

*Review Article*

## Measurements Expressed Emotion - A Review

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### ABSTRACT

**Background:** The concept of Expressed Emotion (EE) refers to the emotional environment in a family. It is a significant feature of the family environment that has been found to predict symptom relapse in a wide range of mental disorders. There are various EE scales have been used in the area of mental health. Hence to give a brief review of the EE scales, this paper focuses on the psychometric properties of various scales.

**Methods:** Extensive search was done from following databases, Medline (Pubmed), Science direct, Google scholar, Cochrane library & Psychinfo. Extensive search of manual, journals, cross references and unpublished thesis was also done. Around 60 of articles retrieved for finding the various EE measurements. The researcher focused only on English language and articles published on psychometric properties only were considered for the review.

**Discussion and Conclusion:** The researchers had reviewed 11 scales and found differences with regard to internal - consistency, test and re -test reliability, concurrent validity, EE components, duration of administration, illness wise, Indian setting, Copy rights, Predicting power, Persons with mental illness version V/S Family / Relative version, Nature of the scale, Cut off score, Need for extra equipments, Number of people required and training for users of each scale. All the existing scales got certain limitations as they were constructed on the base of their cultural background. Therefore researcher before embarking on his/her research study should use cultural sensitive scale in their respective regions.

**Key words:** Expressed Emotion, Psychiatric disorders and Measurements.

### INTRODUCTION

The expert primarily associated with EE concept is George Brown and has extensively contributed to the development of EE construct. [1,2] The concept of Expressed Emotion (EE) is a reflection of family members' attitudes toward a person with a mental illness. [3] There are five components of expressed emotion which

includes Critical comments, Hostility, Emotional over Involvement, Warmth and Positive Regard. [4] It is a significant feature of the family environment that has been found to predict relapse in a wide range of mental disorders. [5] Expressed emotion has been studied across various psychiatric disorders such as Schizophrenia, [6]

Depression, [7] Bipolar disorders [8] OCD [9] and eating disorders. [10]

Many studies have depicted that the families with high EE has high relapse rate in severe mental illness. [5,11] Researchers have placed EE within the diathesis-stress model of psychopathology, characterizing it as an environmental stressor that can cause psychotic episodes among persons with a genetic vulnerability to psychopathology. [12] However, role of EE in psychiatric disorders have been subjected to criticism because of inconsistent findings across the studies.

The classical teaching of EE is based on Camberwell Family Interview (CFI). The CFI rates on five factors those are; Criticism, Hostility, Emotional Over involvement, Warmth, and Positive Remarks. [2] There are various EE scales which have been used in the area of mental health. However, various instruments used for the assessment of EE are not done on all the above domains. Depending upon the number of domains assessed, time taken for assessment, number of family members assessed, ill individual's subjective report and behavioural assessment during the interview play crucial role in assessment of EE. Hence it is planned to give a brief review of the EE scales. This paper focuses on the psychometric properties of such scales related to Expressed Emotion.

## **MATERIALS AND METHODS**

The objective of the present study is to provide a comprehensive picture on tools of measurement of Expressed Emotion. Extensive search was done from following databases, Medline (Pubmed), Science Direct, Google Scholar, and Cochrane Library & Psycinfo. The search terms included "Expressed emotion", "EE and schizophrenia", "EE and severe mental disorder", "EE and bipolar affective disorder", "EE and measurements", "EE and depression", "EE and eating disorder" and

"EE and OCD". An extensive search of manuals, journals and unpublished theses from NIMHANS library, Bangalore was also done. 60 articles were retrieved for finding the various EE measurements. 17 scales were found for measuring expressed emotion. However, the researchers were able to get details for 11 scales only. Studies which have psychometric properties, studies published in English language and studies which have been done on mental illness were included in to the review and studies which have done on physical illness aspects were not included in to the review.

