Gender Disparity in Bipolar Disorder Diagnosis in the United States: A Retrospective Analysis of the 2005-2017 MarketScan® Commercial Claims Database

Guodong Liu[1,2,3], PhD; Lan Kong[1], PhD; Ritika Baweja[3], MD; Djibril M. Ba[1,2], MPH, PhD; Erika F.H. Saunders[3], MD

Department of Public Health Sciences[1], Center for Applied Studies in Health Economics[2], Department of Psychiatry and Behavioral Health[3], Pennsylvania State University College of Medicine, Hershey, PA

Background

➤ Gender bias in opinions towards seeking medical help may be especially strong for mental health illnesses, including severe mood disorders such as bipolar disorder (BD).

➤ Little is known about gender disparity in diagnosis and seeking treatment for BDs.

➤ Most previous studies have shown a similar prevalence of BDs between genders.

Objective

To examine gender disparities in the diagnosis of bipolar disorder (BD) within a privately insured population in the U.S. and investigate potential contributing factors for these gender differences.

Methods

Data source

MarketScan® Commercial Claims and Encounters (CCE) database consists of health care claims ≥ 50 million privately insured enrollees in the US annually.

Study design

• This retrospective cohort study utilized 2005-2017 claims data from the IBM® MarketScan® database.

• The study cohort included subjects, aged 10-64, who had a minimum of one-year continuous insurance coverage and no record of a BD diagnosis before cohort entry.

• Comorbidity conditions and utilization of healthcare services were assessed using a 1-year baseline window before cohort entry.

• We examined the gender difference in BD diagnosis rate, overall and by subgroups. evaluated the gender effect on time to first BD diagnosis, and the potential moderators of gender effect.

Statistical analysis

Baseline characteristics were compared between males and females. Cox regression models were used to evaluate the gender effect and potential moderators of gender effect. Multivariable Cox model was fit to adjust for health service utilization, comorbidity and the calendar year of cohort entry. Unadjusted and adjusted hazard ratios (HR) and 95% confidence intervals (CI) were calculated.

Results

➤ The study cohort consisted of 97,193,443 subjects.

➤ 0.45% of subjects were diagnosed with BDs after cohort entry.

➤ Males have a lower diagnosis rate than females (0.36% vs. 0.54%).

➤ The Cox regression analysis confirmed that males were less likely to be diagnosed with BDs (unadjusted Hazard Ratio, HR [95%CI]: 0.69 [0.68-0.69]).

➤ Gender difference remained significant although markedly reduced after adjusting for demographics, comorbidity and healthcare utilizations (adjusted HR [95%CI]: 0.77 [0.76-0.77]).

Table 1. Cohort characteristics (97,193,443 subjects).

	Entire cohort	Male	Female
Sample size (%)	97,193,443	47,153,526 (48.5)	50,039,917 (51.5)
Follow-up year, mean (SD)	2.37 (2.15)	2.35 (2.13)	2.38 (2.16)
Age, mean (SD)	35.7 (15.8)	35.4 (15.9)	36.1 (15.8)
Charlson index, mean (SD)	0.21 (0.73)	0.21 (0.74)	0.22 (0.72)
Other prior mental health conditions	12,038,598 (12.4)	5,055,395 (10.7)	6,983,203 (14.0)
Prior hospitalization	4,077,142 (4.2)	1,269,080 (2.7)	2,808,062 (5.6)
Visit to PCPs			
Once	15,916,608 (16.4)	7,768,646 (16.5)	8,147,962 (16.3)
At least twice	35,068,844 (36.1)	14,822,669 (31.4)	20,246,175 (40.5)
Visit to psychiatrists	1,847,026 (1.9)	798,020 (1.7)	1,049,006 (2.1)
Diagnosed with Bipolar Disorder			
All type	441,809 (0.45)	172,039 (0.36)	269,770 (0.54)
Bipolar Disorder I	213,500 (0.22)	86,165 (0.18)	127,335 (0.25)
Bipolar Disorder II	96,648 (0.10)	32,688 (0.07)	63,960 (0.13)
Unspecified	131,661 (0.14)	53,186 (0.11)	78,475 (0.16)

Conclusions

➤ This study found significant gender disparity in BD diagnosis in a privately insured population in the United States.

➤ Males, especially adult men between 25 and 54 years old, were less likely to be diagnosed with BDs.

➤ Our findings highlight a discrepancy between diagnosis and population prevalence of bipolar disorder in men and women.

Table 2. Cox regression analysis results.

Effects	Hazard ratio [95% CI]	
	Unadjusted Models*	Adjusted Model**
Gender disparity (M vs. F)		
Overall	0.69 [0.68-0.69]	0.77 [0.76-0.77]
Age group		
10-17	0.78 [0.77-0.79]	0.74 [0.73-0.76]
18-24	0.72 [0.71-0.73]	0.89 [0.87-0.91]
25-34	0.61 [0.60-0.62]	0.81 [0.80-0.83]
35-44	0.63 [0.62-0.64]	0.82 [0.80-0.83]
45-54	0.65 [0.64-0.66]	0.82 [0.80-0.84]
55-64	0.70 [0.69-0.72]	0.84 [0.82-0.87]
Residence		
Urban	0.70 [0.69-0.70]	0.74 [0.73-0.76]
Rural	0.64 [0.63-0.65]	0.70 [0.68-0.71]
Health plan		
HMO	0.72 [0.71-0.73]	0.79 [0.77-0.80]
PPO	0.68 [0.68-0.69]	0.74 [0.73-0.76]
Other	0.69 [0.68-0.70]	0.74 [0.72-0.75]
Mental health diagnosis (vs. No)	-	4.60 [4.57-4.64]
Visit to psychiatrist (vs. No)	-	3.04 [3.01-3.06]
Prior hospitaliztion (vs. No)	-	1.51 [1.49-1.52]
Charlson comorbidity index	-	1.08 [1.08-1.08]
Visit to PCPs		
None	-	Reference
Once	-	0.96 [0.95-0.97]
At least twice	-	1.35 [1.34-1.36]

Individual models to examine gender disparity, overall, by age group, census region, type of residence and health plan, respectively.

Also adjusted for the US census region and the calendar year at time of cohort entry.

References

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PennState
College of Medicine