétricas de alfa de Cronbach. Para el cálculo de la fiabilidad test-retest se utilizó el coeficiente kappa de Cohen y el kappa ponderado. Se realizó

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un análisis de componentes principales con el fin valorar la validez de constructo. Asimismo, la validación convergente fue evaluada con el coeficiente de correlación de Spearman y de Pearson, relacionando el instrumento con escalas psicopatológicas (PANSS), de discapacidad (DAS-sv) y de funcionamiento general (EEAG). Por último, se describió la viabilidad del ECFOS-II a través de un cuestionario elaborado al efecto.

Resultados. Los coeficientes de alfa de Cronbach fueron de 0,85 para la entrevista global. Los coeficientes estudiados para la fiabilidad test-retest fueron muy altos, tanto para el kappa de Cohen como para el kappa ponderado, situándose los valores en la mayoría de los casos entre 0,61 y 1. El análisis de componentes principales detectó cuatro factores que coinciden con los módulos del cuestionario original. En la evaluación de la validez convergente encontramos que estos factores están relacionados con las características sintomatológicas, de discapacidad y de funcionamiento general del paciente.

Conclusiones. El ECFOS-II se muestra como un instrumento válido y fiable en su versión castellana para evaluar la carga familiar existente en los cuidadores de personas con esquizofrenia.

Palabras clave:
Esquizofrenia. Carga familiar. Validez. Fiabilidad.

INTRODUCTION

The development of community psychiatry entailed the progressive deinstitutionalization of persons with mental disease who had been previously committed. The consequence of this process is that many families have had to deal with the obligations entailed in the care of an ill family member. Based on this change, the interest in the evaluation is focused on verifying not only the effects that living in the community has on the patients but also in studying the effects that their care has on the family members in charge of them[1-8].

Family burden or impact is associated to characteristics of both the patients and caregivers[9-12]. According to Hoenig and Hamilton, family burden can be broken down into objective and subjective dimension. Objective family burden refers to the observable and quantifiable consequences derived from the patient care while subjective family burden refers to the evaluations that the caregiver makes of his/her situation and degree in which he/she perceives it as overwhelming. It is generally accepted that greater objective burden is related with greater number of disruptive behaviors, with the fact of living with the patient and with less likelihood of obtained help to care for the patient. Furthermore, greater subjective burden is related with greater presence of symptoms in the patient and with the perception of less competence by the caregiver to take charge of his/her care[13-15].

There are few instruments that evaluate family burden of persons with schizophrenia. Those that are used most are Social Behaviour Assessment Schedule (SBAS)[16,17], Experience of Caregiving Inventory (ECI)[18], Involvement Evaluation Questionnaire (IEQ)[19] and The Family Burden Interview Schedule-Short Form (FBIS-SF)[20].

The only one of these that is validated to Spanish is the IEQ, in its European version done by the EPSILON group. The IEQ is made up of 5 subscales (tension, supervision, worrying, urging and other non-included items) made up of a total of 33 items. This questionnaire measures family burden, considering the objective dimension, that is, evaluating the frequencies of behavior of help or the worrying of the family member. However, it does not measure worrying that generates these behaviors nor the positive aspects of the family burden. It also does not evaluate the expenses generated by these cares.

SBAS and ECI stand out among the instruments on family burden that have not been validated in Spanish. The former is a semi-structured interview designed to evaluate the effect of the subject's behavior on his family members and the stress that this produces in the informer through seven different sections, but it does not make it possible to obtain global scores. The ECI, on the contrary, is a self-administered instrument that tries to examine the evaluation made by the caregiver on the positive and negative aspects of the experience of caring for a person with a mental disorder through 66 items, but it also has not been validated.

None of these scales analyze aspects such as the help the informer has or the repercussions that the disease of their family member has had on their health. They do not quantify the hours of dedication invested nor do they permit the clinician or caregiver to make a global assessment of the positive and negative effects derived from the care of a person with a mental disorder.

