



Correlates of Expressed Emotions Among Caregivers of Patients With Bipolar Disorder: A Cross Sectional Study

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Abstract: *Bipolar disorder is a disabling psychiatric illness with a high rate of recurrence, persistent symptoms, and impairment in functioning. The shift from institutional care to community-based care has resulted in the transferring of day-to-day care of patients to their family members, resulting in a psychosocial burden over the caregivers. Hence, Bipolar disorder not only affects the patient but also has a huge impact on the lives of the persons caring for them. This study has been undertaken to correlate Expressed Emotions among caregivers of patients with Bipolar Disorder for which cross-sectional study was conducted at a tertiary care teaching hospital in north India. The study sample comprised of 100 patients with BD. Convenient sampling was used for the selection of patients with Bipolar disorder and their caregivers and statistical analysis. Bivariate and Multivariate analysis analysis was used. The result of the present study indicate that higher use of maladaptive coping has a significant impact on the Expressed Emotion. Accordingly, psychosocial interventions need to focus on caregivers to reduce Effective Emotion.*

Keywords: Expressed Emotion, Bipolar disorder, Coping Skills

Introduction:

Bipolar disorder, also known as bipolar affective disorder and manic-depressive illness, or affective psychosis is a mental disorder characterized by periods of elevated mood and periods of depression. The elevated mood is significant and is known as mania or hypomania depending on the severity or whether there is psychosis. During mania an individual feels or acts abnormally happy, energetic, or irritable. They often make poorly thought out decisions with little regard to the consequences. The need for sleep is usually reduced. During periods of depression there may be crying, poor eye contact with others, and a negative outlook on life. The risk of suicide among those with the disorder is high at greater than 6% over 20 years, while self harm occurs in 30–40%. According to DSM V, patients with bipolar I disorder have had at least one episode of mania. Some patients have had previous depressive episodes and most patients will have subsequent episodes that can be either manic or depressive. Hypomanic and mixed episodes can occur, as well as significant subthreshold mood lability between episodes. Patients meeting criteria for bipolar II disorder have a history of major depressive episodes and hypomanic episodes only. Patients may also exhibit significant evidence of mood lability, hypomania and depressive symptoms but fail to meet duration criteria for bipolar II disorder, thereby leading to a diagnosis of bipolar disorder not otherwise specified. Finally, cyclothymic disorder may be diagnosed in those patients who have never experienced a manic, mixed, or major depressive episode but who experience numerous periods of depressive symptoms and numerous periods of hypomanic symptoms for at least 2 years (1 year in children), with no symptom-free period greater than 2 months. Bipolar disorder is complex, with different facets and stages, and it is not exactly known how this affects the everyday clinical practice. Its treatment is also complex, and

unfortunately the hard data are insufficient to support all decisions. Reports at the case report level do exist, but they should not be considered sufficient [8,9]

Bipolar disorder is a disabling psychiatric illness with a high rate of recurrence, persistent symptoms, and impairment in functioning. The shift from institutional care to community-based care has resulted in the transferring of day-to-day care of patients to their family members, resulting in a psychosocial burden over the caregivers. Hence, BD not only affects the patient but also has a huge impact on the lives of the persons caring for them.

The problems of families and caregivers of a mentally ill person have been explored in various studies. The effect of BD on the caregivers in terms of burden of care, disability and distress have been evaluated in many studies [19]. Another important caregiver outcome is Expressed Emotions. "Expressed emotion reflects the extent to which the close family member of an identified patient expresses critical, hostile or emotionally over involved attitudes toward the patient during a private interview with a researcher" [4-5] identified five components of Expressed emotion, i.e., critical comments, hostility, emotional over involvement, positive remarks (regard), and warmth. Although ratings of Expressed emotion are often considered to be characteristic of relatives, Expressed emotion is most appropriately regarded as a measure of the patient–relative relationship. EE is a measure of the family environment that is based on how caregivers or relatives of a mentally ill patient spontaneously talk about the patient [6]. Current models conceptualize Expressed emotion within an interactional framework, with the characteristics of patients (e.g., uncooperativeness, negativity) engendering critical attitudes in relatives who are less flexible and tolerant and more inclined toward controlling behaviours, to begin with. It was seen that high-Expressed Emotion relatives are more likely to attribute the negative behaviors of patients to personal and controllable factors (i.e., personality, lack of effort) than are low- Expressed emotion relatives, who are more likely to attribute the behaviors to uncontrollable factors (i.e., illness or external stressors) [16].

Aim of the study:

- To study the extent of expressed emotions among the caregivers of patients with Bipolar disorder.

Objectives of the study:

- To evaluate the patients perception of extent of expressed emotions faced by the patients of Bipolar disorder in the hand of their family caregivers.
- To evaluate the extent of expressed emotions faced by the patients of Bipolar disorder as perceived by their primary caregivers.
- To evaluate the association of expressed emotions with caregiver burden, coping of caregivers, psychological morbidity among the caregivers, caregiver abuse, reasons for caregiving and clinical variables of patients.

