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DESCRIPTION AND LIMITATIONS OF INSTRUMENTS FOR THE ASSESSMENT OF EXPRESSED EMOTION

Juan Antonio Becerra García
Universidad de Jaén

Expressed emotion (EE) refers to the affective attitudes and behaviours (e.g., criticism, hostility and emotional over-involvement) of relatives toward a family member with a psychiatric illness. A family climate of high EE constitutes a chronic stressor and contributes negatively to the patient's pathology, so that EE appears as a variable to take into account, and which needs to be assessed. The aim of the present work is to provide a brief description of the principal assessment instruments for the EE construct and to discuss their main limitations. The most important conclusions are that interview-based instruments have limitations which reduce their clinical applicability, while the brief measures need further research.
Key words: Expressed emotion, Assessment, Interview, Self-report, Limitations.

La emoción expresada (EE) se refiere a las actitudes afectivas y comportamientos (p. ej., crítica, hostilidad y sobreimplicación emocional) de los familiares hacia un miembro de la familia con trastorno mental. El clima familiar de alta EE constituye un estrés crónico que contribuye negativamente a la patología del paciente, con lo que la EE se muestra como una variable a tener en cuenta, siendo necesaria su evaluación. El objetivo del presente trabajo es realizar una breve descripción y aproximación a los principales instrumentos para la evaluación del constructo EE, y a sus principales limitaciones. Como conclusiones, destacar que las pruebas tipo entrevista presentan limitaciones que reducen su aplicabilidad clínica y las pruebas breves, surgidas para evaluar el constructo, requieren de mayor investigación.
Palabras clave: Emoción expresada, Evaluación, Entrevista, Autoinforme, Limitaciones.

The Expressed Emotion (EE) construct is an indicator of aspects of emotional behaviour within a family toward one of its members; more specifically, it refers to communication with a patient by his or her family. The construct comprises five components (Muela & Godoy, 1997; Muela & Godoy, 2003a): a) *Criticism* refers to critical comments made by a family member about the patient's behaviour; b) *Hostility* denotes a general negative appraisal or manifest rejection of the patient as a person; c) *Emotional over-involvement* refers to an exaggerated and disproportionate emotional response by the family member (which includes attempts by the family member to exercise excessive control over the patient, despair, self-sacrifice, overprotection and intense expression of emotion); d) *Warmth* denotes expressions of empathy, understanding, affect and interest toward the patient; and e) *Positive comments* refers to expressions of approval, positive appraisal or appreciation of the patient or his/her behaviour. The index or level of EE for the family is obtained only from the criticism, hostility and emotional over-involvement components, which have shown the highest predictive value in relation to relapse (Muela & Godoy, 2003a).

A family environment of high EE can be a chronic stressor for many people. The construct has emerged as a robust and reliable predictor of the course of pathology in patients with mental disorders, such as schizophrenia, mood disorders, eating disorders, anxiety disorders, drug-dependency and dementia (Muela & Godoy, 1997; Wearden, Tarrier, Barrowclough, Zastowny, & Rahill, 2000). Therefore, patients living in a high-EE environment are at greater risk of relapse than patients who live in a low-EE family context. Based on the research, family intervention programmes have been developed to reduce levels of EE and thus reduce the proportion of relapse (Muela & Godoy, 2003b). Moreover, in addition to the research with family members, EE has been studied in professional carers (Van Humbeeck, Van Audenhove, De Hert, Pieters, & Storms, 2002).

Taking all of the above into account, it can be said that EE has shown itself to be a relevant variable in studies on family climate and the prediction of relapse for a range of pathologies. However, one of the main problems concerns the way the EE concept is actually measured and assessed. The goal of the present work is to review the studies on assessment instruments for EE, with a view to

Correspondence: Juan Antonio Becerra García. *Departamento de Psicología. Universidad de Jaén. Campus Las Lagunillas, s/n. Edificio C-5. 23071 Jaén. España. E-mail: jbecerra@ujaen.es*

briefly describing these and discussing their principal limitations.

METHOD

A literature search was carried out using the key words "expressed emotion", "assessment" and "instruments" in the MEDLINE and PsycINFO databases, and "expressed emotion" and "*evaluación*" (assessment, in Spanish) in DIALNET. The articles selected were those in Spanish and English referring to the development of assessment instruments for EE and the study of their psychometric properties. A total of 14 different assessment instruments were identified. These instruments are described in the following two sections, where they are grouped according to whether they are interview-based instruments or self-report measures.