Most of the limitations of the previous instruments are corrected with the FBIS-SF. This is a hetero- or self-administered interview with an approximate duration of 30 minutes that is aimed at the first-degree relatives of persons whose ages are between 18 and 64 years affected by a severe mental disorder and who live with the caregivers. This instrument includes 5 modules related with the negative aspects derived from the care of a person with a mental disorder. These modules may be used and interpreted independently since there is a global score for each one of them. Furthermore, the expenses derived from the family burden can be measured.

Thus, the objective of this study is to adapt and validate the FBIS-SF scale to Spanish (ECFOS-II) and to analyze its utility as a measurement instrument of the family burden or impact experienced by relatives of persons with the diagnosis of schizophrenia.

METHODOLOGY

Development and description of the objective and Subjective Family Burden Interview

The ECFOS-II interview was developed from the Spanish translation of The Family Burden Interview Schedule-Short Form (FBIS-SF). Three mental health care professionals made an independent translation of the original. Then the investigator team agreed on a final one based on the three versions, which was backtranslated. This inverse translation confirmed the adaptation of the translation of the interview with the original. After, the translated version of the FBIS-SF was administered to 40 relatives of patients with schizophrenia belonging to the participating sites of the regional communities of Madrid, Catalonia, Navarra and Andalusia. Based on this analysis of the understanding of the items and the feasibility of administration, the expert's committee who developed the instrument decided to introduce and modify some items. Four modules were added to the original interview in order to cover certain aspects that had been absent up to then and that should be taken into account when evaluating the burden experienced by the principal caregivers of persons with schizophrenia. In order to evaluate if these items were easy to understand, some relatives were reevaluated. Table 1 collects the questions of the original scale (FBIS-SF) and the modifications (ECFOS-II).

ECFOS-II is a self- or hetero-administered interview that takes approximately half an hour. Its application scope is that of the principal caregivers of persons with schizophrenia who live in the community. The interview is made up of an introductory section in which the sociodemographic aspects are collected and by different modules that evaluate the dimensions of family burden: the help provided in the activities of the daily life of the patient, the restraint made of the altered behaviors, a list of financial expenses; impact on the life of the caregiver, reasons of concerns by the patients, help available, effects perceived on health and global repercussions experienced individually and by the family. Each one of these modules are evaluated with dichtomic answers or by Likert like scales that range from 4 to 5 points. The complete ECFOS-II interview can be obtained from the authors through the web page: www.rirag.com .

Participants

A sample of patients with a DSM-IV diagnosis of Schizophrenia whose ages were between 18 and 65 years who had been attended in 4 Community Mental Health Sites of the areas of Barcelona (Gavà Mental Health Care Site [MHCS]), Madrid (Salamanca MHCS), Granada (MHCS La Loja) and Navarra (MHCS Burlada) were selected. These areas were selected because they were representative of different socioeconomic contexts and because they differed in both availability and organization of the mental health care services. Based on the existing records in each one of these centers, a total of 356 patients were randomly selected. Of these, only 205 relatives could be interviewed due to the refusal of the patient, caregiver or therapist (n = 93), to the absence of the caregiver (n = 18), because the patient was independent (n = 10) or for other reasons (n = 30). Once the appropriate interviews were made with the patients and their consent had been obtained, the principal caregivers were contacted in order to administer the ECFOS–II interview.

Evaluation instrument

In addition to the ECFOS-II scale, in the caregivers, discapacity, functioning and symptoms of the patients receiving the cares were collected.

The patients were evaluated with the following questionnaires:

- The Negative Syndrome Scale for schizophrenia (PANSS) of Kay (1986)[21] translated and validated by Cuesta and Peralta (1994)[22], that evaluated symptoms in: positive, negative and general symptoms.
- The Global Assessment of Functioning Scale (GAF) (Endicott, 1976)[23] translated and validated to Spanish in the DSM-IV (1995)[24]. This scale assesses global functioning on the clinical and social level, indicating better functioning with better score.
- The Disability Assessment Scale, short version (DAS-sv) (ICD-10, 1992)[25], evaluates more disability at greater score in: personal care, occupation level, family relationships and other social relationships.

