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COMPARATIVE STUDY OF COGNITIVE SYMPTOMS AND QUALITY OF LIFE IN PERSONS WITH EUTHYMIC BIPOLAR AFFECTIVE DISORDER: AN INDIAN STUDY

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ABSTRACT
Bipolar disorder (BD) is a long-lasting, recurrent affective disorder characterized by cyclic episodes of mania, hypomania and depression. Patients with bipolar disorder suffer from cognitive impairments not only during the acute phase but also during the remission phase, characterized by impairment of attention, memory and executive function. Aim of the study was to estimate group differences in attention concentration executive functions and quality of life in euthymic manic patients and first degree relatives of manic patients. 50 Euthymic patients (Bipolar-I Disorder, single manic episode, in full remission) 50 Euthymic patients (Bipolar-I Disorder, most recent episode manic, in full remission) First degree relatives of manic patients (n=50) and Control group (n=50) were selected for study. They were assessed on Young Mania rating scale, GHQ-12, Cognitive symptoms checklist, quality of life (WHOQOL) Brief. Results and Discussion are discussed below.

Keywords: Euthymic, Bipolar, executive functions, cognitive symptoms.

Introduction
Bipolar disorders (BD) are a cluster or group of long term based and recurrent diseases characterized by pathological changes in the mood. Study supports the lifetime prevalence of BD types I and II in the general population being approximately 2%, and subsyndromal types of BD have been seen to affect at least a further 2%.1 (Bezerra-Filho, Almeida, Studart, Rocha, Lopes, & Miranda-Scippa, 2015). Bipolar disorder involves both states of mania and depression DSM 5 (American Psychiatric Association, 2013). It is seen that patients suffering from Bipolar Disorders exhibits deficits in cognitive areas (Martínez-Arán et al., 2004a, Porter et al., 2015), along with lability in mood (Basso et al., 2002, Glahn et al., 2007). Some patients experience impairment during euthymic stage which on the other ahnd effects attention, memory and executive functions (Basso et al., 2002, Joe et al., 2008, Martínez-Arán et al., 2004b, Sumiyoshi et al., 2017), indicating that decline in cognitive functioning is not solely caused by severe mood during mania or depressing episodes. Miskowiak et al. (2017) stated that 12–40% of patients have wide range of deficits in cognitive functioning , 29–40% show selective deficits in attention and psychomotor speed, whereas 32–48% are show intact cognitive ability as compared to normal population.

Cognitive impairment affects the overall abilities and day to day activities and hampers the qoulity of life of an individual. Bipolar I patients express problems in daily life related dysfunction, low

levels of quality of life (Schneider, Candiago, Rosa, Ceresér, & Kapczinski, 2008). Michalak., Yatham, and Lam (2005) studied the association between bipolar disorder and QoL and concluded that non-symptomatic, euthymic patients are less susceptible to the effects of cognitive distortion, so the measured effects on quality of life (QoL) are less affected by such distortions.

Aim

The aim of the current study was to see the difference (if there is any) in cognitive symptoms and related quality of life of euthymic first episode and 2-5 episode patients with diagnosis of Biplar affective disorder-I.

Objective

To see the difference in cognitive symptoms (attention concentration and executive functions) and quality of life of euthymic first episode and 2-5 episode patients with diagnosis of Biploar affective disorder-I. To see the difference in cognitive symptoms and quality of life between first degree relatives (FDR) of euthymic first episode and 2-5 episode patients with diagnosis of Biploar affective disorder-I.

Method

Sample

100 patients through purposive sampling method were selected. Selection of patients was done on the basis of diagnostic consultation done by competent psychiatrist of the hospital at Institute of Mental Health & Hospital (IMHH), Agra, UP. In first group 50 Euthymic patients (Bipolar-I Disorder, single manic episode in full remission were taken. Second group consisted 50 Euthymic patients (2-5 epiode) (Bipolar-I Disorder, most recent episode manic, in full remission. On the other hand first degree relatives (FDR) of manic patients (n=50) were in the third group, fourth group comprised (n=50) of normal population. Willing patients (First episode) and (2-5 episodes) (age from 18 – 45 years) with diagnosis of Bipolar I Disorder (first episode) without manic episode. Their first degree siblings were screened for inclusion criteria in the study. Subjects were excluded if there was a history of co-morbidity and organicity, without any co-morbid psychiatric illness in patient group except bipolar disorder or history of long standing physical illness. Patients with addiction and ECT in past six month were excluded. First degree relatives (age group of 18 – 45 years) who gave consent and scored <2 on General Health Questionnaire -12 (GHQ) were taken. Patients with history of any psychiatric illness or history of any co morbid long standing physical illness for which treatment taken or history of any addiction in last 12 months were excluded. Participant for control group were selected on the basis of absence of given consent, any psychiatric illness.

