ORIGINAL ARTICLE

Stressful Life Events In Bipolar Mood Disorder

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ABSTRACT

BACKGROUND: Bio-psychosocial model emphasizes the interplay between biological, psychological and social factors, which is important for understanding health and mental illnesses. There is a positive relationship between stressful life events and psychiatric illnesses. So we intended to find out the significance of psychologically stressful life events in bipolar illness. **METHOD & MATERIAL:** A cross- sectional, comparative study in clinical setting with use of normal control group was carried out in outpatient department (OPD) of tertiary teaching institute. Patients suffering from bipolar mood disorder attending psychiatry OPD were taken for study using simple random sampling method with fraction of 15. Presumptive Stressful Life Events Scale (PSLE) was be used for assessing life events in last year. **RESULTS:** Total 100 cases of bipolar mood disorder and 100 controls were taken in study. The mean number of stressful life events experienced by cases was 3.8 and control was 1.35. Stressful life events score was significantly higher in cases than control. **DISCUSSION:** Mean number of stressful life events and life events score was higher in case group than control group and was significantly associated with socio demographical variables. Our study suggest that stressful life events play very important role in the bipolar disorder patients regardless of any specific socio-demographic variables.

Key words: bio-psychosocial, stressful life events, bipolar mood disorder

INTRODUCTION

Life without stress cannot be imagined. Psychosocial stresses form an inescapable part of life, and up to a degree may be essential for adequate personality development. Stress is the body's reaction to a change that requires a physical, mental or emotional adjustment or response. Stress can come from any situation or thought that makes you feel frustrated, angry, nervous, or anxious. Stress is caused by an existing stress-causing factor or "stressor." Life events have been classified in different ways. Some of the dichotomous classifications of life events, which are useful in explaining the results of life events like personal vs. impersonal events, desirable vs. undesirable events, pleasant vs. unpleasant events, major vs. minor events, chronic vs. acute events,

severe and non-severe events. The biology of life events is subsumed in the biology of stress. Several physiological systems have been implicated in active and passive coping with stress. These include the central nervous system, catecholamines, immune, endorphin – enkephalin, hypothalamo – pituitary – adrenocortical and the sympatho – adrenomedulary systems.[1] The physiological stress responses include primarily the activation of autonomic nervous system and hypothalamus-pituitary-adrenal axis leading to increased blood pressure and tissue levels of catecholamines and glucocorticoids. Elevations of epinephrine, norepinephrine and cortisol have repeatedly been found among persons experiencing chronic and acutely stressful events.[2] Studies have shown that corticotrophin releasing factor (CRF), Glutamate, and Gamma amino butyric acid (GABA) – all play important roles in the generation of the stress response or in modulation of other stress responsive systems such as dopaminergic and noradrenergic brain circuits. The hypothesis that emotional conflicts related

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to external events can precipitate mental illnesses was first formally suggested by Heinroth[3] in 1818 in his designation of the term 'psychosomatic'. Later in early part of the 20th century, Adolf Meyer, popularized the 'life chart' methodology. This approach emphasized the importance of dynamic interplay among biological, psychological and social factors such that important life events within the person's biography became foci of attention for studying health and disease. A positive relationship between stressful life events and subsequent psychiatric illness and the illness magnitude has been observed. [4, 5]Historically, the life events approach in psychiatric research is a recent continuation of the century's old search for the environmental causes of psychic disease. A good number of studies are available on the role of exogenous factors in schizophrenia and depression, but mania has been ignored. Meynert (1890) and Westphal (1911)had initially suggested that exogenous factors (romantic and psycho-reactive factors) can play a part in precipitation of mania. India is undergoing an era of rapid change of industrialization and urbanization. Millions of villagers are migrating from their ancestral homes to metropolitan and big city slums. This population is subjected to increased stress and strains of life, which might contribute to the causation of mental illnesses including mania. There are very limited studies from India regarding role of stressful life events in bipolar disorder. The present study is an effort in this direction and is designed to find out the significance of psychologically stressful life events in bipolar illness.

METHOD AND MATERIAL

This is a cross- sectional, comparative study in clinical setting with use of normal control group. The study was carried out in outpatient department (OPD) of tertiary teaching institute. Patients suffering from bipolar mood disorder attending psychiatry OPD were taken for study. We used simple random sampling method with fraction of 15. Totally 100 patients were studied. Additional two patients, after initial screening were dropped due to their inability to provide reliable data. The controls were recruited from either the relatives of the non-psychiatric ward patients or nursing staff or students. Relatives of the patients fulfilling the inclusion and exclusion criteria for controls were selected. Only one relative of each patient was selected to avoid inclusion of multiple persons from the same family. Totally 100 controls were studied.

