ORIGINAL RESEARCH PAPER
Volume - 10 | Issue - 08 | August - 2021 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

COMPARING SOCIOEMOTIONAL COGNITION AND QUALITY OF LIFE IN REMITTED BIPOLAR AFFECTIVE DISORDER

Psychiatry

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ABSTRACT

BACKGROUND-Bipolar affective disorder (BPAD) is characterized by abnormalities in social cognition and emotional regulation are detrimental to psychosocial functioning and quality of life.

OBJECTIVES- To understand the sociodemographic background, clinical characteristics in BPAD in remission and its relation with social emotional cognition and its impact on quality of life and functioning of the patient.

METHODS-A cross sectional study with a sample size of 100 consenting patients based on convenience sampling who are diagnosed to have BPAD in remission. Sociodemographic questionnaire and clinical details of the patient were noted. SECT (cog state battery) was applied to all patients under calm and similar environment.

RESULTS-Results showed there is a significant difference in SECT speed, response and stimuli based on the nature of first and last episode, SECT score based on severity of episodes, SECT speed and stimuli based on education, SECT responses based on occupation. Middle socio-economic group had the best psychological QoL followed by high socio-economic group and it was worst in low socio-economic group. Physical and psychological domain has significant difference based on residence. WHO QoL social quality of life had significant difference between ECT treatments in the past, with people receiving ECT having a higher score on the social QoL score. There was no significant correlation seen between SEC sub scores and QoL domain scores.

CONCLUSION-The study concluded the QoL was significantly associated with socio-economic status, semi urban residence and ECT. There was no correlation between SEC and QoL score in remitted bipolar.

KEYWORDS

Bipolar affective disorder, Quality of life, Remission, Socio emotional cognition

INTRODUCTION

Bipolar disorder comprises of a heterogeneous group recurrent and chronic illness with high morbidity and cognitive impairment. Inability to manage occupational and interpersonal issues leads to diminished quality of life even during periods of remission. In 1921 Kraeplin noted that mania and depression occur periodically, followed by a return to normal functioning. Kraeplin and Rennie noted that remission lasting for several years is not rare. Bipolar disorder is a complex affective disorder characterized by cognitive and emotional abnormalities, as well as impairments in subjective (i.e., quality of life) and objective (i.e., occupational, physical, and interpersonal functioning). Modern studies do not describe a favourable outcome in euthymic bipolar patients, who may continue to have functional impairment [1]. Nature and extent of this impairment is not truly clear. Previous studies have revealed that social cognition is a modifiable domain [2, 3]. Quality of life in bipolar disorder has been measured in different ways. The complex concept involves capacity to work, live, independently, study and to engage in recreational activities quantified using the four domains. The factors associated with quality of life in bipolar disorder are inter-episodic symptoms, lower premorbid level of functioning, neuroleptic treatment, lower socio-economic status, neurocognitive and social cognitive deficits. Mood symptoms also play a pivot role in determining the quality of life [4, 5]

The debilitating nature of the disorder is highlighted by research indicating that occupational, interpersonal and psychological adjustment is significantly reduced in BPAD [5,6,7] Such impairment has detrimental clinical effects, reducing time to relapse and subsequently increasing suicide risk [5,8]. As such, the development of effective treatments that may remediate impairments and improve both functional and subjective evaluations of quality of life is vitally important. Research seeking to understand the causes and nature of objective and subjectively rated psychosocial functioning is restricted factors related to the disorder. Bipolar disorder is a multifaceted disorder likely to be underpinned by a combination of genetic and environmental components, research examining the factors involved in functional outcomes and quality of life in the disorder has tended not to look beyond traditionally recognized predictors of psychosocial function. Social cognition theories of attribution, attention, person memory, and social inference psychological control, social schemata, have become central to the field of research [9, 10, 11, 12] Understanding of the nature and causes of such impairment is limited by the lack of research exploring the extent to which emotional, cognitive, and social emotional cognitive domains affect functioning and quality of life [5]

This study aimed to address this paucity of research by conducting a comprehensive investigation of social emotion cognition and its influence on quality of life in remitted bipolar patients.