Tools

Young Mania Rating Scale

The YMRS (Young *et al*., 1978) consists of 11- item to determine the severity of mania. Normal expected score is > 20. It is a self report measure along with clinical observation.

General Health Questionnaire-12

The GHQ (Goldberg & Hillier, 1979) is a 12 items self administered screening test to assess the psychological distress. It provides an overall measure of psychological functionality of an individual.

Cognitive Symptoms Checklist

Cognitive Symptom Checklist developed by O'Hara *et al*. (1993) to used to identify impairment in attention/concentration, memory, visual functioning, language and execution. This checklist provides information on specific problems so that it can be improved with treatment.

Quality of Life Scale (WHOQOL-BREF)

The World Health Organization (WHO) Quality of Life Assessment (WHOQOL) instrument was developed by World Health Organization (1999) It is the most reliable, valid, and responsive measure of the quality of life.

Procedure

Current study was done at Institute of mental health and hospital (IMHH), Agra during year 2011-12. Concerned authorities of the institute were informed about the need of the study and all the required information were shared. After permission of the competent authority, consultants of the OPD and ward were informed about the availability of the patient. All the patients, first degree relatives and control participants were counseled and informed about the nature of the study. Participants were told that they can give their consent and get withdraw anytime during the study. Participants were informed that no money or any other benefits would be given to them in response to their participation. Socio-demographic data were obtained for all patients, first degree relatives and control participants included in the study. Eligible participants continued to complete cognitive symptom scales, WHOQOL self-assessment scales. Clinical assessments were completed by trained psychiatrists.

Patients were diagnosed by the consultant-in charge of Out Patient Department and in the ward according to diagnositc interview conducted by the psychiatry faculty of the institute for euthymic patients under BPAD. The patient group consisted of fifty patients diagnosed with one episode manic but euthymic one and fifty patients with most recent episode (2-5 episodes) manic. Patients scoring less than six on YMRS and ensuring euthymia were finally included in the study. Only one First degree relative were included for each euthymic patient category. Strict clinical interviews were conducted and medical records were checked to ensure exclusively that only eligible patients are chosen in the second group that is 2-5 episode euthymic patients. Screening of any psychiztric condition was done using GHQ-12. Those who scored two or more were excluded. Along with Socio-demographic variables, Cognitive Symptom Checklist and WHO Quality of Life scale-Brief were administered on each subject.

Analysis of Data

Mean, S.D., One way ANOVA, Games- Howel Post hoc analysis were done through SPSS 16.

RESULTS

Table 1. Group differences on scores of attention, concentration, executive functions

	Euthymic 1st episode, N=50	Euthymic 2-5 episodes, N=50	FDR, N=50	Control N=50	P value	Post Hoc (Games H)
	Mean/(SD)	Mean/(SD)	Mean/(SD)	Mean/(SD)	Sig.	
Attention& conc.	29.00(5.18)	26.10(6.96)	5.64(2.20)	5.32(1.91)	.001	390.62
Executive Funct.	38.02(6.61)	31.22(6.03)	7.36(2.48)	4.82(1.80)	.001	625.52

One–way ANOVA was computed to explore the group difference on attention and concentration, executive function and quality of life. The result shows significant difference across groups in all the three variables i.e attention concentration, executive function and quality of life. Since ANOVA

was significant, pair wise group comparison were done through Games-Howell post Hoc test. The results of this variable indicate a significant impairment in attention concentration, executive function and in quality of life when compared with control group.