Methodology:

In the present study cross sectional design was used to study the Expressed Emotions among caregivers of patients with Bipolar Disorder: A Cross Sectional Study. the following methodology was used

Design of the study

In the present study cross sectional design was used to study the Expressed Emotions among caregivers of patients with Bipolar Disorder: A Cross Sectional Study (see Table 1)

Table 1
Expressed Emotions among caregivers of patients with Bipolar Disorder

Bipolar disorder patients	100	Convenient sampling
Bipolar disorder patients caregiver	100	Convenient sampling

Tool of the study

Mini International Neuropsychiatric Interview (MINIPLUS) [23]: The MINI-PLUS is a brief structured interview for diagnosis of psychiatric disorders in DSM-IV and ICD-10, for example, major depressive episode, dysthymia, psychoactive substance use disorders etc. MINI Plus is a version of the MINI interview that is particularly designed for research. The MINI-PLUS is divided into modules corresponding to diagnostic categories. It elicits all the symptoms listed in the symptom criteria for DSM-IV and ICD-10 for 15 major Axis I diagnostic categories, one Axis II disorder and for suicidality. Additionally, MINI-Plus version of the MINI interview has extensive coverage of general psychopathology and a separate module for ADHD, containing questions pertaining to both child and adult behaviour. Questions are rated as either present or absent. This was used to confirm the diagnosis of bipolar disorder and to rule out other comorbid psychiatric disorders.

Perceived Criticism Measure (PCM) [10]: Perceived criticism measure is a scale for assessment of EE, comprising of two items, that is, ‘how critical do you think your relative/patient is of you?’ and ‘how upset do you get when your relative/patient criticises you?’. Both the items are rated on a 10-point scale with higher scores indicating a higher level of criticism and a higher level of getting upset with criticism. Test-retest reliability for the criticism portion of the PCM is moderately high. Perceived criticism portion of the scale also has adequate discriminant validity in relation to measures of depression, anxiety, and personality disorder trait and adequate predictive validity by its prediction of poor treatment outcome and relapse upon hospital discharge. For this study, an additional item, that is, ‘how critical are you of your caregiver’ was added, to understand the contribution of patient’s behaviour to the possible EE.

Family Emotional Involvement and Criticism Scale (FEICS) [24]: It is a 14 items scale that evaluates EE from the patient’s perspective. It consists of two subscales, that is, Perceived Criticism (PC) and intensity of Emotional Involvement (EI). Items are rated on a 5-point (0–4) Likert scale with total score of 56. Higher ratings are suggestive of the high level of EE among the family of the patients. Cronbach’s alpha is .82 for the PC subscale and .74 for the EI subscale.

Brief Dyadic Scale of Expressed Emotions (BDSEE) [15]: It is a 14-items self-rating questionnaire. It includes three subscales, namely, ‘perceived criticism’ (BDSEE-CC, four items), ‘perceived emotional overinvolvement’ (BDSEE-EOI, six items) and ‘perceived warmth’ (BDSEE-W, four items). Each item of this self-report measure is scored on a 10-point Likert scale with higher scores indicating high-EE. It has a good internal consistency of 0.82–0.92.

Family Burden Interview Schedule (FBI) [21]: It consists of 24 items grouped under six areas (financial burden, disruption of the routine of family activities, disruption of family leisure, disruption of family interaction, the effect on the physical health of others and effect on the mental health of others). Also, there is another open-ended question about any type of burden which family perceives and is not covered by the above items. Finally, the last item assesses the subjective burden experienced by the family. Each item is rated on a 0–2 scale. After completing the interview, a global rating of the family burden on the same 0–2 scale is done by the clinician. Higher scores indicate a higher level of caregiver burden. Score less than 12 indicate low burden and score more than or equal to 12 is a high burden. The reliability and validity are more than 0.87 and 0.72, respectively.

Family Coping Questionnaire (Magliano et al., 1996): It is a 23-item scale, each rated on a 4 point with higher scores indicating higher use of coping. It has seven subscales, that is, information acquisition, positive communication, social interest, coercion, avoidance, and resignation. The psychometric properties of the scale have been found to be good.

Results

Present study aimed to evaluate the extent of expressed emotions among the caregivers of patients with Bipolar disorder.. For this, 100 patients of Bipolar disorder, currently in clinical remission (i.e. having Hamilton Depression Rating Scale score of <7 and Young Mania Rating Scale score of <7) and clinically stable (i.e., no exacerbations or relapses or greater than 50% hikes in medication dosages in the 3-month period prior to assessment for the study) were recruited. Patients with BD were evaluated on Perceived Criticism Measure (PCM), Hamilton Depression Rating Scale (HDRS), Young Mania Rating Scale (YMRS), Family emotional involvement and criticism scale (FEICS), Brief dyadic scale for expressed emotions (BDSEE) and Vulnerability for abuse screening scale (VASS).The caregivers of patients with BD were assessed on Perceived Criticism Measure (PCM), Family attitude scale (FAS),Family Burden Interview (FBI) schedule, Checklist of Reasons for Caregiving, Family coping questionnaire (FCQ), Caregiver Abuse Screening (CASE) Questionnaire and General health questionnaire (GHQ).