MATERIALS AND METHODS

Study design: Cross sectional study

Time frame: From January 1st, 2016, to December 31st 2016.

Study population: Patients attending psychiatric outpatient department with BPAD, who are currently in remission.

Hypothesis

1) Social emotional cognition in bipolar affective disorder in remission has significant effect on sociodemographic variables.
2) Social emotional cognition in bipolar affective disorder in remission has significant affect on clinical variables.
3) Social emotional cognition in bipolar affective disorder in remission has significant association with QoL.

INCLUSION CRITERIA

1. Adults aged 18 to 67 years with a diagnosis of bipolar affective disorder in remission, as per Diagnostic and statistical manual of mental disorders-4th edition-text revision. (DSM-IV-TR).
2. Subjects with at least 7th standard level of education.

EXCLUSION CRITERIA

1. MMSE score of less than 25.
2. Patients with other Axis I diagnosis and mental retardation.
3. History of neurological illness like CVA, epilepsy, demyelinating disease, head injury resulting in loss of consciousness.
4. Subjects with visual/ auditory impairment.

Instruments

1. Informed Consent form
2. Patient information sheet

3. Socio demographic Questionnaire
4. Proforma of clinical details
5. Structured clinical interview for DSM-IV-TR, Axis I (SCID I).
6. Mini Mental Status Examination.
7. WHO quality of life – bref scale – (WHO QoL-BREF) SCALE.
8. Cog state battery-social emotional cognition test.

Sample size was calculated using the formula,
n = (Z1-α/2)2 SD2/d2, where,n = sample size, Z1-α/2 = standard normal variate, SD = estimated standard deviation=desired precision. PuttingZ1- α/2=1.96,SD=10.62,d=5,sample size was calculate to be 17[13,14]

First 100 consecutive subjects fulfilling the inclusion criteria were included in this study. The study included consenting subjects who have received a primary diagnosis bipolar disorder as per SCID-1 and fulfil an operational criterion for remission for minimum period of 8 weeks. They were selected based on convenience sampling from the OPD in a tertiary care teaching hospital. Patients, after getting informed consent were administered the above instruments.The socio-demographic and clinical details of the patient was noted using a questionnaire. MMSE scale was applied, and scores noted down. Samples who met the minimum required score was applied the tools. WHO QoL BREF scale was applied. SECT was applied to all included sample in a sound attenuated and uniform environment. This was followed by streamlining of data and statistical analysis.

STATISTICALANALYSIS

For continuous variables independent t test and analysis of variance (ANOVA) was used. Data was analysed using SPSS (statistical package for social services) version 16.Social emotional cognition and QOL was correlated with Pearson's correlation coefficient.

RESULTS

Socio-Demographic Data

The sample consisted of 66 males and 34 females. The average age of the sample was 38.12 years (S.D= 12.016). The majority of the patients were laborers at 61% and 26% were unemployed, with a small representation of 3% of professionals, and businessmen. Majority of the population had a secondary level education (45%), while only 25% were graduates. Majority of the bipolar were married (53%), while 19% were single and 12% each were divorced or widowed. Middle socio-economic group formed the majority of the group at 84% while 14% were in the low socio-economic group and rest belonged to high socio-economic group. The majority of people were of rural background at 77%, while 8% were semi urban and 15% were from an urban background.

Clinical Variables

The mean score of MMSE was 28.22 (S.D=1.4). The mean age of onset of bipolar disorder in the population was 34.84 years (S.D= 12.37). The majority of patients had bipolar I disorder (89%) while 11% had bipolar II disorder. Majority of the patients had illness of 1-3 year duration at 40% while 23% had illness duration of 6 months to 1 year. The first episode was characterized by mania in 74% of the patients while 19% had first episode bipolar depression. The last episode before remission was mania in 68% and depression in 25% of patients. However the predominant episode was depression at 78% of the episodes and mania in 22% of the episodes. In 88% cases the duration of episode was 2-4weeks while it was more than 4 weeks in 10% cases. Most of the episodes were severe (87%) and 10% were of moderate severity and only 3% were mild. Psychotic symptoms were present in 60% of the episodes. 89% of the patients showed good drug compliance. 94% of the patients were well treated and 82% had a remission of more than 6 months. Family history was present in 64% of the bipolar cases. The self harm attempts in bipolar were pretty high at 52%. Most patients 52% required 1-2 admissions and ECT was given to 4% of all cases. Substance abuse was seen in 17% and 24% of patients had a medical co morbidity.

