

Epidemiology of Bipolar Disorder

T. Lokeshu^{1*}, V. Jaya Kumari², V. Lakshmi³, S. Radha Rani⁴

^{1,2,3}Human Genetics Department, Andhra University, Visakhapatnam
⁴Government Hospital for Mental Care, Visakhapatnam

*Corresponding Author: lokesh.genetics@gmail.com, Tel.: +91 9966031142

Available online at: www.isroset.org

Received: 30/Oct/2019, Accepted: 20/Dec/2019, Online: 31/Dec/2019

Abstract- Bipolar disorder (BD) is a complex psychiatric mood disorder associated with swinging episodes of mania and depression. Lifetime prevalence of BD is 1% and bipolar spectrum disorder is 2.4%. BD is associated with high rate of premature mortality. Suicidal deaths are familiar in BD compared to general population. Early recognition helps in better treatment of the disorder so as to protect the individual from suicidal thoughts and also from socioeconomic burden. In the present study, epidemiological data was collected from Government Hospital for Mental Care, Visakhapatnam. Most of the patients who attended the hospital belonged to coastal districts of Andhra Pradesh. Of all the mental disorders diagnosed in the hospital, during the period January, 2014 to December, 2018, schizophrenia ranks first with highest number of cases. Regarding BD, more number of males were affected when compared to females. Highest prevalence was observed in 21 -30 years age group. Mania was the most common episode in both the sexes compared to depression.

Keywords: Bipolar Disorder, Schizophrenia, Depression, Mania

I. INTRODUCTION

BD also known as manic depressive illness or mental illness causes shifts in mood from mania to depression and vice versa. It is a life threatening psychiatric disorder, characterized by fluctuations in mood states of mania, hypomania, mixed episode and depression which may last for hours, days, weeks or months. Manic episode is featured with symptoms like elevated mood, irritation, decreased need for sleep, self-destruction, increased energy, grandiose and racing thoughts. The depressive episode shows features like depressed mood, reduced energy, decreased need for sleep, ideas of death or suicide, changes in appetite, feeling of guilt, hopelessness, and difficulty in making decisions. Individual with mixed episode experiences symptoms of both manic and depressive episodes alternately. Hypomania shows symptoms that are similar to manic episode with less degree of severity and with exceptions of hallucinations and delusions.

Mood disorder is the major cause of morbidity [1] having an impact on 154 million people throughout the world [2]. According to national comorbidity survey replication, the life time prevalence of mood disorder is 20.8% [3]. BD is categorized under mood disorder in 10th version of International Classification of Diseases [4].

BD is a type of mood disorder, with a prevalence of around 1% [5] with life time prevalence of bipolar spectrum as 2.4%

[6]. BD is equally prevalent in both men and women [7,8,9, 10,11]. National comorbidity survey, an American epidemiological study reported a prevalence rate of 0.42% in males and 0.47% in females [12] and reference [13] reported 0.6% prevalence in males compared to 0.4% in females in India. The disorder is generally observed in 18-30 years age group [11]. It is the 6th leading cause of disability in the world [14]. It imposes billions of economic burden on the society because of expensive treatment [15]. People with BD show high rate of mortality [16]. Compared to general population, BD women and men died 9.0 and 8.5 years younger respectively. Mortality rates (per thousand person-years) of 28.5 for women and 30.3 for men was reported in a Swedish National Cohort Study between the period of 2003-2009 [17].

II. METHODOLOGY

The present study was conducted as a part of the research work to find out the epidemiological details of BD. Retrospective data of the cases registered in the Government Hospital for Mental Care, Visakhapatnam during the period January, 2014 to December, 2018 was collected. Most of the patients who visited the hospital were from coastal districts of Andhra Pradesh and belonged to low socio economic group.

III. RESULTS AND DISCUSSION

A total of 14,484 cases registered in the hospital during the five years study period. Of all the different types of mental disorders documented, schizophrenia ranks first with highest number of cases (Table-1) followed by mental retardation in 2014 and 2015. However during 2016, 2017 and 2018, mental retardation was replaced by alcohol dependence syndrome.