The measurements critically evaluated below Such as, Camberwell Family Interview, [2] Five Minute Speech Sample, [13] Family Attitude Scale, [14] Family Emotional Involvement & Criticism Scale, [10,15,16] Perceived Criticism, [17] Family Questionnaire, [17-20] Expanded patient version of the BDSEE, [10] Level of Expressed Emotion Scale, LEE versions, [14,21,22] Patient Rejection Scale, [23] Family Environment Scale versions, [14,21,22] and Parental Bonding Instrument. [10,15,16]

## **RESULTS**

The researchers were able to get details for 11 scales and they have been reviewed these scales with regard to internal- consistency, test and re -test reliability, concurrent validity with the gold standard scale (CFI), predictive validity, components/domains, items, nature of administration, versions, duration of administration, across specific illnesses, copyrights, cut off score, usage in Indian settings, training for users, need for extra equipments, number of people required and positives and negatives of each scale. The following table is the summary of results on expressed emotion (EE) scales based on above mentioned parameters.

**TABLE ON SUMMARY OF RESULTS ON EXPRESSED EMOTION (EE) SCALES:**

S/n	Name of scale	Authors & year	Components/ Domains	Items	Nature of administration	Duration	Versions	Illness	Internal consistency	Test – retest reliability	Predictive Validity	Positives	Negatives
1	Camberwell Family Interview (CFI)*	Brown. G.W. & Rutter, 1966, Vaughn and Leff, 1976	Five	Speech sample	Interview with caregiver	4-5 hour	Caregiver	Schizophrenia	>0.80	-	r=.30, p<.0001	Gold standard, comprehensive coverage of family emotions	More time consuming, Access to training difficult <sup>10</sup>
2	Five Minute Speech Sample (FMSS)	Gottschalk & Gleser (1969), Magana et al.(1986)	Three	Speech sample	caregiver uninterrupted Speech	25 minutes	Caregiver	Children with mental disorders	>0.80	R=.64	P<.05	Less time to administer <sup>24</sup>	No strong evidence for predictive power
3	Level of Expressed Emotion Scale (LEE)*	Cole and Kazarian 1988	Four	60-item	Self reporting , true/ false responses	Around 40 minutes	Ill individual and Caregiver	Schizophrenia	0.84-0.89	0.67-0.82	P<.01	Simple to administer and, has high internal consistency	Ill individual and relatives show different correlates of EE domains
4	Perceived Criticism Scale (PCS)	Hooley and Teasdale 1989	One	Only 1 item	Self reporting 10-point Likert-type	1 minute	Ill individual	Schizophrenia	-	r=.75	R=.64, p<.001	simple, takes 1 minute time to administer	Less scope for assessing different EE dimensions
5	Family Emotional Involvement & Criticism Scale(FEICS)*	Shields et al.,1992	Two	14 items	5-point Likert-type	around 10 minutes	Ill individuals	Schizophrenia, OCD	0.76-0.82	--	--	Takes less time to administer,	Not clear cut off score
6	Family Attitude Scale (FAS )	Kavanagha et al.,1997	Two	30 items	Self-reporting 5-point Likert	around 20 minutes	Ill individual & Caregiver	Schizophrenia				Has extremely high internal consistency	Significant overlap with the CFI
S/n	Name of scale	Authors & year	Components/ Domains	Items	Nature of administration	Duration	Versions	Illness	Internal consistency	Test – retest reliability	Predictive Validity	Positives	Negatives
7	Brief Dyadic Scale of Expressed Emotion-Expanded (BDSEE)	C. Medina-Pradas et al., 2011	Three	14 items	Self reporting 10-point Likert	around 10 minutes	Ill individual	Eating disorder	0.82 -0.92			Good internal consistency, best to work with ED	No predictive power
8	The Family Questionnaire (FQ)*	Wiedemann et al., 2002	Two	20 items	Self-rating, 4-point Likert	around 15 minutes	Caregiver	Schizophrenia				Significant correlations with CFI <sup>25</sup>	No strong psychometric properties.
9	The Patient Rejection Scale (PRS)	Kreisman,Simmens and joy 1979	One	11 item and 24 items	Self-rating 3-point Likert	around minutes 15	Caregiver	Schizophrenia , OCD	0.89	0.72	r=.20, p<.05	Good internal consistence	overlapping with CFI
10	The family environment scale ( FES )*	Moos and Moos 1981	Ten	90 items	True or false	Around 40 minutes	Ill individual and caregiver	Schizophrenia				Comprehensive one	No evidence for concurrent validity with the CFI
11	The Parental Bonding Instrument (PBI)	Gordon Parker, Hilary Tupling and L.B. Brown in 1979	Two	25 items	4-point Likert scale	around 15 minutes	Ill individuals		.63-.76			Easy to administer	Not directly measures EE

