

International Journal of Medical Science and Current Research (IJMSCR) Available online at: www.ijmscr.com Volume 4, Issue 4, Page No: 271-281 July-August 2021



A Cross Sectional Study of Socioemotional Cognition in Remitted Bipolar Affective Disorder

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Type of Publication: Case Report Conflicts of Interest: Nil

Abstract

Background-Bipolar affective disorder (BPAD) is characterized by deficits in cognitive and social dysfunction during mania and depression as well as during euthymic state. Abnormalities in social cognition and emotional regulation are detrimental to psychosocial functioning. There is scarcity of Indian studies which tests the social emotional cognitive status in bipolar affective.

Objectives-Objectives of this study are to understand the sociodemographic background, clinical characteristics in BPAD in remission and its relationship with social emotional cognition.

Materials and methods- It was 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. SCID -1 and MMSE were also assessed. Data analysed using SPSS software.

Results-Results showed Mean age of the patient was 38.12 mean age of onset of illness was 34.48. There were 34% females and 66% males,89% had bipolar one,11% had bipolar two,53% were married,45% had secondary level education,82% middle class,77% from rural area and 77% from nuclear family.74% had first episode mania,68% had last episode mania,78% had predominant depressive episodes,60% had psychotic symptoms,89% had good compliance,94% well treated,64% had family history of bipolar,82% had more than six months of remission,32% had self-harm attempt,24% had medical co-morbidities. Mean SECT correct score was 25.87. 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. SECT stimuli score in high school educated than graduates. SECT speed was better in high school educated than secondary level and graduate education. Businessmen and students have the best SEC function, and it is worst in unskilled laborers and retired people.

Conclusion-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. SECT speed, SECT response, SECT stimuli are the domains of affected in remitted bipolar affective disorder.

Keywords: Bipolar affective disorder, 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 noticeably clear. Previous studies have revealed that social cognition is a modifiable domain.^{2, 3}

Social cognition theories of attribution, attention, person memory, and social inference psychological control, social schemata, have become central to the field of research.^{4,5,6,7} 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.⁵This study aimed to address this paucity of research by conducting a comprehensive investigation of social emotion cognition and 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 effect on clinical variables.

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. Cog state battery-social emotional cognition test.

Sample size was calculated using the formula,

n = (Z1- $\alpha/2$)2 SD2/d2, where n = sample size, Z1- $\alpha/2$ = standard normal variate, SD = estimated standard deviation=desired precision. PuttingZ1- $\alpha/2=1.96$, SD=10.62, d=5, sample size was calculate to be 17.^{8,9}

First 100 consecutive subjects fulfilling the inclusion included in this study. The study criteria were 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 will be administered the above instruments. The socio-demographic and clinical details of the patient were noted using a questionnaire. MMSE scale was applied, and scores noted down. Samples who met the minimum required score was applied the tools. SECT was applied to all included sample in a sound attenuated and uniform environment. This was followed by streamlining of data and statistical analysis.

STATISTICAL ANALYSIS

For continuous variables independent't' test and analysis of variance (ANOVA) will be used. Data was analysed using SPSS (statistical package for social services) version 16. Social emotional cognition was compared with sociodemographic variables and clinical variables using ANOVA.

ETHICAL CONSIDERATION

1. Informed consent were be taken from patients.

2. Institutional ethics committee approval-No.IEC/MES/32/2015 dated 17th Nov,2015

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. Most 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). Most patients had bipolar I disorder (89%) while 11% had bipolar II disorder. Majority of the patients had illness of 1-3year 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 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 and SECT

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. (Table 1,2) There are 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 OoL.

Associations of Clinical Variables and SECT

There is significant difference in SECT responses, stimuli, and speed with first and last episode. (Table 3 ,4) 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.

Page2'

Volume 4, Issue 4; July-August 2021; Page No 271-281 © 2021 IJMSCR. All Rights Reserved There is significant difference in SECT correct score (p=0.006), error (p=0.003) and accuracy (0.002) based on severity of episodes. (Table 5) 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. (Table 6) 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.

There is significant difference in SECT response and stimuli based on no of admissions. (Table 7). There is significant difference in SECT responses based on duration of illness (Table 8)

DISCUSSION

This study was designed to investigate the social emotional cognition 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 socio emotional cognition. We defined remission using standard criteria. ¹⁰The mean age of the patient was 38 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.¹¹

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. ^{12,13}

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% married.12% were were widow/widower.12% were divorced and 4% separated. Studies have shown that in Indian context, most bipolar patients tend to be married.¹⁴

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 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.^{14,15} 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.^{10,12}.