Statistical analysis

Design of validity and reliability study.

In regards to the reliability analyses, assessment of the homogeneity of the interview items (internal consistency) was made by calculation of their correlation with the total using Cronbach's alpha coefficient. Furthermore, the relationship between the objective and subjective burden questions included in some of the modules was assessed with Spearman's correlation coefficient.

For the test-retest reliability calculation, two different types of statistical tests were used based on reply alternatives. For the dichotomic reply items, the kappa index was applied while for those have multiple replies, weighted Kappa index was used with weights in most of the cases of 1, 0.75, 0.5, 0.25 and 0 except on two occasions in which the weight was 1, 0.5 and 0 because the subjects only answered 3 of the 5 reply alternatives and on one occasion the weight was 1, 0.67, 0.33 and 0 due to the same situation but with

Table 1 Description of FBIS/SF and the ECFOS-II

FBIS/SF	ECFOS-II
Care in daily life activities	**Care in daily life activities**
For each item:	For each item:
Help provided in the last 30 days	Absence/presence of need for help
Concern in relationship to the help given	Help provided in the last 30 days
Supervision module	Concern in relationship to help given
For each item:	Hours dedicated to care in the daily life activities
Control of altered behaviors in the last 30 days	**Restraint of altered behaviors**
Concern in relationship to these behaviors	For each item:
Financial expenses module	Control of altered behaviors in the last 30 days
Absence/presence of financial expenses related with 11 activities in the last month	Concern in relationship to these behaviors
Amount of money provided in each activity	General:
Subjective evaluation of financial burden in the last year	Hours of dedications to the restraint of altered behaviors
Impact in daily routine module	**Financial expenses module**
Impact perceived in one's own life	Absence/presence of financial expenses in the last month
Worrie	Absence/presence of expenses in 16 activities in the last month
Concern experienced in 7 different areas	Mount of money provided for each activity
	Subjective evaluation of financial burden in the last year
	Money provided by the patient's family member to the family economy
	Changes in caregiver's daily routine
	Impact perceived in one's own life
	Reasons for concern by the patient
	Concern experiences in seven different areas
	Help the informer has
	Absence/presence of help available
	Hours of help received in the week
	Repercussion in the caregiver's health
	Use/non-use of health care services
	Number of visits made
	Medication prescribed (dose and days)
	Days of sick leave
	Global evaluation of the informer
	Absence/presence of repercussion on the informer
	Absence/presence of negative repercussion objective and subjective negative effect
	Absence/presence of positive repercussion
	Global evaluation of evaluator
	Absence/presence of repercussion on the informer
	Absence/presence of negative repercussion objective and subjective negative effect
	Absence/presence of positive repercussion

different Likert scale items. The values of this coefficient were interpreted following the Feinstein proposal[26] so that kappa values lower than 0 meant a poor agreement level, from 0 to 0.20 low, from 0.21 to 0.40 fair, from 0.41 to 0.60 moderate, from 0.61 to 0.80 strong and from 0.81 to 1.00 almost perfect. Kappa values were not calculated in the cases of questions with positive replies with low prevalence due to their null utility[27,28].

To verify the validity of the scale, the construct validity was analyzed by an analysis of principal components, in which each one of the questions of the original questionnaire on assessment of family burden were included. The screening questions, excluding those referring to subjective or objective burden, were included in the analysis. The lists of expenses (module C) and questions related with global subjective and objective burden were also excluded. Extraction of four factors was done, as long as they explained more than 1 in the eigenvalue.

The convergent validity was tested with Spearman's correlation between the totals of the ECFOS II and DAS scales and with Pearson's correlations for the relationship between the data for ECFOS-II and GAF and PANSS.