## DISCUSSION

For more than 50 years the construct of Expressed Emotions has been studied across various psychiatric disorders. Many studies have depicted that the families with high Expressed emotion have high relapse rate in severe mental disorders. [5] The Camberwell Family Interview(CFI) was the first instrument to measure EE in the families of mental illness and it rates on the following five factors; Criticism, Hostility, Emotional Over involvement, Warmth, and Positive Regard. [2] It is named as gold-standard measurement among all EE measurements. The first three negative expressed emotion indicators have shown high predictions of relapse in schizophrenia. A variety of EE scales have been used in the area of mental health. However, these instruments used for the assessment of EE are not done on all the 5 domains. 11 scales have been reviewed with regard to following parameters of each scale and discussed below.

**Duration for administration:** The duration for administering various EE scales ranged from 1 minute to 5 hours. The CFI requires approximately 4-5 hours administering [2] and Perceived Criticism (PCS) scale takes less than 1 minute. [17] The duration for administering the scale depends upon the need of the researcher and number of subjects to be interviewed.

**Training for Users:** The CFI requires a 2-week training period for the investigators. It is a very time-consuming procedure and one that precludes routine clinical use. [20] Access to attending the training courses also comes with its own share of problems, especially for practitioners outside England (UK). [14] For many researchers from developing countries like Asian countries, especially India, face a lot of problems to access the CFI norms, its administration and training. [19] Even to administer the FMSS scale coders need to have undergone a

formal training. [13] However, for the rest of the 9 scales formal prior training is not a prerequisite for administration.

**Illness categories:** All the EE measurements can be used to assess expressed emotion across various psychiatric disorders. However, initially the EE scales was used predominantly, for schizophrenia and the Camberwell Family Interview (CFI), [19] Level of Expressed Emotion Scale( LEE), Family Emotional Involvement and Criticism Scale (FEICS), Family Attitude Scale (FAS), The Family Questionnaire (FQ), The Patient Rejection Scale (PRS), Perceived Criticism (PC) were used. For OCD- the Patient Rejection Scale (PRS), Family Emotional Involvement and Criticism Scale (FEICS) and for eating disorder and other psychiatric disorders - Brief Dyadic Scale of Expressed Emotion – Expanded (BDSEE) [10] was used. The FMSS [13] - was extremely favoured by researchers working with children and it was found to be correlated with mother– child attachment security.

**Indian setting:** CFI is gold standard measurement among EE scales and used in few Indian studies. [11] However it is not researcher friendly scale for Indian studies as CFI requires 4-5 h / person to administer and a 2 week period rater training in UK is essential [14,20] Considering all the difficulties, FEICS (Family Emotional Involvement and Criticism Scale) has been widely used in the Indian settings for assessing expressed emotion. [4,9,26-28]

### **Components/ Domains / Sub scales:**

Following are the details of components EE scales, The 11 scales reviewed, measured EE components ranging from 1 to 10.

### **Ten components:**

The Family Environment Scale (FES) has 10 subscales which measures cohesion, expressiveness, conflict, independence, achievement orientation, intellectual – cultural orientation, active recreational

orientation, moral religious emphasis, organization and control.

**Five components:** The Camberwell Family Interview (CFI) measures five components such as, Criticism, Hostility, Emotional Over involvement (EOI), Warmth, and Positive Regard

**Four components:** Level of Expressed Emotion Scale (LEE) has four subscales which are Intrusiveness, Emotional Response, Attitude toward Illness, and Tolerance and Expectations.