MEASUREMENT INSTRUMENTS I: INTERVIEWS

In the works consulted, a total of four interview-based measurement instruments were found, which are presented here according to the year in which they were introduced. Among these, the main technique employed in the assessment of this construct is an interview especially designed to identify the presence of EE, the Camberwell Family Interview (CFI), based on the work of G. W. Brown (Vaughn & Leff, 1976). Using this instrument, the family member living with the patient is assessed, and aspects related to the illness and to the problems arriving from living together are explored. It is a long interview, of between 5 and 6 hours' duration. The interview must be recorded and subsequently analyzed by experts, the level of EE being determined by the number of critical comments, hostile attitudes and comments or expressions of emotional over-involvement made or shown.

The original version was modified by Vaughn and Leff (Vaughn & Leff, 1976). This modified version of the CFI is a semi-structured interview of approximately 90 minutes' duration, of which an audio recording is made; based on the history of the pathology, the family member is assessed and scored for EE. The family is considered high-EE (even if no other family member shows high EE) when the member interviewed presents 6 or more critical comments and/or scores at least one point in hostility (depending whether it is generalized hostility, which scores one point, rejection, two points, or both, three points) and/or three or more points, according to the intensity shown during the interview, in emotional over-involvement (Muela & Godoy, 2003a). This version has made it possible to adapt the CFI to a more structured format, facilitating the training of expert interviewers, and is the version currently applied. The interview has emerged as a strong and robust instrument for the prediction of relapse. In a meta-analysis examining 27 studies that used the CFI, on the relation between EE and relapse in samples of patients with schizophrenia and affective disorders, 24 of them (89%) found a significant relation (Butzlaff & Hooley, 1998). The CFI allows the assessment of different styles and components of EE, the most predictive being criticism, emotional over-involvement and hostility (Butzlaff & Hooley, 1998), which correspond to the principal components of the EE construct.

Despite being considered a basic instrument for the assessment of EE, application of the CFI in clinical contexts has been limited, and for the following reasons (Van Humbeeck et al., 2002; Méndez, Orta, & Peñate, 2004): the time required for administration and coding is long (three hours in total); an inter-judge reliability of 0.80 is required, for determining the cut-off point, for classifying a family as high- or low-EE and for determining scores on the different components of the construct. This implies extensive and time-consuming interviewer training time. Furthermore, the interview focuses on the symptoms and behaviour related to the illness.

With a view to solving the problems of the excessive time required, simpler procedures have been created, based on speech samples from family members of between five and ten minutes' duration. The principal measure alternative to the CFI is the Five Minutes Speech Sample (FMSS) (Magana et al., 1986; Gottschalk et al., 1988). With this instrument, the family member is required to speak for five (or more) minutes about the thoughts and feelings the patient arouses in him/her and about his/her relationship with the patient. As in the CFI, the aspects coded are criticism, hostility and emotional over-involvement, the criterion for classifying a person as high-EE being that he/she makes at least one critical comment or presents hostility or any of the emotional over-involvement components (Muela & Godoy, 2003a). The FMSS presents adequate internal consistency (over 0.80) and a test-retest reliability of 0.64. On the downside, it also requires considerable interviewer training, and must be scored by experts and yield inter-judge reliability of 0.80.

Subsequently, a Short Version of the CFI was proposed, whose application time was only half as long as that of Vaughn and Leff's version. Correlations between this version and the original CFI were found to be positive and significant for critical comments, emotional over-involvement and warmth, as well as the family's observations during interaction with the patient in the solution of a problem (Mueser, Bellack, & Wade, 1992). This instrument also requires considerable time for its scoring, and can only be applied by expert personnel. Moreover, apart from the cited study, no other research group has used this short version of the CFI.

Finally, the most recently introduced instrument for measurements of this nature is the Patient Interview for Assessing Patient Perceptions of Family Relationship-PPI) (Tompson et al., 1995), which was not originally an assessment instrument for EE. It assesses patient-perceived EE, obtaining information on three types of behaviour by family members: criticism (difficulties in the relationship, unrealistic expectations, family disagreements, and conflicts); emotional over-involvement (overprotection, excessive care, interference in the patient's interpersonal relations) and complaints, with separate scales measuring the patient's perception of each one. In a study examining its concurrent validity with the FMSS, only the perceived criticism scale correlated positively with the FMSS criticism scale. This concurrent validity has not been examined with respect to other assessment scales for EE. The PPI shows adequate internal consistency (0.86-0.92), and as regards its predictive validity, only the criticism scale predicted psychotic exacerbation in patients after 1 year of follow-up. Like the other interview-based instruments, the PPI requires excessive application time and trained personnel for its application and scoring.