The mean age of patients was 42.07 (SD-13.01) years and the mean education in years was 10.72 (SD-3.85) years. The mean family income of the study sample was rupees 12,795 (SD-14,384.35). Majority of the study participants were male, married, on a paid employment, from urban background, Hindu by religion and middle socioeconomic status. There was nearly equal distribution of subjects from nuclear and extended/joint family set-up and those who educated above matric and upto matric. The mean age of caregivers was 46.64 (SD-10.44) years. The mean duration of education of the caregivers was 10.22 (SD-4.25) years and the mean income of the caregivers was rupees 9,000 (SD-14,664). Female caregivers outnumbered males. Majority of the caregivers were married (95%), educated upto matric (63%), were spouse (65%) of the patient, were supervising the medications (81%) and were themselves not suffering from any chronic physical illness (74%). Unemployed (55%) caregivers outnumbered those who were currently on paid employment (45%). Caregivers had been performing the role of a primary caregiver for the last 12.84 (SD 8.75) years and on an average spent about 3.24 (SD-1.69) hours each day in providing care to the patient. Caregivers accompanied their patients during the 79.84% of follow up visits in the previous 1-year (Table-2).

Table-2: Socio demographic profile of patients and caregiver (N= 100)

Socio demographic variable	Mean (SD) / Frequency (N=100)	Mean (SD)/ (Frequency) [N=100]
Age (in years)	42.07 (13.01)	46.64 (10.44)
Education (in years)	10.72 (3.85)	10.22 (4.25)
Income (in rupees)	12795.00 (14384.35)	9000 (14664.60)
Gender		
Male	65 (65%)	46 (46%)
Female	35 (35%)	54 (54%)
Marital status		
Single	19 (19%)	5 (5%)
Married	79 (79%)	95 (95%)
Widowed	02 (02%)	
Occupation		
Unemployed and homemaker	44 (44%)	55 (55%)
Employed and earning	56 (56%)	45 (45%)
Education		
Up to matric	49 (46%)	63 (63%)
Above matric	51 (51%)	37 (37%)
Residence - N (%)		
Rural	34 (34%)	
Urban	66 (66%)	
Socioeconomic status- N (%)		
Upper	03 (03%)	
Middle	82 (82%)	
Lower	15 (15%)	
Religion		
Hindu	60 (60%)	
Sikh	36 (36%)	
Muslim	04 (04%)	
Family type		
Nuclear	51 (51%)	
Extended/ joint	49 (49%)	
Hours/day in caregiving		3.24 (1.69)
Duration of caregiving (years)		12.84 (8.757) [Median=10]
%age visits in which caregiver accompanied the patient to hospital in last 1 year		79.84 (27.04)
Relationship with the patient		
Spouse		65 (65%)
Parents		19 (19%)
In-laws		02 (02%)
Children/offspring		04 (04%)
Siblings		08 (08%)
Others (paternal uncle)		02 (02%)
Supervises the medication-Yes		81 (81%)

Clinical profile of patients :All patients were in clinical remission at the time of assessment, as per the selection criteria. The mean age of onset was 27.76 (SD-9.20) years and the mean duration of illness was 14.2 (SD-9.48) years. The mean duration of treatment in the lifetime was 7.49 (SD-6.16) years and the mean duration of untreated illness was 6.78 (6.79) years. The mean numbers of lifetime episodes prior to

assessment were 5.91(5.13), with mean number of manic episodes exceeding, mean number of depressive episodes. Other clinical details are depicted in Table 2.