Finally, applicability was assessed from the percentages obtained in the viability questionnaire administered to the interviewers who evaluated time used in the conduction of the interviews, need, sufficiency, understanding and acceptance of the questions, quality of information collection of the instrument and global fatigue of the person interviewed. A valid percentage was considered to exist when 70 % of the replies given were between a lot and much.

The statistical programs used were the Statistical Package for Social Sciences, version 12,0[29] and the Stata Statistical Software: version 8.0[30].

RESULTS

Description of the informal caregiver sample (relatives)

Of the 205 caregivers interviewed, 21.5 % (n = 44) came from Barcelona, 22.4 % (n = 46) from Granada, 28.3 % (n = 58) from Madrid and 27.8 % (n = 57) from Navarra. Of these, 163 were women and 42 men with a mean age at 58.66 years. Most of them had completed a minimum of primary studies (85.9 %), did not work outside of the home (65.4 %), were parents of the patients they were caring for (63.4 %), lived with them (77.6 %), spent more than 4 hours daily with them (70.7 %) and reported that they had a good or very good relationship with the patients (69.7 %) (table 2).

Table 2 Sociodemographic characteristics of the principal caregivers and type of relationship that they maintain with the patients

	N (%)
Mean age	58.66 (SD: 14.63)
Gender	
Men	42 (20.5)
Women	163 (79.5)
Level of studies	
No schooling	29 (14.1)
Schooling	176 (85.9)
Work situation	
Full time work	41 (20)
Part time work	30 (14.6)
Does not work outside the home	134 (65.4)
Relationship with the patient	
Husband/wife	22 (10.7)
Father/mother	130 (63.4)
Son/daughter	5 (2.4)
Brother/sister	38 (18.5)
Friend	1 (0.5)
Other	9 (4.4)
Lives with patient	
Yes	159 (77.6)
No	46 (22.4)
Degree of relationship with the patient	
Less than 1 hour/week	2 (1)
1-4 hours/week	17 (8.3)
5-7 hours/week	7 (3.4)
8-14 hours/week	6 (2.9)
15-21 hours/week	8 (3.9)
22-28 hours/week	20 (9.8)
> 28 hours/week	145 (70.7)
Quality of relationship with the patient (perspective of the caregiver)	
Very good	55 (26,8)
Good	88 (42,9)
Normal	29 (14,1)
Fair	29 (14,1)
Bad	3 (1,5)
Very bad	1 (0,5)

Description of the patient sample.

The initial sample was made up of 356 patients, but family burden was only evaluated in 205 of them. Of the subjects interviewed, 71.6 % were men with a mean age at 37.97 years (SD: 10.27). It was observed that most of them (75.6 %) were single, lived with their origin family (69.8 %), had primary education level (50 %) and were pensioners (70.4 %). There were no statistically significant differences between the subjects whose relatives were interviewed and those in which they were not interviewed in regards to gender, age and psychopathology. The only different variable was the positive PANSS in which the subjects whose relatives could not be interviewed had a greater total score (p = 0.035).

Reliability of ECFOS-II interview

Internal consistency

Table 3 shows the results of the internal consistency through Cronbach's alpha coefficient for the global interview. Spearman's correlation between the items that evaluate the objective and subjective burden in 4 of the modules existing in the interview is also presented. As can be observed, the items of ECFOS-II had a high homogeneity between them (Cronbach's alpha coefficient = 0.85) and the correlations between the objective and subjective burden are also elevated (0.7–0.94), also confirming the internal consistency of the test.