Associations of Socio- demographic Variables, SECT and QOL

There was no association seen between sex and SECT and QoL scores. There was a significant association on ANOVA between the occupation and SECT responses, post hoc tests show that businessmen and students have the best SEC function and it is worst in unskilled laborers and retired people in that order. However occupation had no significant association with other variables of SEC or domains of QoL. There was a significant association on ANOVA between the education and SECT stimuli and SECT speed. There is better SECT stimuli score in high school educated than graduates. SECT speed was better in high school educated than secondary level and graduate education. However education had no significant association with other variables of SEC or domains of QoL. There was no significant association on ANOVA between the marital status and variables of SEC or domains of QoL. There was a significant association between socio-economic status and psychological domain of QoL. Middle socio-economic group had the best psychological QoL followed by high socio-economic group and it was worst in low socio-economic group. However socio-economic status had no significant association with other variables of SEC or domains of QoL. There was a significant association between residence and physical health and psychological domains of QoL. Both physical and psychological QoL were best in semi-urban population and rural population had the poorest physical QoL and urban population had the poorest psychological QoL. However residence had no significant association with other variables of SEC or domains of QoL .

Associations of Clinical Variables, SECT and QoL

There is no significant difference in SECT score and WHO QoL scores based on period of remission, previous self harm, and presence of medical co morbidity, compliance, psychotic symptoms, pharmacological treatment, predominant episodes, and duration of episodes .WHO QoL social quality of life had significant difference between ECT treatments in the past, with people receiving ECT having a higher score on the social QoL score, and having better social function. There is significant difference in SECT responses, stimuli and speed with first and last episode. Post hoc analysis for first episode shows that SECT response score was highest for mixed episode, followed by depression and mania and was lowest for hypomania. SECT stimuli score was highest for depression and mixed followed by mania and least for hypomania. SECT speed was highest for first episode hypomania, followed by mixed episode and mania, the lowest speed was for patients with first episode depression. Analysis of the last episode shows that SECT responses was exactly like first episode with highest score for mixed, followed by depression and mania and least for hypomania. SECT stimuli were also same as first episode with highest for depression and mixed followed by mania and least for hypomania. SECT speed was highest for patients with last episode hypomania, followed by mixed episode and mania, the lowest speed was for patients with last episode depression. So patients with first episode or last episode of hypomania or mania had better social emotional cognition than those with mixed episode. The worst social emotional cognition scores were for patients with depressive episodes. There is significant difference in SECT correct score (p=0.006), error (p=0.003) and accuracy (0.002) based on severity of episodes. The SECT correct score was highest for patients with mild episode of bipolar followed by moderate episodes and lowest correct responses were seen in patients with severe episodes. SECT errors were highest for severe episodes and least for mild episodes and moderate coming in between. SECT accuracy as expected was maximum for mild episode and worst for severe episodes. This shows that social emotional cognition is better in patients with mild episodes than those with severe episodes.

There is significant difference in SECT responses (0.050) and SECT stimuli (0.013) based on admissions and significance exists between no admissions and more than 3 admissions. SECT response time was maximum for patients with 5 or more admissions and was minimum for those who were never admitted. SECT stimulus time was also worst for patients with 5 or more admissions than patients with no history of admission. Therefore, history of hospital admission, especially repeated hospital admissions have a detrimental effect on social emotional cognition.

Correlation of SEC with QoL

Mean SECT total correct score was 25.87, SD=4.28.The mean sub scores of SECT and SD are given in [Table 1].Mean and SD of WHO domains are given in [Table 1] There was no significant correlation seen between SEC sub scores and QoL domain scores. Thereby social emotion cognition is not associated with quality of life in remitted bipolar patients. [Tables 2]

Showing that early, effective treatment and early achievement of remission improves both social emotional cognition and QoL.