Table-3: Clinical profile of patients

Variable	Mean (SD) / Frequency (N=100)
Age at onset	27.76 (9.20)
Total duration of illness (in years)	14.20 (9.48)
Duration of untreated illness (years) - Mean & SD (range)	6.78 (6.79) [0-29]
Duration of treatment (in years)	7.49 (6.16)
Total number of episodes in a lifetime	5.91 (5.13)
Duration of remission (in years)	2.47 (2.84)
Total number of manic episodes	3.20 (3.00)
Mean duration of manic episode (in months)	1.89 (0.89) [Median=2]
Mean number of maniac episodes with psychotic symptoms	0.91 (1.24) [Median=0]
Total number of depressive episodes	2.41 (3.06)
Mean duration of depressive episode (in months)	2.94 (3.05) [Median=3]
Mean number of depressive episodes with psychotic symptoms	0.38 (0.78) [Median=0]
Average severity of manic/mixed/hypomanic episode	2.35 (0.83) [Median=3]
Average severity of depressive episodes	2.00 (1.10)[Median=2]
Pattern of illness	
MDI	69 (69%)
DMI	31 (31%)
Rapid cycling affective disorder - N (%)	01 (01%)
Lifetime suicidal attempts- N (%)	26 (26%)
Number of patients with at least one episode of mania with psychotic symptoms	49 (49%)
Number of patients with at least one episode of depression with psychotic symptoms	27 (27%)
History of hospitalization- N (%)	08 (08%)
Lifetime history of breakthrough episodes - N (%)	09 (09%)
Affective morbidity index ² for mania/hypomania/mixed	16.57 (15.14) [Median= 12]
Affective morbidity index ² for depression	21.93 (34.17) [Median=12]
Total Affective morbidity index ²	35.76 (41.83) [Median= 23.25]
HDRS total	3.44 (0.89)
YMRS total	2.72 (1.15)
Relapse due to poor compliance	55 (55%)
Family history of psychiatric illnesses ¹	49 (49%)
Number of visits in last 3 months	1.37 (0.58)
Mean distance from hospital	94.92 (73.72) Median=70.00]
Cost of medications in rupees	457.25 (283.04)
Medication provided from hospital	29 (29%)
Cost of medication re-imbursed	10 (10%)
Patients with physical comorbidity	42 (42%)
Type of physical comorbidities	
Hypertension	10 (10%)
Diabetes mellitus	04 (04%)
Hypertension + Diabetes mellitus	04 (04%)

Hypothyroidism	07 (07%)
Hypertension + hypothyroidism	01 (01%)
Migraine	08 (08%)
Obesity	05 (05%)
Others	03 (03%)
Lifetime substance dependence	24 (24%)
Type of substance dependence	
Alcohol dependence	4 (4%)
Tobacco dependence	15 (15%)
Alcohol dependence + tobacco dependence	3 (3%)
Opioids dependence	2 (2%)
Lifetime psychiatric comorbidity	5 (5%)
Type of lifetime psychiatric morbidity	
Panic disorder	2 (2%)
Generalized anxiety disorder	1 (1%)
Agoraphobia	2 (2%)
Current psychiatric morbidity	3 (3%)
Type of current psychiatric morbidity	
Panic disorder	1 (2%)
Generalized anxiety disorder	1 (1%)
Agoraphobia	1 (1%)
Mood stabilizers - N (%)	
Lithium	71 (71%)
Valproate	20 (20%)
others	03 (03%)
None	06 (06%)
Antipsychotics - N (%)	
Olanzapine	38 (38%)
Quetiapine	10 (10%)
Aripiprazole	05 (05%)
Risperidone	04 (04%)
None	43 (43%)
Antidepressants - N (%)	
Escitalopram	02 (02%)
Fluoxetine	14 (14%)
Venlafaxine	05 (05%)
Bupropion	03 (03%)
None	76 (76%)
Benzodiazepines (clonazepam)	06 (06%)
Anti-hypertensive medication	09 (09%)
Thyroid supplementation	02 (02%)
Hypoglycaemic medication	05 (05%)
Daily dose of lithium - Mean & SD [range]	731.88 (184.11) [300-1050] Median 750
Daily dose of valproate - Mean & SD [range]	927.27 (252.00) [500-1500] Median 1000

DMI-Depression-mania-interepisodic pattern

MDI-Mania-depression-interepisodic pattern

- 1- Majority (N=42) had family history of affective disorders, few had family history of psychotic disorders (N=5) and 2 patients had family history of both affective and psychotic illness.
- 2- Affective morbidity index, was calculated by multiplying the number of lifetime episodes, mean severity of the episodes and the mean duration of episodes in number of months

Expressed emotions as per the patient and the caregivers

Expressed emotions as per the patient

Expressed emotions as perceived by the patients were assessed by using Perceived Criticism Measure (PCM), Family emotional involvement and criticism scale (FEICS) and the Brief dyadic scale for expressed emotions (BDSEE). On PCM scale, the mean score was higher for getting upset with criticism and this was followed by mean score of perception of caregiver being critical of them and patients rated themselves criticizing the caregivers as the least. On BDSEE, the mean weighted score was highest for perceived warmth was followed by emotional overinvolvement and perceived criticism. On FEICS, mean score for emotional overinvolvement was higher than the mean score for perceived criticism. These results are shown in **Table-4**.

Table-4: Expressed emotions as perceived by the patients

Variable	Mean (SD) [N=100]	Range	Weighted mean scores (SD)
Perceived Criticism Measure (PCM) scale			
How critical do you think you are of your caregiver?	3.89 (1.64)	1-10	
How critical do you think your caregiver is of you?	4.51 (2.20)	1-10	
How upset do you get when your caregiver criticizes you?	5.99 (2.42)	2-10	
Brief dyadic scale of expressed emotions (BDSEE)			
Perceived criticism	18.13 (7.02)	4-36	4.53 (1.75)
Emotional overinvolvement	28.18 (7.95)	12-53	4.70 (1.32)
Warmth	23.33 (6.97)	9-38	5.83 (1.74)
Family emotional involvement and criticism scale (FEICS)			
Perceived Criticism	13.14 (5.43)	3-23	1.88 (0.78)
Emotional Over involvement	16.53 (4.23)	8-25	2.36 (0.60)

1-Weighted scores were calculated by dividing the mean score for the domain, by number of items included in that particular domain.