Table 3 **Internal consistency of ECFOS-II and correlation between objective and subjective burden items present in four of the ECFOS-II modules**

Internal consistency of ECFOS–II	Cronbach's alpha
	0.85
Correlation between objective/subjective subjective burden in modules	**Spearman's correlation**
Daily life activities	
Personal cleanliness	0.89
Medication	0.77
Housework	0.79
Shopping	0.81
Family routine	0.75
Means of transportation	0.79
Financial administration	0.78
Organization of time	0.84
Attendance to consultations	0.83
Administrative formalities	0.86
Restraint altered behaviors	
Embarrassing behaviors	0.90
Demands for attention	0.94
Nighttime trouble	0.93
Heteroaggresivity	0.92
Self-aggressivity	0.91
Alcohol abuse	0.92
Drug abuse	0.87
Assessment of global burden (informer)	
Negative burden on informer	0.72
Negative burden on family	0.81
Assessment of global burden (professional)	
Negative burden on informer	0.79
Negative burden on family	0.81

Test-retest reliability

The test-retest reliability values of the interview are shown in table 4. As we can observe, in the module on care in the activities of daily life, in that of supervision of altered behaviors and in that of evaluation of global family burden by the interviewer, the agreement level was moderate to almost perfect, except in the item referring to time organization in which it was fair. In the financial expenses and help modules that we have for the informer, almost perfect agreement levels were obtained while in the modules on the impact on the life of the caregiver and Concern and global evaluation of family burden by the informer, there was more variability. In regards to the first one, we obtained a moderate agreement level in the only item that we could evaluate regarding impact on the social life of the caregiver. In the second one, the most frequent agreement levels were between moderate to strong, less in the item regarding treatment prescribed to the patient in which the weighted kappa value was 0.04. Finally, in the previously mentioned third module, the levels range from fair to almost perfect.

Validity of the ECFOS–II interview

Construct validity

The results of the analysis of principal components are shown in table 5. We found that four factors explain almost 50% of the variance, all of them with an eigenvalue greater than 1.5. Furthermore, as can be observed, the factors obtained adjust to the initial modules of the interview.

In factor 1, the only item that is higher in the supervision factor is housework, even though it has considerable weight in factor 1. In the concern factor, all the items adapt in the same way as in the original scale. In factor 3 of impact of caregiver activities, only the item referring to missing work that has more weight in the supervision factor remains outside. Finally, factor 4 refers to supervision and the only item that also has a weight in other factors would be alcohol, although its saturation is adequate in factor 4. These results indicate a high coincidence between the original modules and the statistical factors found.

Convergent validity

Convergent validity based on the relationship between the family burden factors obtained and the clinical characteristics of the patients in the sample is shown in table 6. We have found that the factor that refers to care in daily activities is related with the subscales of psychopathology and general functioning.

Table 4 Test-retest reliability with Cohen's Kappa values for the objective and subjective family burden interview modules applied to 205 principal caregivers (ECFOS-II)

ECFOS-II	Cohen's Kappa
Daily life activities care module	
Personal cleanliness	0.69
Medication	1.00
Housework	0.52
Shopping	0.63
Family routine	0.48
Transportation	1.00
Financial administration	0.69
Organization of time	0.22
Attendance to consultations	*
Administrative steps	0.53
Altered behaviors supervision module	
Embarrassing behaviors	0.87
Demands for attention	0.46
Nighttime trouble	1.00
Heteroaggresivity	*
Self-aggressivity	1.00
Alcohol abuse	1.00
Drug abuse	1.00
Financial expenses module	**1.00**
impact of caregiver's live module	
Work	*
Social life	0.53
Domestic work	**
Care to other family members	**
Concern module	
Physical integrity	0.52
Treatment	0.04
Social life	0.59
Physical health	0.64
Daily life	0.50
Money	0.60
Family future	0.68
Help available module	**0.88**
Repercussions on caregiver's health module	*
Global assessment of informer's module	
Presence of burden on informer	0.70
Negative burden on informer	0.60
Positive effect on informer	0.35
Presence of burden on family	0.40
Negative burden on family	0.81
Positive effect on family	0.24
Global assessment of interviewer module	
Presence of burden on informer	0.74
Negative burden on informer	0.58
Positive effect on informer	0.69
Presence of burden on family	0.77
Negative burden on family	0.89
Positive effect on family	0.57

*Reliability not calculated because one of the variables studied was a constant.
**Kappa values of 0 due to inconsistency of reply of one or two subjects.