Table-1: List of registered mental disorders

Disorder	2014	2015	2016	2017	2018	Total
	No (%)	No (%)	No (%)	No (%)	No (%)	(%)
Schizophrenia	820 (36.2)	644 (35.8)	600 (32.10)	971 (25.45)	1164 (24.58)	4199 (29)
Mental Retardation	547 (24.12)	416 (23.11)	360 (19.26)	390 (10.22)	367 (7.75)	2080 (14.36)
Alcohol dependence syndrome	321 (14.15)	270 (15.0)	422 (22.58)	669 (17.48)	823 (17.38)	2505 (17.29)
Bipolar disorder	211 (9.30)	185 (10.27)	180 (9.63)	289 (7.58)	357 (7.54)	1222 (8.43)
Psychosis	50 (2.20)	70 (3.88)	73 (3.91)	517 (13.55)	652 (13.8)	1362 (9.40)
Depression	41 (1.80)	35 (1.94)	38 (2.03)	483 (12.66)	541 (11.42)	1138 (7.85)
Dementia	80 (3.52)	75 (4.16)	90 (4.81)	165 (4.32)	253 (5.34)	663 (4.57)
Epilepsy	30 (1.32)	09 (0.5)	22 (1.18)	89 (2.33)	123 (2.6)	273 (1.88)
Behavioral personality disorder	20 (0.9)	15 (0.83)	25 (1.34)	100 (2.62)	292 (6.16)	452 (3.12)
Others	147 (6.48)	81 (4.5)	59 (3.16)	141 (3.69)	162 (3.42)	590 (4.1)
Total	2267	1800	1869	3814	4734	14484

Disorders with less than 50 cases per year were merged under others, which include acute transient psychosis, adjustment disorder, obsessive compulsive disorder, persistent delusional disorder, attention deficit hyperactivity disorder, seizures, autism, dysthemia and panic disorder. Regarding three disorders i.e., depression, epilepsy and personality behavioral disorder, they were categorized in separate groups as they were reported more than 50 in number in the consecutive two years after 2016.

Around 8% of the total cases were diagnosed with BD. Though initially there was an increase of about 1% in the cases diagnosed with BD in 2015(10.27 %) compared to 9.30% in 2014 it decreased gradually from 2015 to 2018.

Table-2: Age wise data of registered BD cases

Age	2014		2015		2016		2017		2018		Total (%)
	Ma les	Fe - m al es	Mal es	Fe - m al es	Ma les	Fe - m al es	Mal es	Fe - m al es	Ma les	Fe - M al es	
0-20	22	13	17	11	14	14	22	24	39	22	198 (16.2)
21-30	47	30	40	17	26	31	84	41	104	54	474 (38.7)
31-40	40	15	26	17	13	22	42	10	62	10	257

41-50	17	9	14	7	13	11	35	4	32	7	(21.0)
51-60	12	-	13	10	23	5	22	-	10	4	149 (12.2)
>60	6	-	6	7	4	4	5	-	5	8	99 (8.1)
Total	144	67	116	69	93	87	210	79	252	105	1222

The present study includes BD individuals with age range between 18 to 80 years. The disorder was found to be more prevalent in 21-30 years age group (Table 2) followed by 31-40 years. This supports the finding reported by reference18, that BD is frequent in youngsters.

Gender wise distribution of the registered BD cases shows a gradual decrease in males from 68 to 52% during the period 2014 to 2016 but an unexplained sharp rise in the percentage of males (52% to 73%) was observed in the year 2017, which is the highest during the study period (Table 3).

Table-3: Gender wise distribution of registered BD cases

Year	Males No (%)	Females No (%)	Total
2014	144 (68.25)	67 (31.75)	211
2015	116 (62.70)	69 (37.30)	185
2016	93 (51.67)	87 (48.33)	180
2017	210 (72.66)	79 (27.34)	289
2018	252 (70.59)	105 (29.41)	357
Total	815(66.69)	407(33.30)	1222

Though as per literature BD is equally prevalent in both sexes [19,20,21], a prominent gender difference was observed in the distribution of BD cases in the present study during all five years. A gradual decrease in this difference from the year 2014 to 2016 and an increase was observed in the subsequent two years 2017 and 2018. The five years average indicates that double the number of males (67%) are affected when compared to that of females (33%).