MEASUREMENT INSTRUMENTS II: SELF-REPORTS

The search carried out yielded a total of 10 instruments in self-report format, mainly designed for application to family members. In this section we briefly describe the instruments found, grouping them according to whether they assess EE in the family member, in the patient or person exposed to the family climate, or in both patients and other family members. For each of these groups we present the measures in chronological order of their appearance.

The main instruments found for the assessment of EE in the family member are the six whose descriptions follow. The first of this type of measure is the Patient Rejection Scale (PRS) (Kreisman, Reardon, Borenstein, Woerner, Kane, Rifkin, & Blumenthal, 1988). There are two versions of this instrument: a brief version (PRS) and an extended version (PRS-1), both based on the CFI. The PRS is made up of 11 items and examines criticism and rejection from family members. The PRS-1 is made up of 24 items, and also assesses aspects such as acceptance and frustration, though emotional over-involvement is not evaluated. In either instrument, the higher the score the higher the levels of criticism and hostility, and the higher the score on the PRS-1, the higher the acceptance and the lower the frustration. This instrument does not indicate a clear cut-off point for classifying a family as high- or low-EE. Although the internal consistency is good in both cases (PRS = 0.78; PRS-1= 0.89), only the PRS offers information about its temporal stability (0.72). The measure shows some conceptual overlap with the CFI scales of hostility and criticism.

Another instrument of this type is the Questionnaire Assessment of Expressed Emotion) (QAEE) (Docherty & Serper, 1990). The initial version was made up of 144 items, but this total was reduced to 99, which were grouped in two subscales: criticism/hostility (70 items) and emotional over-involvement (29 items). In this questionnaire, family members are required to indicate how frequently they perform a specific behaviour toward the patient, the response options ranging from zero (never or almost never) to three (always or almost always). The authors propose a clear cut-off point (Criticism 87/210 and Emotional over-involvement 44/87) for identifying high-low criticism and hostility, which permits the classification of the family as high-/low-EE. The two subscales show high internal consistency (0.90-0.96). In the validation of this questionnaire it was administered together with the CFI to family members, with the result that the criticism scale correctly classified 88% of them, while the emotional over-involvement scale classified 67% correctly (Docherty & Serper, 1990). No data is available on the predictive validity of this instrument, and more information is required about its psychometric properties.

A third instrument is the Adjective Checklist (AC) (Friedmann & Goldstein, 1993 and 1994), made up of 20 adjectives, 10 positive (affectionate, kind, friendly, cooperative, considerate, clear, etc.) and 10 negative (hard, lazy, irritable, irresponsible, hostile, etc.), presented via brainstorming. Among these are adjectives that correspond to criticism and emotional over-involvement components of EE. The adjectives are

presented alphabetically to family members, who provide two scores. First, they rate their own behaviour toward the patient, and secondly, they rate the patient's behaviour toward themselves. Internal consistency of the positive scale (0.91-0.94) and negative scale (0.88-0.92) is high. This instrument does not set a cut-off point for classifying the family as high- or low-EE. Its concurrent validity has been studied through a comparison with the CFI and FMSS, yielding a significant correlation between the CFI subgroups (high and low in criticism and high in emotional over-involvement) and score on the negative adjectives scale. As regards the positive adjectives scale, no significant positive correlation was found. On the other hand, with the FMSS both adjectives scales showed a significant correlation, though their predictive validity is not clear.

The following measure in this group is the Family Attitude Scale (FAS) (Kavanagh et al, 1997), made up of 30 items that identify three factors: criticism-emotional distancing, criticism-hostility and affective distancing-mistrust of others' possibilities. Comparisons between this scale and the CFI showed that high EE, measured with the CFI, is associated with high score on the FAS in relatives of schizophrenic patients. Its psychometric properties are adequate, with regard to both internal consistency (0.95) and capacity for predicting critical levels; however, it does not set a cut-off point for differentiating between high and low EE, and it does not include components such as emotional over-involvement.

The Family Questionnaire (FQ) (Wiedemann, Rayki, Feinstein, & Hahlweg, 2002) identifies components such as criticism and emotional over-involvement. In the study carried out for its validation, it is compared with the CFI in the measurement of EE in relatives of schizophrenic patients. A significant positive correlation is found with the CFI categories criticism (78% correct classifications) and emotional over-involvement (71% correct classifications). In global score, it correctly classifies high-EE families in 74% of cases. Furthermore, it shows the best correlation with CFI in emotional over-involvement among all the brief questionnaires for EE assessment, though it fails to isolate a clear element of EE such as hostility.