Table 5 Analysis of principal components of the Objective and Subjective Family Burden Interview Items (ECFOS-II)

Family burden items	Factors			
	I	II	III	IV
Care in daily life activities (eigenvalue: 7.1; % of total variance: 25.1)				
Personal cleanliness	0.627			
Medication	0.563			−0.293
Housework	0.439	0.489		−0.210
Shopping	0.562	0.288		−0.215
Means	0.277			−0.214
Transportation	0.753			
Money	0.525	0.332		
Schedules	0.553			−0.295
Consultation	0.666			
Formalities	0.747		0.213	
Concerns (eigenvalue: 2.8; % of total variance: 10.1)				
Safety		0.725		
Type of treatment		0.402	0.389	−0.288
Social life		0.618	0.365	
Physical health		0.565	0.271	−0.282
Daily life		0.814		
Handling of money	0.202	0.723		
Future	0.210	0.658		
Impact on daily activities (eigenvalue: 1.9; % of total variance: 6.7)				
Absences at work				−0.592
Leisure plans		0.241	0.750	
Housework		0.287	0.797	
Time of family		0.235	0.792	
Supervision (eigenvalue: 1.7; % of total variance: 6.1)				
Rare behavior	−0.260			0.553
Calling attention			−0.311	0.528
Bothering	−0.278		−0.233	0.504
Heteroaggression	-0.280			0.643
Self-aggression	-0.378			0.402
Alcohol		-0.368	0.433	0.380
Drugs		-0.243		0.472

Extraction method: analysis of principal components. The burdens greater than 0.20 are presented.

The concern factor is also related with psychopathology, functioning and discapacity. The impact factor in the activities of the caregiver is only related with discapacity in per-

Table 6 Pearson's and Spearman's correlations between Factors of Analysis of Principal Components of the Objective and Subjective Family Burden Scale (ECFOS-II) and the Positive and Negative Syndromes Scale of Schizophrenia (PANSS), Global Assessment of Functioning Scale (GAF) and Disability Assessment Scale of the WHO (DAS-sv)

	Assistance in daily life activities	Concern	Impact on daily activities	Supervision
Positive PANSS	0.14	0.24***	0.07	–0.31****
Negative PANSS	0.32****	0.07	–0.13	–0.02
General PANSS	0.24***	0.29****	0.078	–0.18*
Personal care DAS	0.37****	0.24***	0.21**	–0.12
Occupational functioning DAS	0.37****	0.11	0.01	–0.10
Family functioning DAS	0.29****	0.29****	0.15	–0.09
DAS in other activities	0.23***	0.17*	0.073	0.04
GAF	–0.41****	–0.18**	–0.08	–0.01

*$p < 0.05$; **$p < 0.01$; ***$p < 0.005$; ****$p < 0.001$.

sonal care. Finally, the supervision factor is related with psychopathology.

Viability of the interview

In regards to viability, we observe that the interview was positively evaluated by the professionals, who mostly considered that the questions included in the instrument were necessary, sufficient, good information coders and easy to understand as well as being well accepted by the person being interviewed (table 7).

DISCUSSION

The objective and subjective family burden interview (ECFOS-II) is a valid and reliable instrument to evaluate family burden presented by the relatives of persons having schizophrenia. As far as we know, it is the only scale validated to Spanish that makes it possible to evaluate family burden, including subjective and objective dimensions of this concept as well as the expenses that would be generated in this type of care.

Analysis of the internal consistency demonstrated high homogeneity between all the items of the interview and the test-retest demonstrated high stability in the replies over time.

The analysis of principal components made confirms the existence of the 4 most significant modules of the interview designed by the original authors: care in daily at committees, supervision, impact in daily activities of caregiver and concerns. As they propose, in order to make the total score of each module, it is necessary to divide the sum of each one of the scores obtained in each item and the number of items of the module[19]. However, the cutoff points have still not been defined on the micro- (in each one of the modules) and macro-level (in all the interview) that would make it possible to decide when a person has a family burden or not.