Table 1: Distribution of SEC and QoL

SECT AND WHO QOL	Mean	Std. Deviation
SECT CORRECT SCORE	25.87	4.280
SECT ERRORS	22.06	3.946
SECT RESPONSES	47.93	1.822
SECT STIMULI	47.45	1.690
SECT SPEED	3.7469	.07139
SECT VARIABILITY	.1957	.03388
SECT ACCURACY	.8255	.08919
WHO QOL DOMAIN 1	11.01	1.235
WHO QOL DOMAIN 2	11.13	1.228
WHO QOL DOMAIN 3	12.83	1.240
WHO QOL DOMAIN 4	12.11	1.034

Table 2: Correlation of SECT and QoL Scores

		SECT CORRECT SCORE	SECT ERRORS	SECT RESPONSES	SECT STIMULI	SECT SPEED	SECT VARIABILITY
WHO QOL DOMAIN 1	Pearson Correlation	-.082	.010	-.170	-.128	.018	.136
	Sig. (2-tailed)	.418	.919	.090	.204	.862	.177
WHO QOL DOMAIN 2	Pearson Correlation	-.197*	.153	-.131	-.106	-.041	-.057
	Sig. (2-tailed)	.050	.130	.193	.292	.682	.574
WHO QOL DOMAIN 3	Pearson Correlation	-.139	.103	-.104	-.045	-.108	-.015
	Sig. (2-tailed)	.167	.306	.304	.656	.287	.881
WHO QOL DOMAIN 4	Pearson Correlation	-.081	.135	.101	.081	-.172	-.084
	Sig. (2-tailed)	.422	.182	.319	.422	.087	.404

DISCUSSION

This study was designed to investigate the social emotional cognition and its relationship with quality of life and associated factors affecting them in patients with remitted bipolar disorder among outpatients of a tertiary care teaching hospital. We specifically choose remitted patients because it is at this phase that the clinicians tend to focus on patient's quality of life. We defined remission using standard criteria [15].

The mean age of the patient was 38.12 years and the mean MMSE score was 28.22. Mean age of onset of illness calculated based on age of the patient and duration of illness was estimated to be 34.48. Studies defined late onset as corresponding to mid adulthood [16]

In our study 66% were males and 34% were females,89% were bipolar 1 and 11% were bipolar 2. Among the occupation of patients,5% were students,26% were unemployed,36% were unskilled labourer,25% were skilled labourer,3% were professionals,3% were doing business and 2 % were retired people. There are studies which support and have less similar findings. [17,18]

Education of the patients revealed 35 % with high school, 45% with secondary level and 20% with graduate education.19% of the patients were unmarried, 53% were married,12% were widow/widower,12% were divorced and 4% separated. Studies have shown that in Indian context, most bipolar patients tend to be married.[19]

In our study 14 % of low class, 82% of middle class and 4% of high-class people were there.77% of the patients were living in rural area, 15 %in urban and 8 % in semi urban area. This is in keeping with the population distribution of the area as the college is located in a rural setting. 77% of the patients had nuclear family,11% had joint family,10% had extended family and 2% were living alone.11% of the patients had duration of illness <6 months.23% had > 6months to a year,40% had 1 to 3 years,14% had 3 to 5 years,6% had 5 to 10 years,6% had > 10 years.

74% of the patients had first episode mania,19% had first episode depression,3% had first episode hypomania and 4% had first episode mixed.68% of the patient had last episode mania,25 % had depression,3% had hypomania and 4% had mixed. This is in keeping with the standard distribution of bipolar disorder in the population. [1, 3, 5]

22% of the patients had predominant manic episodes and 78% had predominant depressive episodes. This again reflects the finding that patients with bipolar disorder have more depressive episodes and spends most of the time in depression. [12,13].2% of the patients had duration of episodes less than 2 weeks,88% had 2 to 4 weeks and 10% had more than 4 weeks.3% of the patients had mild episodes,10% had moderate and 87% had severe episodes. This reflects the usual pattern of distribution of patients seeking care, especially in a rural setting, were patients report only after overt symptoms manifest. [19,20]

