

LIKELIHOOD OF EMPLOYMENT TERMINATION FOR EMPLOYEES WITH BIPOLAR DISORDER TREATED WITH DIFFERENT PSYCHOTROPIC MEDICATIONS

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Abstract

Objective: To evaluate the likelihood of employment termination among patients with bipolar disorder treated with different classes of psychotropic medications.

Methods: Patients with bipolar disorder (classified according to ICD-9-CM codes) were identified from the Human Capital Management Services Research Reference Database. Patients with continuous eligibility 6 months before and 12 months after their initial prescription treatment for bipolar disorder were categorized into those using atypical antipsychotics only (ATYP); conventional antipsychotics, mood stabilizers (including lithium, divalproex, lamotrigine, and carbamazepine), and specific anticonvulsants only (OTHER); medications from both categories (BOTH); and no study-specified psychotropic medications (NONE). The index "prescription" date for the NONE group was defined as 6 months after the initial diagnosis. Both voluntary and involuntary terminations of employment were included. Regression models controlled for possible confounding factors (age, gender, location, salary, race, marital status, full-time/part-time status, prior comorbidity index, prior medical costs related to bipolar disorder, prior other medical costs, index date, and medical services related to bipolar disorder). Treatment groups were compared over a follow-up period of 12-24 months after the index prescription date.

Results: Six hundred ninety-nine patients with bipolar disorder were classified into the ATYP (n=25), BOTH (n=190), NONE (n=170), and OTHER (n=314) treatment groups. The ATYP group demonstrated the lowest rate of employment termination (1.5%; 95% CI -3.3%, 6.3%) followed by the BOTH (5.8%; 95% CI 2.5%, 9.1%), NONE (8.9%; 95% CI 4.7%, 13.2%), and OTHER (9.3%; 95% CI 6.1%, 12.5%) groups. Differences between treatment groups were not significant. The numerical difference between ATYP and OTHER did not reach significance (P=0.058).

Conclusions: The ATYP group demonstrated the lowest employment termination rate in the follow-up period of 12-24 months after the index prescription date. Further research is warranted to examine the influence of specific patient variables and treatment regimens on employment termination in patients with bipolar disorder.

Introduction

- ▶ Bipolar disorder is expensive: US \$7.6 billion in direct inpatient and outpatient costs (1991 estimate)¹
- ▶ Individuals with bipolar disorder in the workforce are reported to:
 - Cost \$6836 more annually than employees without bipolar disorder (P<0.05)²
 - Have 11.5 more adjusted annual absence days than employees without bipolar disorder (P<0.05)³
 - Have 20% lower adjusted annual productivity output than employees without bipolar disorder³
- ▶ Patients with severe bipolar disorder may not be employed and may be excluded from analyses⁴
- ▶ Compared with patients with major unipolar affective disorder, those with bipolar disorder are significantly more likely to report declines in job status, including loss of employment and income at the end of a 1-year follow-up⁵
- ▶ Limited research with objective data has been presented about the likelihood of individuals with bipolar disorder to remain employed

Objective

- ▶ To compare individuals diagnosed with bipolar disorder treated with different classes of psychotropic drugs with those not treated on the likelihood of employment termination 12-24 months after initiation of therapy

Methods

Data Source

- ▶ Retrospective database analysis
- ▶ Human Capital Management Services Research Reference Database
 - Over 300,000 employees and covered dependents
 - Data includes payroll, discharge, demographic, and health care claims information collected from multiple large employers from across the United States
 - Represents retail, service, manufacturing, and financial industries
- ▶ Employees were identified using ICD-9 codes (primary, secondary, or tertiary) for bipolar disorder
- ▶ Data collected in calendar years 2001-2004

- ▶ Terminations: Both voluntary and involuntary terminations of employment were included

Group Classification

- ▶ Employees with bipolar disorder were identified based on treatment patterns and classified into the following groups:
 - ATYP: treated with atypical antipsychotics only
 - OTHER: treated with conventional antipsychotics and mood stabilizers (including lithium, divalproex, lamotrigine, and carbamazepine), and specific anticonvulsants (zonisamide and tiagabine)
 - BOTH: treated with atypical antipsychotics and other bipolar medications
 - NONE: those using no study-specified psychotropic medications
- ▶ Individuals could take one or more medications from a designated category at a time

Index Prescription (Rx) Date

- ▶ For the 3 treatment groups (ATYP, OTHER, and BOTH), the date of the first bipolar-related prescription was the index date
- ▶ For the control group (NONE), the index date was 6 months after the initial diagnosis
- ▶ Individuals were required to have health insurance:
 - At least 6 months pre-index prescription date and
 - At least 12 months post-index prescription date

Statistical Analysis

- ▶ Demographics: Mean values were compared using 95% confidence intervals (CI). Differences were considered to be statistically significant if the intervals did not overlap (P<0.05)
- ▶ The likelihood of employment termination was calculated using logistic regression models that controlled for the following possible confounding factors:

- Age	- Marital status	- Index date
- Gender	- Full-time/part-time status	- Number of medical services related to bipolar disorder*
- Location	- Prior comorbidity index	
- Salary	- Prior medical costs related to bipolar disorder*	
- Race	- Prior other medical costs	