Therefore, we believe that the ECFOS-II may be useful on the clinical level as well as on the research one since, in the beginning, it would make it possible to analyze the situation in which the principal caregivers of the persons suffering schizophrenia are found in a relatively short period of time. This general description would allow us to make a subsequent design and application of intervention strategies aimed at both the family and the patient (psychoeducation, training in communication skills and problem solving, etc.) in order to improve their situation and quality of life.

On the other hand, and considering the new Dependence Law that will enter into force soon in our country, we think that an instrument such as this one is even more interesting if possible when analyzing the situation of these persons who need help from the family.

One limitation that should be taken into account is that we have not been able to evaluate the reliability existing in the items of some of the modules because there were variables that were a constant and because of the reduced size of the sample used. The low prevalence of positive reply of some items also made it impossible to calculate the kappa value in some cases.

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Table 7 Percentage of replies given by caregivers in each one of the items evaluated by the viability questionnaire

Viability questionnaire of the ECFOS-II	N (%)
Are the questions included in the instrument necessary?	
Not at all	1 (0.5)
Little	14 (6.9)
Enough	141 (69.1)
Much	48 (23.5)
Are the questions included in the instrument sufficient?	
Not at all	0 (0)
Little	12 (5.9)
Enough	97 (47.5)
Much	95 (46.6)
Does the instrument adequately collect the information?	
Not at all	0 (0)
Little	17 (8.3)
Enough	93 (45.6)
Much	94 (46.1)
Does the person interviewed understand the questions well?	
Not at all	2 (1)
Little	45 (22.1)
Enough	94 (46.1)
Much	63 (30.9)
Does the person interviewed accept the questions well?	
Not at all	1 (0.5)
Little	22 (10.8)
Enough	84 (41.2)
Much	97 (47.5)
Does the person interviewed become tired during the interview?	
Not at all	63 (30.9)
Little	97 (47.5)
Enough	23 (11.3)
Much	21 (10.3)