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.¹⁴18

% 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. ^{15,16}

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. ^{17,18}

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^{.19,20,21,22,23,24}.

There was a significant association on ANOVA between the education and SECT stimuli and SECT speed. There were 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 19,25,26,27,28 better education. There was no significant association on ANOVA between the marital status and variables of SEC 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. 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. ^{29,30} 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 episode. 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. ^{31,32,33,34}Mixed episodes are also having a significant effect on social cognitions. 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. ^{35,36} There are also evidence that social emotional cognition is impaired in aggressive and violent patients ^{37,38,39}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. ^{36,39,40}The neurocognitive damage caused by severe episodes may continue to impair cognition. This however needs to be further studied to confirm the results.

CONCLUSION

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. SECT speed, SECT response, SECT stimuli are the domains of affected in remitted bipolar affective disorder.

LIMITATIONS AND FUTURE PROSPECTS

The study was conducted in a tertiary care hospital, the patients coming in the outpatient department were taken for the study. As our assessment was on 100 patients and it was a time bound study, the results may not be directly extrapolated to the masses. The study could be replicated in a larger setting and include the spectrum of bipolar in a community setting. In the future the study could be expanded in a larger group comparing social emotional cognition and quality of life to a control group. Future studies could be aimed in way to find out whether the neurological underpinnings of SEC and its effect on QoL in bipolar affective disorder.

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	F	Sig.
SECT CORRECT SCORE	1.341	0.247
SECT ERRORS	1.386	0.229
SECT RESPONSES	3.634	0.003
SECT STIMULI	1.224	0.301
SECT SPEED	0.523	0.79
SECT VARIABILITY	1.106	0.365
SECT ACCURACY	1.293	0.268

Table 1: Association between Occupation and SEC

	F	Sig.
SECT CORRECT SCORE	2.248	0.111
SECT ERRORS	1.370	0.259
SECT RESPONSES	1.588	0.210
SECT STIMULI	4.119	0.019
SECT SPEED	8.629	0.000
SECT VARIABILITY	0.250	0.779
SECT ACCURACY	1.772	0.175

Table 2: Association between Education and SEC

Table 3: Association between First Episode and SEC

	F	Sig.
SECT CORRECT SCORE	0.716	0.545
SECT ERRORS	0.699	0.555
SECT RESPONSES	8.908	0.000
SECT STIMULI	11.69	0.000
SECT SPEED	3.114	0.030
SECT VARIABILITY	0.737	0.532
SECT ACCURACY	0.305	0.822

Table 4: Association between Last Episode and SEC

	F	Sig.
SECT CORRECT SCORE	0.656	0.581

Page 279

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Nimitha K J at al International Journal of Medical Science and Current Research (IJMSCR)

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SECT ERRORS	0.735	0.534
SECT RESPONSES	0.911	0.000
SECT STIMULI	12.072	0.000
SECT SPEED	2.882	0.040
SECT VARIABILITY	0.144	0.934
SECT ACCURACY	0.287	0.835

Table 5: Association between Severity of Episode and SEC

	F	Sig.
SECT CORRECT SCORE	5.43	0.006
SECT ERRORS	6.18	0.003
SECT RESPONSES	0.124	0.883
SECT STIMULI	0.428	0.653
SECT SPEED	1.373	0.258
SECT VARIABILITY	0.518	0.597
SECT ACCURACY	6.842	0.002

Table 6: Association between Admissions and SEC

	F	Sig.
SECT CORRECT SCORE	0.753	0.523
SECT ERRORS	0.301	0.825
SECT RESPONSES	2.695	0.050
SECT STIMULI	3.755	0.013

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Volume 4, Issue 4; July-August 2021; Page No 271-281 © 2021 IJMSCR. All Rights Reserved

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SECT SPEED	1.603	0.194
SECT VARIABILITY	1.338	0.267
SECT ACCURACY	0.477	0.699

Table 7: Association between Duration of Illness and SEC

	F	Sig.
SECT CORRECT SCORE	1.341	0.247
SECT ERRORS	1.386	0.229
SECT RESPONSES	3.634	0.003
SECT STIMULI	1.224	0.301
SECT SPEED	0.523	0.79
SECT VARIABILITY	1.106	0.365
SECT ACCURACY	1.293	0.268

Table 8: Association between Duration of Episode and SEC

	F	Sig.
SECT CORRECT SCORE	0.371	0.867
SECT ERRORS	1.521	0.191
SECT RESPONSES	2.919	0.017
SECT STIMULI	2.554	0.033
SECT SPEED	1.653	0.154
SECT VARIABILITY	0.206	0.959
SECT ACCURACY	0.773	0.572