The final instrument to mention in this group is the Scale for the Assessment of Expressed Emotion (*Escala para Evaluar la Emoción Expresada;* EEE) (Méndez et al., 2004). It is made up of 40 items and measures the way in which parents relate to their children, so as to obtain information on family climate based on the EE components. It comprises six factors: a) low degree of tolerance in parents toward certain behaviours in their children; these are the criticism components; b) positive component or positive comments; c) emotional over-involvement component; d) mistrust of others' possibilities component; e) hostility as impatience toward the other's behaviour; and f) hostility as loss of control. This instrument shows an internal consistency of 0.87, the coefficients of the factors maintaining adequate levels (all above 0.70). It correlates positively and significantly with the FAS, in addition to providing a cut-off point that distinguishes between high- and low-EE families (mean plus one standard deviation in the EE factor, made up of criticism-hostility). This measure has not been compared with traditional instruments for the assessment of EE, such as the CFI, and clinical samples have not been used in its validation. Even so, it includes all the elements of the EE construct, including the positive ones.

As far as the assessment of EE in the patient is concerned, two instruments were found. The first of these is the Influential Relationships Questionnaire) (IRQ) (Baker, Helmes, & Kazarian, 1984). Patients are asked to assess the behaviour of the people who are most important for them. It is made up of 37 items divided among three scales: criticism, care and protection; the criticism assessment scale includes some hostility items. This measure does not provide a cut-off point for classification into high-low EE, but all three of its scales have good internal consistency (0.76-0.91) and good test-retest reliability (0.53-0.85). The IRQ shows good predictive power, and the care and criticism scales in particular can distinguish between patients who relapse and those who do not (Baker, Kazarian, & Márquez, 1994; Clarke, Walker, & Cuddy, 1996). Its concurrent validity has been studied with respect to the CFI, a significant correlation being found only between the emotional over-involvement scale of the CFI and the criticism scale of the IRQ. This reveals that the conceptual relation with the original structure of EE is uncertain, possibly due to the fact that this tool was not developed on the basis of an instrument for the assessment of EE.

The other instrument in this group is the Perceived Criticism Scale (PCS) (Hooley & Teasdale, 1989). It was originally used for assessing the criticism perceived by depressed patients from their spouse. Patients are required to respond to questions about the level of critical comments made by their partner. Responses are coded from 1-10 (*not at all critical* to *highly critical*), and the cut-

off point is fixed at a score of 4 or over. The instrument has good temporal stability (0.75), and as regards concurrent validity there is a significant correlation between total score on the PCS and global EE level (high-low) measured with the CFI. This instrument predicts relapse in depressive patients: a score of two or less predicted no relapse, while a score of six or more predicted 100% of relapse. On the basis of this the authors argue that the predictive power of the PCS, in that study, was greater than the predictive power of the CFI. Although ease of application and scoring, a clear cut-off point and good concurrent and predictive validity are aspects in favour of the PCS, the criticism scale of the CFI, with which this tool appeared to be associated, showed no correlation with it.

Finally, with regard to instruments for the assessment of EE in both the patient and the family member, the review identified two measures. These tools permit the assessment of EE from the relative's point of view and also measure patients' perceptions of the level of EE received. The first, the Family Environment Scale (FES) (Moos & Moos, 1981), is made up of 90 items in true-false format, divided in three dimensions: a) Relationship, containing three scales: cohesion, expressiveness and conflict; b) Personal Growth, comprising five scales: independence, achievement orientation, intellectual-cultural orientation, active-recreational orientation, and moral-religious emphasis; and c) System Maintenance, with two scales: organization and control. It does not have fixed internal consistency, which depends on the sample; nor does it have temporal stability. Moreover, it provides no cut-off point for classifying families as high- or low-EE. There is no evidence of its concurrent validity with respect to the CFI, and it has low predictive power (Schnur, Friedmann, Dorman, Redford, & Kesselman, 1986).