Table 4 Mood wise data of registered BD cases

Mood	Sex	2014	2015	2016	2017	2018	Total (%)
Mania	Males n	144	115	92	206	243	800
	%	70.24	64.6	51.69	72.28	70.64	(67.23)
	Females n	61	63	86	79	101	390 (32.77)
	%	29.76	25.4	48.31	27.72	29.36	
	Total	205	178	178	285	344	1190
Depression	Males n	-	1	1	4	9	15
	%		14.29	50.0	100	69.23	(46.87)
	Females n	6	6	1	-	4	17
	%	100	85.71	50.0		30.77	(53.13)
	Total	6	7	2	4	13	32
	Grand Total	211	185	180	289	357	1222

Majority of cases were diagnosed with mania (97%) and only around 3% of the cases were found to have depression. Among the mania cases, males and females were found to be 67% and 33% respectively. The difference between males and females with regards to mania was found to be decreasing from 2014 to 2016 with male mania cases decreasing from 68 to 51%, but once again during 2017 and 2018 the difference increased with a raise in the percentage of male mania cases.

Of the 2.6% diagnosed depression cases, 53% were females and 47% were males (Table-4). Thus mania was found to be predominant in males and depression in females which confirms the findings of previous studies [22, 23, 24]. Interestingly year wise data of the mental state demonstrates that the percentage of depression is gradually increasing in males from zero in 2014 to 2.52 in 2018.

IV. CONCLUSION

Overall observation of the data reveals that there is a sharp increase in the total number of registered mental disorders in the years 2017 and 2018 with schizophrenia ranking first among all of them. Yearwise distribution of the data reveals a gradual decrease in the mental retardation which may be due to a decrease in genetic disorders, some of which are associated with mental retardation. Though BD is found to be decreasing, disorders like psychosis, depression and behavior personality disorder have gradually increased during the study period.

Among BD cases, on average double the number of males are affected when compared to females. Mania was the most common episode in both the sexes. Though on the whole depression appears to be more predominant in females, in fact the percentage of depression is gradually increasing in males.