Selection criteria for patients

Inclusion Criteria:

- diagnosis of bipolar mood disorder type 1
- 18-75 years of age were included.

Exclusion Criteria:

- co-morbid Axis-I or Axis-II psychiatric disorder
- serious physical illness
- patients or relatives cannot communicate in Gujarati or Hindi or English

Selection criteria for Controls

Inclusion criteria:

- relatives of the non-psychiatric ward patients or nursing staff or students
- No present or past history of psychiatric illness.
- 18-75 years of age

Exclusion criteria:

- having serious physical illness
- cannot understand Gujarati or Hindi or English

For conducting our study, we developed a proforma to obtain socio-demographic data and clinical details in uniform and standard manner. From all the patients attending psychiatric OPD, the patients who were diagnosed as suffering from bipolar disorder type-1 were taken for study. Both old and new cases were taken for study. Patients with current or most recent episode of any type (i.e. manic, depressive, mixed, or hypomanic) were included. We used simple random sampling method with fraction of 15. Totally 100 patients were studied. During the study, we approached totally 102 patients I explained them about the study in detail and also obtained their written consent. All the patients who were approached (selected), agreed to participate in the study. Two patients, after

initial screening were dropped due to their inability to provide reliable data. Presumptive Stressful Life Events Scale (PSLE) was be used for assessing life events in last year. Gurmeet Singh et al.[6] developed this scale suitable for assessing stressful life events for Indian patients in 1981 by using open-ended questionnaire on a sample of 200 adult subjects. GurmeetSingh et a.[6] developed a list of 51 life events relevant to Indian conditions, each item having a weighted stress score. For example, death of spouse = 100; conflict over dowry = 51; going on pleasure trip = 20. The items are further categorized as (i) personal or impersonal events (ii) desirable, undesirable, or ambiguous events. It is administered in the form of a semi structured interview, wherein the events are assessed to be either present or absent. The scale can be applied in two time frames-for the past year and life time. Individuals in our society may experience an average of two stressful life events in past one year and ten events in life time without suffering any physical or psychological disturbance. Individuals with more number of life events than mentioned above are at increased risk of developing psychiatric disorder. Interview of relative was also taken to correlate the findings and to have details of patient's personality makeup. All the collected data was appropriately tabulated and data was analyzed to find out statistical significance with the help of Chi-square (X^2) test, Z-test or t-test. We have used Graph padInstat 3 software for

chi square (X^2) test and t-test. Z-test was calculated manually. Probability value less than 0.05 is taken as statistically significant.

RESULTS
Table 1: Socio-demographic data

Socio-demographic variables		Index Group N=100 (%)	Control Group N=100 (%)
Age(Years)	18-40	57	56
	41-60	40	41
	61-75	3	3
Gender	Male	67	44
	Female	33	56
Domicile	Urban	68	79
	Rural	32	21
Religion	Hindu	87	89
	Muslim	13	10
	Other	0	1
Education	Illiterate	22	15
	Primary	47	28
	Secondary/Higher secondary	22	34
	Graduate/ Diploma	8	21
	Postgraduate	1	2
Occupation	Professionals	1	17
	Clerical/Skilled/Semi skilled worker	4	19
	Self-Employment/ Farmer	19	4
	Unskilled worker	44	31
	Student	1	5
	Household Work	29	23
	Retired	0	1
	Unemployed	2	0
Marital Status	Single	23	24
	Married	70	71
	Separated	2	0
	Divorced	3	0
	Widow/Widower	2	5
Total No. of Family members	≤5	66	75
	>5	34	25
Per capita monthly family income(Rs.)	up to 1000	62	10
	1001-2000	33	47
	>2000	5	43

Table 2: Comparison of mean number of stressful life events (LE) experienced in different subgroups