**Three components:** The FMSS measures criticism, and Emotional Over involvement scale and positive comments by family member towards the patient. BDSEE is composed of the following three subscales: perceived criticism, perceived emotional over Involvement, and perceived warmth.

**Two components:** The Family Questionnaire and Family Emotional Involvement and Criticism Scale (FEICS) measures two dimensions of expressed emotion such as, emotional over involvement and perceived criticism in the family. The Family Attitude Scale (FAS) has given prominence on the criticism and hostility in family. The Parental Bonding Instrument (PBI) measures Care and Overprotection in family.

**One component:** Perceived Criticism (PC) measures only one component of EE i.e. criticality. The Patient Rejection Scale (PRS) assesses rejecting or hostile attitudes toward the individual

**Copyrights:** Before the use of any scale, a researcher must first obtain written permission from the concerned authors, in case the scale is copyrighted/private domain. Most of the measurements related to Expressed Emotion are in the private domain. To name a few - the Camberwell Family Interview (CFI), The Five Minute Speech Sample (FMSS), Level of Expressed Emotion Scale (LEE), The Family Questionnaire and Family Emotional

Involvement and Criticism Scale (FEICS), Brief Dyadic Scale of Expressed Emotion – Expanded (BDSEE) and few others.

**Persons with mental illness version V/S Family / Relative version:** CFI, FMSS, PRS, FQ assesses the relative's perception. [17-20] and PCS, FEICS, BDSEE and PBI measures the persons' with mental illness perception. [10,15,16] Two versions of the LEE and FAS and FES Scale are available for individual's and the relatives' versions. [14,21,22]

**Predicting power:** Predicting power means the ability to generate testable predictions. The measurements on EE show its capacity to examine the hypothesis of their strength. The Camberwell Family Interview (CFI), [19] Level of Expressed Emotion Scale (LEE) [21] and Perceived Criticism scale (PCS) [17] have the predicting power, whereas the other measurements are known to have a poor predictive power.

**Nature of the assessments:** The CFI and the FMSS are interview based scales and others were in the form of questionnaires. In India, majority of the time, researchers use interview based ratings rather than self administration questionnaires. However, as far as Expressed Emotion scales are concerned in the Indian set up, more number of studies have used self administration questionnaires like Family Emotional Involvement and Criticism Scale (FEICS), The Family Questionnaire (FQ) [20] and Level of Expressed Emotion Scale (LEE) [20] There are very few studies that have used Camberwell Family Interview (CFI). [19]

**Cut off score:** Cut off score means researchers would examine the cut off score that might aid them in identifying a particular group of people who meet the criteria adopted for a specific study. The CFI, [19] The LEE, [21] The FMSS, [13] PSC, [17] FQ [20] and BDSEE [10] are the only tools that provide a clear cut off score for determining low EE or High EE. The other

instruments do not have a clear cut off score therefore making it difficult for the researcher to categorise the scores.

**Need for extra equipments:** Some equipments are essential while administering scales in research. However, equipments are made of use based on the requirements of the scale. In order to administer the CFI and FMSS, extra equipments are required like camera and an audio recorder for recording the interview. [13,19]

**Number of people required:** For measuring the home environment through CFI, it usually requires the rating of at least two family members and two trained raters, [19] whereas for rest of the scales only one person is required (either persons with schizophrenia or care giver). Except the CFI and the FMSS other measurements does not even need the interviewer's assistance for administration. [13,29]

After discussing all the scales on Expressed Emotion the researcher recommends that a researcher to first, test their requirements and select appropriate measurement.

## CONCLUSION

Overall, to summarise, each scale has its own positives and limitations such as, The Camberwell Family Interview (CFI) [19] is a Gold standard scale among all EE measurements but still it has its limitations mentioned earlier. All the existing scales have certain limitations and since most of the scales were constructed on the basis of their cultural background. Therefore a researcher, before embarking on his/her research study should use culturally sensitive scales from their respective regions.

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