The second measure in this final group is the so-called Level of Expressed Emotion Scale (LEE) (Cole & Kazarian, 1988). It stresses the patients' own perceptions, as against reports from their relatives. This tool is made up of 60 items assessing four characteristic attitudes or response styles: intrusiveness, emotional response, negative attitudes toward the illness and tolerance-expectations in relation to the patient. For each of these four components there are 15 questions in true-false format, providing a score for each scale and a total score. Family members are considered high-EE if their scores are above the median, a cut-off point being set. This scale has internal consistency (0.84–0.89) and test-retest reliability (0.67–0.82), and shows independence of sex, age and amount of family contact. Its weak points are that it only shows predictive validity for total score and attitude of intrusiveness, and that it provides no evidence of concurrent validity.

TABLE 1
SUMMARY OF THE MAIN LIMITATIONS OF ASSESSMENT INSTRUMENTS FOR EE

INTERVIEWS	
LIMITATION	MEASURES WITH THIS LIMITATION
Time required for application and/or scoring	CFI, FMSS, PPI, SV-CFI
Need for expert scorers	CFI, FMSS, PPI, SV-CFI
Need for inter-judge reliability	CFI, FMSS, SV-CFI
Need for training of expert personnel	CFI, FMSS, PPI, SV-CFI
No evidence of concurrent validity with CFI	PPI
Not based on EE assessment instruments	PPI
Does not consider/isolate any EE component	PPI
SELF-REPORTS	
LIMITATION	MEASURES WITH THIS LIMITATION
No cut-off point set (high-low EE)	AC, FAS, FES, IRQ, PRS, PRS-1
No evidence of concurrent validity with CFI	EEE, FAS, FES, LEE, PRS
Does not consider/isolate any EE component	AC, FAS, FQ, PRS
Conceptual overlap between EE components	IRQ, PCS, PRS, QAEE
Not based on EE assessment instruments	IRQ
Does not use clinical samples in validation	EEE
No information provided on predictive validity	AC, EEE, FAS, FES, QAEE
No information on temporal stability	AC, EEE, FAS, FES, FQ, PRS-1, QAEE

AC: Adjective Checklist; CFI: Camberwell Family Interview; EE: Expressed emotion; EEE: Scale for the Assessment of Expressed Emotion; FAS: Family Attitude Scale; FES: Family Environment Scale; FQ: Family Questionnaire; IRQ : Influential Relationships Questionnaire; LEE: Level of Expressed Emotion; FMSS: Five Minutes Speech Sample; PCS: Perceived Criticism Scale; PPI: Patient Perceptions Interview; PRS: Patient Rejection Scale (Brief); PRS-1: Patient Rejection Scale (Extended); QAEE: Questionnaire Assessment of EE; SV-CFI: Short Version of the CFI.

CONCLUSIONS

The principal limitations of interview-based instruments for the assessment of EE are those related to the time they consume. On the one hand, they require considerable time for their application and scoring, and on the other, they need expert personnel, previously trained, for their administration and coding. These requirements have limited the clinical applicability of such tools.

One way of attempting to resolve the difficulties found with previous techniques has been to design scales, questionnaires, inventories, etc. for assessing EE which

can be used in more versatile fashion, are more generic in character, do not need expert and trained personnel for their application, do not require expert judgement for determining EE levels, and can be administered in a relatively short time. However, as can be observed in the review carried out, self-report-type instruments are not problem-free either. The shortcomings found in them, as mentioned in the descriptions in this article, include: a) failure to set a cut-off point for classifying the family as high- or low-EE; b) no provision of evidence on their concurrent validity with respect to the CFI; c) failure to consider some EE components or to adequately isolate them; d) conceptual overlap between the different EE components; e) no EE assessment instruments used as a basis for their design; f) no information provided on their predictive validity; and g) failure to use clinical samples in their validation.

Further potential drawbacks with measures of EE are related to the person assessed (the patient him/herself or a family member). Thus, if the EE assessment is carried out in patients, there is no guarantee that they will not provide socially desirable responses, giving false data; on the other hand, when the assessment instrument is applied to family members, apart from the threat of social desirability, it may be that the patient does not live with any member of the family, or does not wish to involve any of them in his or her problem.

Bearing in mind what we have seen in this article, it can be concluded that: 1) The new measures present problems of relevance for the assessment of the EE construct, so that the instrument initially conceived for its measurement, the CFI, emerges as the most relevant and reliable tool for this purpose; 2) The design of new instruments for the assessment of EE should take into account the problems shown by the brief measures developed up to now. Thus, the goal of future work in this area must be to develop measures: based on well-established assessment tools in the EE field, preferably the CFI; with the capacity to adequately isolate all the components of the construct; which have concurrent validity; which set a clear cut-off point for the classification of high-low EE; and, above all, which are clinically applicable.

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