REFERENCES

- [1] Craddock & L. Forty, "Genetics of affective (mood) disorders", *European Journal of Human Genetics*, Vol. **14**, issue.6, pp. 660-668, **2006**.
- [2] World Health Organization, World Mental Health Survey Consortium: prevalence, severity and unmet need for treatment of mental disorders in WHO world mental health surveys. *JAMA*, June 2, 291(21), pp 2581-90, **2004**.
- [3] Ronald C. Kessler, Patricia Berglund, Olga Demler, Robert Jin, MA; Kathleen R. Merikangas, Ellen E. Walters, "Lifetime Prevalence and Age-of-Onset Distributions of DSM-IV Disorders in the National Comorbidity Survey Replication", *Arch Gen Psychiatry*, Vol. **62**, pp. 593-602, June **2005**.
- [4] G Gururaj, N Girish, M.K. Isaac, "Mental, Neurological and substance abuse disorders: Strategies towards a systems approach, Burden of Disease in India, NCMH Background Papers, September **2005**.
- [5] L. Fajutrao, J. Locklear, J. Priaulx, & A. Heyes, "A systematic review of the evidence of the burden of bipolar disorder in Europe", *Clinical Practice and Epidemiology in Mental Health*, Vol. **5**, issue.3, **2009**.
- [6] K. R Merikangas, R. Jin, J. P. He, R. C. Kessler, S. Lee, N. A. Sampson, Z. Zarkov, "Prevalence and correlates of bipolar spectrum disorder in the world mental health survey initiative". *Arch Gen Psychiatry*, Vol. **68**, issue.3, pp. 241-251, **2011**.
- [7] J. Angst, "The emerging epidemiology of hypomania and bipolar II disorder", *Journal of Affective Disorders*, Vol. **50**, issue. 2-3, pp. 143-151, **1998**.
- [8] P. Bebbington & R Ramana, "The epidemiology of bipolar affective disorder", *Social psychiatry and psychiatric epidemiology*, Vol. **30**, issue.6, pp. 279-292. **1995**.
- [9] B. F. Grant, F. S Stinson, D. S Hasin, D. A Dawson, S. P Chou, W. J Ruan, & B Huang, "Prevalence, correlates, and comorbidity of bipolar I disorder and axis I and II disorders: results from the National Epidemiologic Survey on Alcohol and Related Conditions", *Journal of Clinical Psychiatry*, Vol. **66**, issue.10, pp. 1205-1215, **2005**.
- [10] J. H. Gold, "Gender differences in psychiatric illness and treatments: a critical review", *The Journal of Nervous & Mental Disease*, Vol. **186**, issue.12, pp.769-775. **1998**.
- [11] W Maier, B.Hofgen, A. Zobel, & M. Rietschel, "Genetic models of schizophrenia and bipolar disorder: overlapping inheritance or discrete genotypes?" *European Archives of Psychiatry and Clinical Neuroscience*, Vol. **255**, issue.3, pp. 159-166, **2005**.
- [12] S Parial, "Bipolar disorder in women", *Indian journal of psychiatry*, Vol. **57**, Suppl. 2, pp. S252-S263, **2015**.
- [13] R. S. Murthy, "National Mental Health Survey of India 2015-2016 " *Indian journal of psychiatry*, Vol. **59**, issue.1, pp. 21-26, **2017**.
- [14] C. J. Murray, & A. D. Lopez, "Global mortality, disability, and the contribution of risk factors: Global Burden of Disease Study", *Lancet*, Vol. **349**, issue. 9063, pp.1436-1442, **1997**.
- [15] R.M. Hirschfeld, & L. A Vornik, "Bipolar disorder--costs and comorbidity". *The American Journal of Managed Care*, Vol. **11**, Suppl.3, pp. S85-90, **2005**.
- [16] B Roshanaei-Moghaddam, W Katon, "Premature mortality from general medical illnesses among persons with bipolar disorder: a review", *Psychiatr Services*, Vol. **60**, No.2: pp. 147-156, **2009**.
- [17] C. Crump, K. Sundquist, M. A. Winkleby & J. Sundquist, "Comorbidities and mortality in bipolar disorder: a Swedish national cohort study", *JAMA Psychiatry*, Vol. **70**, issue.9, pp. 931-939, **2013**.
- [18] R.M. Hirschfeld, JR Calabrese, MM Weissman, M. Reed, MA. Davies, MA. Frye, PE. Keck Jr, L. Lewis, SL. McElroy, JP McNulty, KD Wagner, "Screening for bipolar disorder in the community. *Journal of Clinical Psychiatry*", Jan vol. **64**, issue.1, pp. 53-59, **2003**.
- [19] J. C. Robb, L. T. Young, R. G. Cooke, & R. T. Joffe, "Gender differences in patients with bipolar disorder influence outcome in the medical outcomes survey (SF-20) subscale scores." *Journal of Affective Disorders*, Vol. **49**, issue. 3, pp. 189-193, **1998**.
- [20] I. Kawa, J. D. Carter, P. R., Joyce, C. J. Doughty, C. M. Frampton, J. E. Wells, R. J. Olds, "Gender differences in bipolar disorder: age of onset, course, comorbidity, and symptom presentation", *Bipolar Disorder*, Vol. **7**, issue.2, pp. 119-125, **2005**.
- [21] A. Diflorio, I. Jones, "Is sex important? Gender differences in bipolar disorder", *International Review of Psychiatry*, vol. **22**, issue.5, pp. 437-52, **2010**.
- [22] L. Miguel, C. Roncero, C López-Ortiz, M Casas, "Epidemiological and diagnostic axis I gender differences in dual diagnosis patients" *Adicciones* Vol. **23**, issue.2, pp.165-172, **2011**.
- [23] Saioa López-Zurbano & Ana González-Pinto, "Gender Differences in Bipolar Disorder, Psychopathology in women, Springer International Publishing Switzerland, September, pp 641-659, **2015**.
- [24] Trisha Suppes, "Gender Differences in Bipolar Disorder, CNS Spectrums", **Volume 11**, Issue S5, pp. 2-4, May, **2006**.

AUTHORS PROFILE

Mr. T Lokeshu pursued M.Sc. Ph.D. Human Genetics from Andhra University. He is currently working as Research Scientist in State level Department of Viral Research and Diagnostic Laboratory (VRDL) from Guntur Medical College, Guntur. He has published 4 research papers in reputed national & international journals and conferences. His main research work focuses on Molecular biology and Microbiology. He has more than 6 years of research experience.