60% of the patients had psychotic symptoms, 40% had no psychotic symptoms.11% of the patients had poor compliance, 89% had good compliance.94% of the patients were well treated, 6% were poorly treated. This corresponds to other studies in bipolar which show good compliance and psychotic symptoms.[20]

18 % had period of remission less than 6 months,82% had more than 6 months.64% of the patients had family history of bipolar disorder,32% of the patients had self-harm attempt.4% of the patients had ECT treatment in the past. Previous studies had investigated less clinical variables, and we had the advantage of looking into multiple variables.[21,22]

6% of the patients had no hospital admission,57% had 1 to 2 admissions,27% of the patients had 3 to 5 admissions, 10% of patients had more than 5 admissions.17% of the patients had history of substance abuse.24 % of the patients had medical co morbidities. Previous studies and review series had found out psychotic symptoms and substance use had significant relation with hospital admission. [23,24] There was no association seen between sex and SECT and QoL scores. Studies have reported variedly on sex and SECT with some studies showing a decrease in SECT in males with bipolar and some studies reporting no influence of sex on SEC. [25,26,27,28]

There was a significant association on ANOVA between the education and SECT stimuli and SECT speed. There is better SECT stimuli score in high school educated than graduates. SECT speed was better in high school educated than secondary level and graduate education. Studies have shown better performance on SECT among those with better education. [29,30,31,32,33]

However, education had no significant association with other variables of SEC or domains of QoL. There was no significant association on ANOVA between the marital status and variables of SEC or domains of QoL. There was a significant association between socio-economic status and psychological domain of QoL. Middle socio-economic group had the best psychological QoL followed by high socio-economic group and it was worst in low socio-economic group. These findings have not been reported earlier and need further study. However socio-economic status had no significant association with other variables of SEC or domains of QoL.

There was a significant association between residence and physical health and psychological domains of QoL. Both physical and psychological QoL were best in semi-urban population and rural population had the poorest physical QoL and urban population had the

poorest psychological QoL. However, residence had no significant association with other variables of SEC or domains of QoL. The lesser amounts of stress in semi-urban people when compared to urbanites may be the reason for the better QoL seen in them. The lack of resources and health care facilities in rural areas may explain the lower physical QoL seen in them. Social impairment can cause considerable suffering and interfere with functional outcomes such as education, environment, and poor social functioning[34,35,36,37,38].

There was a significant association on ANOVA between the occupation and SECT responses, post hoc tests show that businessmen and students have the best SEC function, and it is worst in unskilled laborers and retired people in that order. However, occupation had no significant association with other variables of SEC or domains of QoL. There are studies which show SEC deficits in elderly and better function in young, which may explain the better SEC function in students when compared to retired people [39,40] As age increases emotional processing speed declines and impairs psychosocial domain of the quality of life. As and when there is a low score in clinical and demographic variables, quality of life also decreases. Studies indicate it is more in bipolar one than bipolar two [40].

There is no significant difference in SECT score and WHO QoL scores based on period of remission, previous self-harm, and presence of medical co morbidity, compliance, psychotic symptoms, pharmacological treatment, predominant episodes, and duration of episodes. There are however no studies in this area to corroborate these findings. WHO QoL social quality of life had significant difference between ECT treatments in the past, with people receiving ECT having a higher score on the social QoL score and having better social function. This shows that ECT can improve social cognition, a finding that is not reported before.