Expressed emotions as per the caregivers

Expressed emotions as perceived by the patients were assessed by using Perceived Criticism Measure (PCM) and Family Attitude Scale (FAS). As with patient, on PCM scale, caregivers also had highest mean score for getting upset, followed by patient being critical of them and least score was obtained for caregivers themselves criticizing the patient. On FAS, mean weighted score was highest for the domain of criticism, followed by almost equal mean weighted scores for distancing and hostility act. These results are shown in

Table-5.

Table-5: Expressed emotions as perceived by the caregivers

Variable	Mean (SD)[N=100]	Range	Weighted mean scores (SD)
Perceived Criticism Measure (PCM) scale			
How critical do you think you are of your patient?	4.18 (1.73)	1-8	
How critical do you think your patient is of you?	4.74 (2.20)	1-10	
How upset do you get when your patient criticizes you?	6.02 (2.34)	1-10	
Family attitude scale (FAS)			
Hostility act	9.74 (3.69)	2-20	1.39 (0.53)
Criticism	21.53 (7.86)	6-37	1.54 (0.56)
Distancing	12.46 (6.71)	1-25	1.38 (0.75)

1-Weighted scores were calculated by dividing the mean score for the domain, by number of items included in that particular domain.

Caregiver burden, coping, psychological morbidity, abuse, reasons for caregiving and perception of problematic behaviours

On FBI, maximum burden was perceived in the disruption of routine family activities and disruption of family leisure followed by disruption of family interaction, financial domain, effect on physical health of others and least burden on 'effect on mental health of others'. On FCQ, the mean weighted score was highest for social involvement domain, followed by communication, resignation, information, social interests, coercion, and least for the domain of avoidance. Abuse faced by the patient was evaluated by using Vulnerability to abuse screening scale (VASS) and Caregiver abuse screen (CASE). VASS is rated as per the information provided by the patient and CASE is rated as per the information provided by the caregiver. On VASS, the mean weighted score was highest for the domain of dependence, followed by dejection and coercion and least for the domain of vulnerability. Majority of the patients had mean VASS score of ≥ 3 , which suggest presence of abuse. On CASE, the mean score for the study sample was 4.39 (SD 2.16) and three-fifth of the caregivers scored ≥ 4 , which suggest presence of abuse. On GHQ-12 the score for the study sample was 2.54 (2.55) and 59% of the caregivers scored >2 (Table-6).

Table-6: Caregiver Burden, Caregiver Coping, Caregiver Abuse and Psychological Morbidity among caregivers

Variable	Whole sample [N=100] Mean (SD)	Weighted scores ¹ [N=100]	mean (SD)
Family burden interview (FBI) scale			
Financial burden	4.27 (2.20)	0.71 (0.37)	
Disruption of routine family activities	5.71 (2.85)	0.82 (0.41)	
Disruption of family leisure	3.28 (1.79)	0.82 (0.45)	
Disruption of family interaction	2.19 (1.30)	0.73 (0.43)	
Effect on physical health of others	0.86 (0.90)	0.43 (0.45)	
Effect on mental health of others	0.92 (0.98)	0.32 (0.33)	
Total objective burden	17.21 (7.84)	0.72 (0.33)	
Subjective burden			
Total burden	0.96 (0.72)		
Low burden ≤ 12	37 (37%)		
High burden >12	63 (63%)		
Clinician`s rating			
No burden	28%		
Some burden	48%		
Excessive burden	24%		
Family coping questionnaire (FCQ)			
FCQ Information	5.38 (1.29)	2.69 (0.64)	
FCQ Communication	14.43 (2.84)	2.89 (0.57)	
FCQ Social interests	10.39 (2.43)	2.60 (0.61)	
FCQ Coercion	12.96 (2.52)	2.59 (0.50)	
FCQ Avoidance	5.85 (2.60)	1.95 (0.87)	
FCQ Resignation	5.65 (1.75)	2.83 (0.88)	
FCQ Social involvement	6.00 (1.49)	3.00 (0.75)	
Vulnerability To Abuse Screening			
VASS vulnerability score	0.47 (1.12)	0.16 (0.37)	
VASS dependence score	2.13 (0.87)	0.71 (0.29)	
VASS dejection score	1.16 (1.10)	0.39 (0.37)	
VASS coercion score	1.15 (1.16)	0.38 (0.39)	
VASS Total	4.91 (2.31)	0.41 (0.19)	
VASS total Score			
VASS <3	13 (13%)		
VASS ≥ 3	87 (87%)		
Caregiver Abuse Screen (CASE)			
Total CASE score	4.39 (2.16)		
Case Categories			
<4	40 (40%)		
≥ 4	60 (60%)		
General Health Questionnaire-12 (GHQ-12)			
Total General Health Questionnaire-12 score	2.54 (2.55)		
Frequency			
Less than 2	41 (41%)		
Greater than/equal to 2	59 (59%)		