Variables		Index group N=100(%)	LE number in patients mean(SD	Control group N=100(%)	LE number in control mean(SD)	SE & Z	significant
SEX	Male	67	3.82 ± 2.02	44	1.20 ± 1.548	SE=0.339 Z=7.713	S
	Female	33	3.75 ± 1.87	56	1.46 ± 1.768	SE=0.40 Z=5.69	S
Age	≤ 40 yrs	57	3.61±1.95	56	1.28±1.69	SE=0.34 Z=6.79	S
	> 40 yrs	43	4.04±1.98	44	1.43±1.66	SE=0.39 Z=6.65	S
Marital status	Married	70	3.92 ± 2.04	71	1.154 ± 1.47	SE=0.299 Z=9.22	S
	Single, other	30	3.5 ± 1.77	29	1.827 ± 2.03	t=3.36 P-0.0013	S
Domicile	Urban	68	4.01±2.04	79	1.39±1.74	SE=0.31 Z=8.30	S
	Rural	32	3.34±1.73	21	1.19±1.36	t=5.04 P-0.0001	S
Religion	Hindu	87	3.67±1.97	89	1.32±1.52	SE=0.26 Z=8.84	S
	Muslim/ other	13	4.61±1.75	11	1.54±2.69	t=3.24 P-0.0050	S
Education	Illiterate	22	3.22±1.50	15	1.13±0.99	t=5.10 P-<0.0001	S
	Primary	47	4±2.07	28	1.46±2.02	t=5.291 P-<0.0001	S
	Secondary/Higher	31	3.90±2.07	57	1.35±1.64	SE=0.43 Z=5.92	S

Occupation	Earning	68	3.89±1.95	71	1.45±1.82	SE=0.32 Z=7.61	S
	Non-earning	32	3.59±2.01	29	1.10±1.20	t=5.93 P-<0.0001	S
Number of family members	≤5	66	3.93±2.21	75	1.29±1.79	SE=0.34 Z=7.72	S
	>5	34	3.52±1.35	25	1.52±1.22	t=5.94 P-<0.0001	S
Per capita monthly family income(Rs.)	up to 1000	62	3.79±1.82	10	1.2±1.87	t=4.07 P-0.0018	S
	1001-2000	33	3.75±2.15	47	1.29±1.48	SE=0.43 Z=5.69	S
	>2000	5	4.2±2.77	43	1.44±1.84	SE=1.27 Z=2.17	S
Total		100	3.8±1.96	100	1.35±1.67	SE=0.25 Z=9.51	S

If Z>2 it is significant at P < 0.05 level. S = significant

Here mean numbers of stressful life events are significantly higher in cases than controls. It is also significantly associated with all socio-demographical variables.

Table 3: Comparison of stressful events score to various socio-demographical variables

variables		No. of patients	Mean PSLE score in patient	No. of controls	Mean PSLE score in control	SE & Z	Significance
SEX	Male	67	206.43±114.50	44	61.38±79.90	SE=18.45 Z=7.85	S
	Female	33	198.84±102.07	56	71.37±83.29	SE=20.96 Z=6.07	S
Age	≤ 40 yrs	57	195.54 ±112.21	56	60.53 ±76.72	SE=16.21 Z=8.32	S
	> 40 yrs	43	215.81 ±107.39	44	75.18 ±87.54	SE=25.46 Z=5.52	S
Marital status	Married	70	208.65±113.26	71	58.81±76.67	SE=16.31 Z=9.18	S
	Single, other	30	194±103.39	29	86.96±90.77	SE=25.30 Z=4.22	S
Domicile	Urban	68	216.82±116.88	79	69.62±86.09	SE=17.16 Z=8.57	S
	Rural	32	177.56±89.95	21	57.04±62.40	SE=20.93 Z=5.75	S
Religion	Hindu	87	197.29±111.27	89	65.82±72.37	SE=14.18 Z=9.26	S
	Muslim/ other	13	250.84±92.38	11	76.36±140.20	SE=49.43 Z=3.52	S
Education	Illiterate	22	168.90±77.67	15	58.4±51.54	SE=21.24 Z=5.20	S
	Primary	47	220.48±117.41	28	75.67±107.41	SE=26.55 Z=5.45	S
	Secondary/Hi gjmn her	31	204.74±115.31	57	64.96±73.97	SE=22.91 Z=6.10	S
Occupation	Earning	68	211.60±110.24	71	73.15±89.40	SE=17.06 Z=8.11	S
	Non-earning	32	188.65±109.82	29	51.86±56.62	SE=22.07 Z=6.19	S
Number of family members	≤5	66	214.19±123.60	75	62.66±85.87	SE=18.15 Z=8.34	S
	>5	34	184.97±75.35	25	79.92±66.86	SE=18.59 Z=5.64	S
Per capita monthly family income(Rs.)	up to 1000	62	202.25±103.63	10	63.8±101.20	SE=34.60 Z=4.00	S
	1001-2000	33	205.57±121.84	47	66.38±78.41	SE=24.09 Z=5.77	S
	>2000	5	220.4±130.28	43	68.37±82.14	SE=59.59 Z=2.55	S

Here stress events score is significantly higher in index group and is significantly associated with all socio-demographical variables.