*Medical services with bipolar disorder ICD-9 codes

- ▶ All statistical analysis was generated with version 9.1 of the SAS system for Windows (SAS Institute, Inc., Cary, NC)

Results

- ▶ Demographic statistics were similar among the groups (Table 1)
 - People using no therapy (NONE) were more likely to:
 - Be older than the remaining cohorts (significantly older than BOTH; P<0.05)
 - Have higher salaries than the remaining cohorts (significantly higher than BOTH; P<0.05)
 - Be married compared with the remaining cohorts (significantly greater than BOTH; P<0.05)
 - People using OTHER therapy were more likely to:
 - Be married compared with the BOTH cohort (P<0.05)
 - Be exempt (salaried) compared with the BOTH cohort (P<0.05)
- ▶ Patients with bipolar disorder (N=699) were classified into the ATYP (n=25), BOTH (n=190), NONE (n=170), and OTHER (n=314) treatment groups
- ▶ The ATYP group had the lowest rate of employment termination (1.5%; 95% CI -3.3, 6.3) followed by the BOTH (5.8%; 95% CI 2.5, 9.1), NONE (8.9%; 95% CI 4.7, 13.2), and OTHER (9.3%; 95% CI 6.1, 12.5) groups (Table 2, Figure 1)
- ▶ Differences between treatment groups were not significant

Table 1. Demographics of Employees With Bipolar Disorder in the Reference Database (2001-2004)

	ATYP		OTHER ¹		BOTH ¹		NONE		Significant Group Difference ²
	n	Mean	n	Mean	n	Mean	n	Mean	
Age, years*	25	39.9	314	41.3	190	39.9	170	43.2	NONE > BOTH
Tenure, years*	25	11.5	314	10.6	190	9.7	170	12.0	
Annual Salary (\$)	25	48,247	313	50,009	190	44,609	170	55,294	NONE > BOTH
Female, %	25	56.0	314	59.2	190	57.9	170	50.6	
Married, %	23	47.8	288	48.6	173	32.4	159	56.6	OTHER > BOTH, NONE > BOTH
White, %	12	75.0	196	86.2	99	78.8	85	81.2	
Black, %	12	16.7	196	5.1	99	9.1	85	8.2	
Hispanic, %	12	8.3	196	7.7	99	3.0	85	5.9	
Exempt, %	24	12.5	302	26.2	184	14.1	164	24.4	OTHER > BOTH
Full-time, %	25	84.0	314	91.7	190	86.8	170	92.4	

*As of the index diagnosis date (the date of the first bipolar diagnosis in the 2001-2003 time period such that the patient had 12 months of enrollment after that date)

¹Other bipolar-related drugs include conventional antipsychotics and/or mood stabilizers, and some anticonvulsants. The treatment group for a given patient was determined based on drug claims information. These groups are mutually exclusive

²Significant at the P<0.05 level

Table 2. Expected Likelihood of Employment Termination (12-24 Months After Index Date) by Bipolar Disorder Treatment Group*

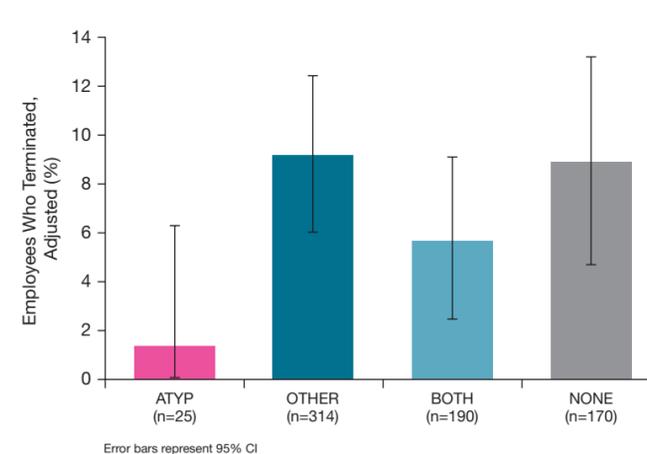
Treatment Group	N	Employment Terminated, Adjusted % ¹	Standard Error	95% CI
ATYP	25	1.5%	2.5%	(-3.3, 6.3)
OTHER ²	314	9.3%	1.6%	(6.1, 12.5)
BOTH	190	5.8%	1.7%	(2.5, 9.1)
NONE	170	8.9%	2.2%	(4.7, 13.2)

*Includes voluntary and involuntary terminations

¹Percentages shown are adjusted using regression modeling and controlling for age, gender, location, prior comorbidity index, prior bipolar-specific medical costs, prior other medical costs, index date, bipolar-specific medical services, marital status, race, full-time/part-time status, and salary

²Other bipolar-related drugs include conventional antipsychotics, primary or potential mood stabilizers, and other anticonvulsants

Figure 1. Annual adjusted likelihood of employment termination (12-24 months after index date) by bipolar disorder treatment group



Conclusions

- ▶ The ATYP cohort had the lowest employment termination rate in the follow-up period of 12-24 months after the index prescription date
- ▶ Further research is warranted to examine the influence of specific patient variables and treatment regimens on employment termination in patients with bipolar disorder
- ▶ It is also likely that patients with severe bipolar disorder are not employed and thus are not included in the current analysis⁴
- ▶ These data are in line with the self-reported survey indicating employment problems among the population with bipolar disorder⁶

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