Table 1 depicts mean and SD of attention, concentration, executive function and quality in study group with their respective significance level on p value (.01 and .05). Mean scores of attention & concentration (mean-29.00) and executive function (mean-38.02) were found to be high in euthymic 1st episode and euthymic 2-5 episodes groups (mean of attention & concentration -26.10) and executive function (31.22) as compared to control group. There was a significant difference found among for attention, concentration, executive functions of the first episode and 2-5 episode euthymic bipolar patients. Mean of attention and concentration and executive function was assessed for control and first degree relatives (FDR) of the patients. Control group had low values for both categories. Mean value for attention and concentration of control group is (5.32) and executive function is (4.82) where values for same variables in case of first degree relative (FDR) is (Mean value 5.64 for attention & concentration , 7.36 for executive function) .

Table 2. Group differences on scores of Quality of life

	Euthymic1st episode, N=50	Euthymic 2-5 episodes, N=50	(FDR) N=50	Control Grp, N=50	F test with P value	Post Hoc (Games. H)
QOL	Mean/(SD)	Mean/(SD)	Mean/(SD)	Mean/(SD)	Sig.	
Physical Health	51.76(14.15)	57.28 (11.53)	53.24 (8.72)	59.06 (7.21)	.002	5.02
Psychological	60.64(13.71)	62.76(12.55)	59.44(7.20)	70.80(10.69)	.001	10.21
Social	72.56(19.58)	77.40(19.97)	75.62(8.10)	84.56(14.49)	.003	4.90
Environmental	59.24(18.22)	65.82(16.20)	67.28(8.61)	74.74(13.86)	.001	9.39

Quality of life of the patients group and FDR and control was assessed with the help of WHO quality of life scale and ANOVA was applied to see the difference. Domains of Quality of life (QOL) like physical health, psychological, social, environmental were significantly different on (p-level of .01, .05). Highest physical health (with mean value -59.06) was found to be of control group and first episode euthymic patient had lowest QOL (mean-51.76). Highest psychological health was of control group where as lowest was of first degree relative (mean - 59.44) Difference among 4 groups of Quality of life was significant for physical health. First episode patients had poor quality of life (mean- 60.64) when compared with that of 2-5 episode euthymic patients and this value was significant. Control group had highest mean (84.56) for social quality of life and first episode patients had lowest mean (72.56). patients with 2-5 episode of BPAD under euthymia had better social quality of life (mean-77.40) when compared with first episode euthymic patients (mean-72.56). Quality of life of patients with more than two episodes had (mean- 65.82) better quality of life (environment) when compared with first episode (mean-59.24).

Discussion

Cognitive symptoms of euthymic (first and 205 episode)Bipolar I Patients

The clinical group that is (euthymic Ist episode and eutymic 2-5 episode) scored low scores on the tools applied in the study. Deterioration was observed in all the domains of cognitive functions. Such findings are in sync with the earlier research done on the areas like attention (Clark , Kempton , Scarna , Grasby & Goodwin ., 2005; Thompson et al.,2005) memory (Rubinsztein, Michael, Paykel , Sahakian ., 2000; Bearden,Glahn, Monkul , Barrett, Najt & Kaur., 2005), and executive functions (Goldberg and Burdick 2008) not limited to acute phase but in euthymic state too. Chaves et al, (2011) concluded that patients with bipolar disorder I show impairment in attention and concentration. The findings from the current study support the previous done research on the poor neurocognitive functions in patients suffering from bipolar disorder (Torres et al, 2010).

Cognitive symptoms has been compared to find out discrete subgroup and it was found to be impaired among patients having Bipolar disorder I (Burdick , Goldberg , Harrow, Faull & Malhotra, 2006) along with deficit in primary attention processing (Burdick, Gunawardane, Woodberry & Malhotra ,2011) executive function (Dittmann, Hennig-Fast, Gerber, Seemüller, Riedel, Emanuel Severus, & Grunze, 2008). Basso et al. (2002) assessed cognitive impairment among the four group (manic, depressive, euthymic, and mixed) found significant difference. Patients suffering from mania were found to have scores lowest on the domains of cognition

Quality of life of euthymic (first and 205 episode)Bipolar I Patients

Scores on WHODAS Quality of life scale were found to be low on patients group and FDR group as compared to the control group. The physical, social and psychological environmental health domains presented reductions, these reductions were significant in the all the health domain ($p = 0.01, 0.02$) (Table 2). As mentioned above patient population (euthhymic Ist episode and 2-5 episode Bipolar disorder patients) were found to be impaired on the quality of life domain (QOL).