1-Weighted scores were calculated by dividing the mean score for the domain, by number of items included in that particular domain

Factors associated with Expressed Emotions

None of the demographic variable of the patient and the caregivers had any significant association with EE. EEAs assessed on PCM and BDSEE did not have any significant association with clinical variables. Longer duration of illness (Pearson's correlation coefficient: -0.335 ; $p=0.001^{***}$) and longer duration of treatment (Pearson's correlation coefficient: -0.317 ; $p=0.001^{***}$) were associated with significantly lower perceived criticism as assessed by FEICS. When the association of EE and caregiver burden, coping used by the caregivers, psychological morbidity in the caregivers and the abuse faced by the patient was evaluated, significant correlations were seen. In general use of coping mechanisms such as coercion, avoidance and resignation were associated with higher EE, whereas use of coping mechanisms such as information seeking, communication and social involvement were associated with lower EE (Table-5).

In terms of caregiver burden, higher caregiver burden in all the subscales of objective burden, total objective burden, total subjective burden and burden as rated by the clinician were associated with higher EE, with occasional exceptions (Table-5). In terms of abuse, higher perception of vulnerability, dejection, coercion, total VASS score and total CASE score correlated positively with higher EE. For the abuse domain of dependence, the correlations were in the opposite direction, when compared to other domains of VASS. When those with VASS score of <3 and ≥ 3 were compared no significant difference emerged on any of the scales of EE. Higher CASE score was associated with higher level of EE as perceived by the patient except for warmth as per the BDSEE and emotional overinvolvement as per the FEICS, which were significantly lower among those with higher CASE score (Table-5).

When caregivers with and without psychological morbidity were compared, it was seen that patients of caregivers with psychological morbidity had higher perception of the EE on all the scales, except for the domain of perceived warmth on the BDSEE and significantly lower emotional overinvolvement on the FEICS. In terms of GHQ total score, higher GHQ score was associated with higher perceived criticism as per BDSEE and FEICS and higher emotional over involvement as per the BDSEE (Table-7).

Table-7: Association of EE with family coping, caregiver burden, Abuse and Psychological Morbidity

	Perceived Criticism Measure Scale			Brief dyadic scale of expressed emotions (BDSEE)			Family emotional involvement and criticism scale (FEICS)	
	How critical do you think you are of your caregiver?	How critical do you think your caregiver is of you?	How upset do you get when your caregiver criticizes you?	Perceived criticism	Emotional overinvolvement	Perceived warmth	Perceived criticism	Emotional overinvolvement
Family Coping Scale								
Information	-0.271 (<0.001)* **	-0.535 (<0.001)* **	-0.499 (<0.001)* ***	-0.490 (<0.001)* **	-0.467 (<0.001)* **	-0.565 (<0.001)* **	-0.521 (<0.001)* ***	-0.571 (<0.001)* **
Communication	-0.301 (0.002)* **	-0.515 (<0.001)* **	-0.595 (<0.001)* ***	-0.543 (<0.001)* **	-0.372 (<0.001)* **	-0.498 (<0.001)* **	-0.546 (<0.001)* ***	-0.623 (<0.001)* **

		**	1)***	**	**	**	1)***	**
Social interests	-0.034 (0.740)	-0.149 (0.138)	-0.108 (0.286)	-0.116 (0.249)	-0.059 (0.558)	-0.015 (0.879)	-0.097 (0.339)	0.117 (0.246)
Coercion	0.313 (0.002)**	0.516 (<0.001)* **	0.432 (<0.001)* 1)***	0.536 (<0.001)* **	0.508 (<0.001)* **	-0.469 (<0.001)* **	0.640 (<0.001)* 1)***	-0.517 (<0.001)* **
Avoidance	0.454 (<0.001)* ***	0.661 (<0.001)* ***	0.651 (<0.001)* 1)**	0.664 (<0.001)* ***	0.598 (<0.001)* ***	-0.574 (<0.001)* ***	0.690 (<0.001)* 1)***	-0.663 (<0.001)* ***
Resignation	0.281 (0.005)**	0.519 (<0.001)* **	0.616 (<0.001)* 1)***	0.537 (<0.001)* **	0.512 (<0.001)* **	-0.485 (<0.001)* **	0.544 (<0.001)* 1)***	-0.567 (<0.001)* **
Social Involvement	-0.218 (0.029)*	-0.423 (<0.001)* **	-0.333 (<0.001)* 1)***	-0.366 (<0.001)* **	-0.346 (<0.001)* **	0.439 (<0.001)* **	-0.430 (<0.001)* 1)***	0.464 (<0.001)* **
Family burden interview								
Financial Burden	0.497 (<0.001)* **	0.688 (<0.001)* **	0.623 (<0.001)* 1)***	0.577 (<0.001)* **	0.375 (<0.001)* **	-0.516 (<0.001)* **	0.556 (<0.001)* 1)***	-0.575 (<0.001)* **
Family Work hurdles	0.400 (<0.001)* **	0.587 (<0.001)* **	0.570 (<0.001)* 1)***	0.588 (<0.001)* **	0.457 (<0.001)* **	-0.601 (<0.001)* **	0.545 (<0.001)* 1)***	-0.608 (<0.001)* **
Family Rest hurdles	0.288 (0.004)**	0.554 (<0.001)* **	0.504 (<0.001)* 1)***	0.419 (<0.001)* **	0.357 (<0.001)* **	-0.474 (<0.001)* **	0.434 (<0.001)* 1)***	-0.502 (<0.001)* **
Family relation	0.293 (0.003)**	0.514 (<0.001)* **	0.473 (<0.001)* 1)***	0.470 (<0.001)* **	0.412 (<0.001)* **	-0.526 (<0.001)* **	0.392 (<0.001)* 1)***	-0.439 (<0.001)* **
Effect on physical health	0.263 (<0.001)* **	0.400 (<0.001)* **	0.399 (<0.001)* 1)***	0.427 (<0.001)* **	0.240 (0.016)*	-0.410 (<0.001)* **	0.407 (<0.001)* 1)***	-0.371 (<0.001)* **
Effect on mental health	0.314 (0.001)** *	0.469 (<0.001)* **	0.442 (<0.001)* 1)***	0.506 (<0.001)* **	0.317 (<0.001)* **	-0.416 (<0.001)* **	0.330 (<0.001)* 1)***	-0.342 (<0.001)* **