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REFERENCES

1. Schene AH. Objective and subjective dimensions of family burden. Towards an integrative framework for research. Soc Psychiatry Psychiatr Epidemiol 1990;25:189-97.
2. Schene AH, Tessler RC, Gamache GM. Instruments measuring family or caregiver burden in severe mental illness. Soc Psychiatry Psychiatr Epidemiol 1994;29:228-40.
3. Tucker C, Barker A, Gregoire A. Living with schizophrenia: caring for a person with a severe mental illness. Soc Psychiatry Psychiatr Epidemiol 1998;33:305-9.
4. Veltman A, Cameron JI, Stewart DE. The experience of providing care to relatives with chronic mental illness. J Nerv Ment Dis 2002;190:108-14.
5. Jungbauer J, Wittmund B, Dietrich S, Angermeyer MC. Subjective burden over 12 months in parents of patients with schizophrenia. Arch Psychiatr Nurs 2003;17:126-34.
6. Baronet A. Factors associated with caregiver burden in mental illness: a critical review of the research literature. Clin Psychol Rev 1999;19:819-41.
7. Jungbauer J, Angermeyer MC. Living with a schizophrenic patient: a comparative study of burden as it affects parents and spouses. Psychiatry 2002;65:110-23.
8. Shibre T, Kebede D, Alem A, Negash A, Deyassa N, Fekadu A, et al. Schizophrenia: illness impact on family members in a traditional society-rural Ethiopia. Soc Psychiatry Psychiatr Epidemiol 2003;38:27-34.
9. Magliano L, Fadden G, Madianos M, Caldas de Almeida JM, Held T, Guarneri M, et al. Burden on the families of patients with schizophrenia: results of the BIOMED I study. Soc Psychiatry Psychiatr Epidemiol 1998;33:405-12.
10. Provencher HL, Mueser KT. Positive and negative symptom behaviors and caregiver burden in the relatives of persons with schizophrenia. Schizophr Res 1997;26:71-80.
11. Tsang H, Tam P, Chan F, Chang WM. Sources of burdens on families of individuals with mental illness. Int J Rehabil Res 2003; 26:123-30.
12. Czuchta DM, McCay E. Help-seeking for parents of individuals experiencing a first episode of schizophrenia. Arch Psychiatr Nurs 2001;15:159-70.
13. Scazufca M, Kuipers E. Stability of expressed emotion in relatives of those with schizophrenia and its relationship with burden of care and perception of patients' social functioning. Psychol Med 1008;28:453-61.
14. Scazufca M, Kuipers E. Links between expressed emotion and burden of care in relatives of patients with schizophrenia. Br J Psychiatry 1996;168:580-87.
15. Fadden G, Bebbington P, Kuipers L. The burden of care: the impact of functional psychiatric illness on the patient's family. Br J Psychiatry 1987;150:285-92.
16. Platt S, Weyman A, Hirsch S, Hewett S. The Social Behaviour Assessment Schedule (SBAS); rationale, contents, scoring and reliability of a new interview schedule. Soc Psychiatry 1980;15:43-55.
17. Otero V, Navascues D, Rebolledo, Moller S. Escala de desempeño psicosocial. Adaptación Española del SBAS (Social Behaviour Assessment Schedule). Psiquis 1990;11:39-47.
18. Szmukler GI, Burgess P, Herrman H, Benson A, Colusa S, Bloch S. Caring for relatives with serious mental illness-the development of the Experience of Caregiving Inventory. Soc Psychiatry Psychiatr Epidemiol 1996;31:137-48.
19. Wijngaarden B, Schene A, Koeter M, Vázquez Barquero JL, Charlotte H, Lasalvia A, et al. and the EPSILON group. Caregiving in

schizophrenia: development, internal consistency and reliability of the Involvement Evaluation Questionnaire-European Version. Br J Psychiatry 2000;39:s21-7.
20. Tessler RC, Gamache GM. The Family Burden Interview Schedule-Short Form (FBIS-SF). En: Tessler RC, Gamache GM, editors. Cambridge: Human Services Research Institute, 1995; p. 110-2.
21. Kay SR, Opler LA, Fiszbein A. The positive and negative symptom scale (PANSS). Rating manual. Soc Behavi Sci Doc 1986;17: 28-9.
22. Peralta V, Cuesta JM. Validación de la escala de síndromes positivo y negativo (PANSS) en una muestra de esquizofrénicos españoles. Actas Luso-Esp Psiquiatr 1994;22:171-7.
23. Endicott J, Spitzer RL, Fleiss JL. The Global Assessment Scale: a procedure for measuring overall severity of psychiatric disturbance. Arch Gen Psychiatry 1976;33:766-71.
24. DSM-IV. Manual diagnostico y estadístico de los trastornos mentales. American Association of Psychiatry. Barcelona: Masson, 1995.
25. ICD-10. International classification of disease, mental and behaviour disorders. Ginebra: OMS, 1992.
26. Berrios GE, Fernández de Larrinoa PP, Bulbena A. Medición Clínica en Psiquiatría y Psicología. Barcelona: Masson, 2003.
27. Grove WM, Andreasen NC, McDonald-Scott P, Keller MB, Shapiro RW. Reliability studies of psychiatric diagnosis. Theory and Practice. Arch Gen Psychiatry 1981;38:408-13.
28. Spitznagel EL, Helzer JE. A proposed solution to the base rate problem in the Kappa Statistic. Arch Gen Psychiatry 1985;42: 725-8.
29. SPSS Inc. Statistical Package for Social Science. Ireland: SPSS Inc, 2001.
30. Stata Statistical Software: release 8.0. United States of America: Stata Corp, 2003.