One probable reason for poor quality of life (QOL) among the patient population may be that patient may not be able to assume positive and growth oriented self impression and being a sufferer such may inflict highly intense psychic suffering and personal discomfort which may lead to unfavorable self evaluation and biased self analysis. Supporting studies suggest that bipolar patient despite achievement of full clinical remission may show great hurdle in recovery of past level of normal functioning. It seems that BAD, by inflicting intense psychic suffering, may cause unfavorable self-analysis in these subjects, regardless of the presence of mood symptoms, resulting in the low scores found in this work. On the other hand, our results confirm the idea that bipolar patients, even when they achieve full clinical remission, show difficulties in returning to their previous level of functioning (Kaya, Aydemir, & Selcuki, 2007; Reed, Goetz, Vieta, Bassi, & Haro, 2010; Bernstein, Rabideau, Gigler, Nierenberg, Deckersbach, & Sylvia, 2016)). (8-10.

In the current study psychological and social domain of quality of life (QOL) were poor in case of first degree relatives of the patients. Piccinni et al (2007) suggested that subsyndromal symptoms in mania could improve the QOL upwards. Possible explanation for this may that still subsyndromal patients may not have full comprehension of the self and environment. There is high probability that they may have exaggerated the responses due to their existing mild manic symptoms. Another explanation given for high quality of life among the patient of the euthymic bipolar patient is that the relation between mild symptoms of mania and QOL follows a dual mode, where mild score on mania are linked with lower QOL,(Gazalle et al., 2007) where as patient with severe symptoms of mania are associated with high self repots on QOL, mostly due to poor insight . QOL is one of potential alternative goal in management BPAD (Ozer *et al*. 2002). It is consistently observed that patients reflect poor health on QOL quality of life which has a damaging effect on the patient group even in the asymptomatic phase (Dean *et al*. 2004; Yatham et al. 2004). Amini and Sharifi (2012) observed that the impaired QoL in Bipolar Disorder 1 may be due to the presence of persistent depressive symptoms.

Clinical Implication

Focus is needed on better understanding of cognitive symptoms exclusively attention and concentration so that future treatment in the same regard can be improved. The patient groups showed decreased QOL. Emphasis on quality of life (QOL) during psychological consultation be promoted. Findings of the current study emphasize on need to keep a finger on the pulse of developments in QOL enhancement will likely be important for clinicians treating for BD-I.

Limitations of the Study

The confounding effects of medications could not be controlled in the present study. The on-going medications might have influenced the cognitive status and quality of life of the studied patients. The presence of psychotic features in the patients groups could not be controlled in the study. Some

of the observed results might have been an influence by the presence of psychotic features. Purposive sampling technique was adopted in the study. Hence, the results may have limited generalization value.

Future Directions

Focus can be given with the aim to understand psychosocial aspects of the clinical group in case of cognitive symptoms and quality of life (QOL). Studies are needed to generate hypothesis regarding causation and the factors influencing cognitive symptoms and quality of life in bipolar disorder patients**.** Future studies can also correlate cognitive deficits with cognitive symptoms in bipolar disorder patients. To what extent cognitive symptoms affect the living of the patients in euthymic state can be another area of focus for future studies. Longitudinal studies need to be planned to explore the course and outcome of these functioning in the patients.

Declaration of Human and animal rights

In our study, no animals were used that are the basis of this research. The nature of the study does not demand any use of an animal to achieve the objective of the study. In the case of humans, none of the humans were used as part of any experiment/ medical trial by the ethical standards of the committee responsible for human experimentation (institutional and national), and with the Helsinki Declaration of 1975, as revised in 2013 (http://ethics.iit.edu/ecodes/node/3931).

Consent for publication

Informed consent has been taken from all authors/respondents involved in the study.

Availability of Data and Material

The data of the study supporting the conclusions of the article will be made available by the authors without undue reservation whenever asked or needed.

Conflict of interest

The authors declare that there is no conflict of interests

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