There is significant difference in SECT responses, stimuli, and speed with first and last episode. Post hoc analysis for first episode shows that SECT response score was highest for mixed episode, followed by depression and mania and was lowest for hypomania. SECT stimuli score was highest for depression and mixed followed by mania and least for hypomania. SECT speed was highest for first episode hypomania, followed by mixed episode and mania, the lowest speed was for patients with first episode depression. Analysis of the last episode shows that SECT responses was exactly like first episode with highest score for mixed, followed by depression and mania and least for hypomania. SECT stimuli were also same as first episode with highest for depression and mixed followed by mania and least for hypomania. SECT speed was highest for patients with last episode hypomania, followed by mixed episode and mania, the lowest speed was for patients with last episode depression. So, patients with first episode or last episode of hypomania or mania had better social emotional cognition than those with mixed episode. The worst social emotional cognition scores were for patients with depressive episodes. The depressive episode is detrimental to social cognition and has been reported in earlier studies [31,37,38]. Mixed episodes are also having a significant effect on social cognitions [37,40]. The finding however those depressive episodes can impair social cognition during euthymic phase has never been reported before and needs further studies to establish.

There is significant difference in SECT correct score, error and accuracy based on severity of episodes. The SECT correct score was highest for patients with mild episode of bipolar followed by moderate episodes and lowest correct responses were seen in patients with severe episodes. SECT errors were highest for severe episodes and least for mild episodes and moderate coming in between. SECT accuracy as expected was maximum for mild episode and worst for severe episodes. This shows that social emotional cognition is better in patients with mild episodes than those with severe episodes. This is in keeping with studies which have recorded that severe episode can hamper social cognition[23, 31] .There are also evidence that social emotional cognition is impaired in aggressive and violent patients [34,36].However the continued social cognitive deficit post severe episode of bipolarity is a hitherto unreported finding.

There is significant difference in SECT responses and SECT stimuli based on admissions and significance exists between no admissions and more than 3 admissions. SECT response time was maximum for patients with 5 or more admissions and was minimum for those who were never admitted. SECT stimulus time was also worst for patients with 5 or more admissions than patients with no history of admission. Therefore, history of hospital admission, especially repeated hospital admissions have a detrimental effect on social emotional cognition. Studies have recorded the impairment of social cognition correlates with severity of the episode of mental illness. [35,38,39] The neurocognitive damage caused by severe episodes may continue to impair cognition. This however needs to be further studied to confirm the results.

There was no significant correlation seen between SEC sub scores and QoL domain scores. Thereby social emotion cognition is not associated with quality of life in remitted bipolar patients. Showing that early, effective treatment and early achievement of remission improves both social emotional cognition and QoL. Majority of the studies showed euthymic bipolar patients have poor social cognitive skills, psychosocial skills and comparatively less quality of life when compared to healthy controls. [39,40] The improvement of SEC post episode maybe one reason why SEC does not correlate with QoL, so early detection and treatment may improve the prognosis and may even prevent continuing deficits in SEC and the evolution of a poor QoL.

CONCLUSION

Social emotional cognition in remitted bipolar patients is poorer in retired people and unskilled laborers. The SEC function is poorer in people with low education and better with high school or graduate education. SEC is significantly decreased in patients with depression or mixed episode as the first episode of bipolar disorder. Depressive or mixed episode as the last episode prior to euthymia also decreases SEC. There is a significantly poorer social emotional cognition in people with severe episodes of bipolar and repeated admissions. SEC is not associated with sex, type, and duration of bipolar disorder and family history of bipolar. SEC also did not have any association with residence, predominant episodes, medical co-morbidity, substance use and history of self-harm. The QoL was significantly better in middle socio-economic group than high and low socio-economic group. Physical and psychological domains of QoL were best in semi urban population than urban and rural population.ECT treatment was associated with better social domain of QoL. QoL showed no association with sex, age, type of bipolar, severity of bipolar, duration of illness, medical co-morbidity, self-harm, and substance. Further there was no correlation seen between score of social cognition and QoL in remitted bipolar patients. The study concluded that in remitted bipolar disorder, SEC was significantly associated with education, occupation, first and last episode being depression, severity of episodes and repeated admissions. The QoL was significantly associated with socio-economic status, semi urban residence and ECT. There was no correlation between SEC and QoL score in remitted bipolar.

FUNDING-Nil
CONFLICT OF INTEREST-Nil

ETHICAL CONSIDERATIONS

Informed consent was taken from patients. Institutional ethics committee approval dated 17th. November 2017 from MES medical college Perinthalmanna, Kerala, India,No;IEC/ MES/32/2015

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