Predictors of Expressed Emotions

To study the effect of various independent variables on the expressed emotions as reported by the patients and their caregivers linear regression analyses with stepwise method were done. For this, all the variables that had significant correlation with various domains of EE were entered as independent variables and the various domain scores of EE were entered as dependent variables (Table-6). Total variance explained by the different variables for each domain of EE across different scales ranged from 32.2% to 73.4% (Table-8).

Table-8: Summary of regression analysis of Expressed Emotions among patients

Variables	PCM			BDSEE			FEICS	
	How critical do you think you are of your caregiver?	How critical do you think your caregiver is of you?	How upset do you get when your caregiver criticizes you?	Perceived criticism	Emotional involvement	Perceived warmth	Perceived criticism	Emotional involvement
Total variance explained	32.2%	68.6%	72.8%	72.6%	60.7%	61.6%	73.4%	65.0%
Financial burden as per FBI	23.9%	3.2%						
Objective FBI	4.4%							
Daily dose of valproate	3.9%							
Subjective FBI		50.9%	44.7%	2.3%		42.6%		
Avoidance coping		5.5%		45.7%	35.4%		46.9%	43.4%
VASS dependence		0.6%	5.6%	6.5%			2.8%	
Information coping		1.9%			1.6%	6.1%	1.5%	
VASS dejection		1.3%		14%	11.7%	3.9%	3.1%	
Resignation coping			8.8%					
Communication coping			3.6%					11.3%
VASS total			3.0%					
FBI clinician rating			1.6%					
FBI objective burden			2.0%				6.5%	4.2%
Age of patient				2.3%				2.0%
VASS coercion				1.9%	2.4%	10.3%		1.6%
Duration of caregiving					7.0%			
Percent visits accompanied by same caregiver					1.7%			
GHQ total score					1.3%			
Duration of illness							8.7%	
Coercion coping							2.1%	
FBI effect on mental health							2.0%	

Discussion

Bipolar disorder (BD) is a complex mental disorder, with marked variability. The complexity and variability of the illness poses a challenge both for the individuals suffering from this illness and their families. Over the years there has been a breakdown in structure of Indian families (Kessler et al., 1998). Consequently, more and more patients with BD live in nuclear family set-up in contrast to extended or joint family set-up. Due to this the number of family caregivers available to take care of the patients is depleting. Due to this caregivers are often under lot of stress to deal with the problematic behaviours of the patients [21]. The distress among the caregivers often manifests as EE. Studies across the globe have shown that high EE in the family are often associated with adverse outcome in patients with schizophrenia and bipolar disorders [2]. Although, there are few studies from India and other parts of the globe on EE in bipolar families, little is understood about its correlates [6].

Accordingly, the aim of this study was to evaluate the extent of EE in families with one of the persons suffering from bipolar disorder.

When the findings of the present study are compared with the existing literature, studies that have used these scales among the patients with BD, findings are comparable and suggest that patients with BD face high level of EE.