Table 4: Ten most commonly reported life events in patients

S. no.	Description	No. of patients reporting the life event
1	Financial loss or problems	69
2	Major personal illness or injury	47
3	Death of close family member	31
4	Illness of family member	30
5	Family conflict	21
6	Self or family member unemployed	17
7	Marriage of daughter or dependent sister	14
8	Suspension or dismissal from job	12
9	Conflict with in lows (other than over dowry)	11
10	Change in residence	11

Table 5:Number of stressful events in male & female patients and control

No of stressful events	Cases			Control		
	Male N=67	Female N=33	Total	Male N=44	Female N=56	Total
None	1	0	1	15	18	33
One	3	1	4	16	17	33
Two	15	10	25	9	11	20
Three	15	6	21	2	6	8
Four or more	33	16	49	2	4	6
Total	67	33	100	44	56	100

DISCUSSION

Different kinds of stressors (childhood vs. adulthood life events, acute vs. chronic stressors, positive vs. negative life events) can play different roles in the predisposition for, and precipitation of, different affective episodes. It has also been demonstrated that not only negative, but also positive life events can precipitate either depressive or (hypo) manic episodes in vulnerable individuals during the vulnerable time-periods. In our study, life events (score >150) were experienced by 63% of patients as compared to only 9% of normal controls in last one year. This observation is statistically significant (p<0.001). Other studies are also reporting similar results. Lakhera(1995) [7] also reported that life events were experienced by 54% of patients as compared to only 12% of normal controls. Cassidy et al[8] and Dunner(1979) [9] found occurrence of stressful life events among 50% of cases. Ambelas(1979) [10] reported the presence of life events in 28% of patients and only 6.6% of controls. Patrick et al[11] also reported 50% of patients who recalled significant life events in a three month interval preceding their initial affective episode. Singh et al.[6] have reported that in our population, an individual experience a mean of two life events without having any adverse effect on his physical or psychological health. Mean number of stressful life events in patients group is higher (mean- 3.8) than control (mean-1.35) group. For each socio-demographic variable separately also we had similar finding of high mean stressful life events number in patients compared to controls. Significant difference in the life events number between the groups in each socio-demographic variable suggest that high mean life events number in patients was independent of different socio-demographic variables. Similarly, mean presumptive stressful life events score was also higher in patients group in every socio-demographic variable included in study. In other studies separate analysis for socio-demographic subgroup is not given. In our study we found financial loss or problems, major personal illness or injury, death of close family member to be the most common life events in patients, while the most common life events in control group are illness of family member, financial loss or problems, major personal illness or injury. Lakhera(1995) [7] also reported that financial loss or problem was the main event. India being a poor country, financial problems are faced quite often among our patients. Ambelas(1979) [10] has also reported that the ratio of unpleasurable to pleasurable life events was 4:1. Among the types of life events, Ambelas(1979) [10] found bereavement to be the major event. Bidzinska(1984) [12] reported marital and family conflicts, health problems, emotional and ambition failures, lack of success and work overload. Neil Hunt (1992) [13] found personal physical illness and illness in the family were most common among the life events. Singhal (1984)[14] reported death of first degree relative, economic crisis, failure in any achievement and death of spouse as the most frequent events reported by patients. These differences could be due to the use of different scales for stressful life events and the different duration of life events for which they were considered in the study (life time versus life events occurred within 6 months). The major limitation of this study is its retrospective nature, because recall of life events is subject to several biases. Our study suggest that stressful life events play very important role in the bipolar disorder patients regardless of any specific socio-demographic variables. Whatever be that overall causes of affective disorder, life events would be an important component which could have precipitated, modified or aggravated the basic patho-physiological

process. Life events remain a significant concern throughout the life span, and may continue to be associated with recurrences into late life. The knowledge regarding the role of life events in these disorders would certainly help in holistic treatment and for timely intervention which may be helpful in preventing, postponing or reducing the intensity of illness.

The cognitive-behavioral model of bipolar affective disorder emphasizes on cognitive styles of these patients. A body of research focused on cognitive factors such as attribution style, [15] perfectionism, deficits in problem solving skills, and also maladaptive schemata. These factors appear to play a significant role in the interaction of severe changes in behavior, reactions to and the creation of significant psychosocial stressors, disruptions in chronobiological functioning and varied responsiveness to psychotropic medications. Hence, significant variables affecting the perception of life events and ways of coping with it should be explored in detail in further studies. To study cause and effect relationship between life events and bipolar disorder, large scale community based longitudinal study of at risk population can be helpful.

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