In general, socio demographic variables of patients and the caregivers were not associated with EE. This finding is supported by the existing literature, which also suggests lack of association between severity of EE with demographic factors [3, 7, 25]. When the association of expressed emotions as perceived by patient and clinical variables was evaluated, longer duration of illness and longer duration of treatment were associated with significantly lower perceived criticism (both by the patient and the caregiver) and lower emotional over involvement as perceived by the patient. These associations possibly reflect that with passage of time, caregivers and patients get used to each other's behaviour and resultantly, reach to a newer level of balance in the interaction. It is also possible that with passage of time, the caregivers understand that what works and what does not work for the patients and accordingly, change their own behaviour to form a new homeostasis with the patient. The other explanation for these could be that, with longer duration of illness and treatment, possibly patients start valuing the role of the caregivers in their life, in terms of help received in remaining well. Further, possibly start understanding the well-meaning intentions of the caregivers in correcting them.

Present study suggests that use of adaptive coping such as information, communication, social involvement are associated with lower EE and use of maladaptive coping such as coercion, avoidance and resignation are associated with higher EE. These findings are in the expected lines. Although studies evaluating the role of coping mechanisms of caregivers in EE could not be found, specifically for patients with BD, but findings of the present study are supported by data from schizophrenia literature [19, 13, 14]). In the present study, coping mechanisms such as resignation, communication, and avoidance emerged as important predictors of various components of EE. Infact, avoidance coping alone explained 46.9% of variance of perceived criticism and 35.4%-43.4% of variance of emotional over involvement as perceived by the patients. Accordingly, it can be said that clinicians managing patients should focus on evaluating the coping mechanism of the caregivers, as this forms the most important variable, which mediates EE. Clinicians should encourage the caregivers to more often use the adaptive coping mechanisms and should discourage the caregivers to use the maladaptive coping mechanisms. This would possibly help in reduction in the expressed emotions faced by the patients with bipolar disorder.

In the present study higher caregiver burden was associated with higher EE as perceived by the patients. In the regression analysis, subjective caregiver burden and financial objective burden emerged as the most important predictors of EE, with subjective burden explaining a significant proportion of the EE. Findings of the present study are supported by the existing literature, which also suggest that EE have a significant positive correlation with the total burden of care in the caregiver [18]. Accordingly, it can be said that addressing caregiver burden should be an important part of the psychosocial intervention for patients and caregivers of patients with BD.

Present study suggests that higher perception of abuse, either from the patient's perspective or the caregiver perspective is associated with more EE. In the regression analysis too, abuse emerged as an

important predictor of EE. Abuse faced by the patient or caregiver abuse, per se can be considered as part and parcel of manifestation of EE and these associations are in the expected lines. Previous studies involving patients with BD have not looked at this association. Accordingly, it can be said that the clinicians managing patients with BD should always enquire about the possible/threatened/ experienced abuse by the patients and overt abuse of the patient by the caregivers and should make efforts to address the same.

Association of psychological morbidity among the caregivers and higher perception of the EE, are supported by previous studies, evaluating EE among the patients with schizophrenia[1]. However, it is important to note that the findings of the present study only reflect association and not causality.

When the relationship of EE as reported by the patient on various scales was evaluated, there were good correlations between the various scales. These findings provide evidence for the concordance between various scales. Previous studies have not evaluated the same.

This study has certain limitations. The study included outpatients attending a General Hospital Psychiatry Unit. So, the results cannot be generalized to other patient populations. Assessment was cross sectional. So this study does not tell anything about change in EE over time and impact of expressed emotions on course and outcome of BD. Study was limited to those patients, who were in clinical remission; hence, the study does not provide any information about the EE, during the episodes. No attempt was made to study the association of expressed emotions with the personality of the caregivers. Further, the study was limited to family caregivers. An attempt must be made in future studies to overcome these limitations.

The results of the study revealed considerable burden of care in caregivers of bipolar affective disorder patients in manic phase. The demographic variable of patient and caregiver identified may help in planning psychosocial therapy and mitigation of the burden and reduction in the expressed emotion among caregivers which in turn could reduce the relapse rate and facilitate the caregivers' to effectively cope and manage the patient with bipolar affective disorder in the fam he results of the study revealed considerable burden of care in caregivers of bipolar affective disorder patients in manic phase. The demographic variable of patient and caregiver identified may help in planning psychosocial therapy and mitigation of the burden and reduction in the expressed emotion among caregivers which in turn could reduce the relapse rate and facilitate the caregivers' to effectively cope and manage the patient with bipolar affective disorder in the fam the results of the study revealed considerable burden of care in caregivers of bipolar affective disorder patients in manic phase. The demographic variable of patient and caregiver identified may help in planning psychosocial therapy and mitigation of the burden and reduction in the expressed emotion among caregivers which in turn could reduce the relapse rate and facilitate the caregivers' to effectively cope and manage the patient with bipolar affective disorder in the fam.

Conclusion: The result of the present study revealed that there is no significant influence of sociodemographic and clinical factors on the expressed emotion faced by the patient with bipolar disorder and considerable burden of care in caregivers of bipolar effective disorder. The demographic variable of the patient and caregivers may help in planning psychological therapy and mitigation of the burden and reduction in expressed emotion among caregiver which promote adaptive coping and discourage maladaptive coping as well as such psychological intervention will help in reducing the effective emotion faced by patients with bipolar disorder.

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