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The Effects of Parity on Mental Health and Substance Use Disorder Spending and Utilization: Does Diagnosis Matter?

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Abstract

Objective—The Mental Health Parity and Addiction Equity Act (MHPAEA) requires insurance parity for mental health/substance use disorder (MH/SUD) and general medical services. Prior research found that parity did not increase MH/SUD spending and lowered out-of-pocket spending. Whether parity's effects differ by diagnosis is unknown. We examine this question in the context of parity implementation in the Federal Employees Health Benefit (FEHB) Program.

Methods—Using administrative data and a difference-in-difference design, we compared MH/SUD treatment use and spending before (2000) and after (2002) parity for FEHB enrollees diagnosed in 1999 with bipolar disorder, major depression, or adjustment disorder (N=19,094) to that for a national sample of privately-insured individuals unaffected by the policy (N=10,521). Separate models were fit for each diagnostic group.

Results—The parity directive resulted in total spending that was unchanged among MH/SUD users with bipolar disorder and major depression but decreased for adjustment disorder (−$114 [95% CI:−$193,−$41]). Out-of-pocket spending decreased by a comparable amount for all three diagnoses (range: −$78 to −$86). Total annual utilization (e.g., medication management visits, psychotropic prescriptions, and MH/SUD hospitalization bed days) remained unchanged across all diagnoses. Annual psychotherapy visits decreased significantly only for individuals with adjustment disorders (−12%[−17.0%,−6.1%]).

Conclusions—While parity implemented in the context of managed care improved financial protection for individuals in all three diagnostic groups, the policy differentially affected spending and psychotherapy utilization across groups. There was some evidence that resources were preferentially preserved for diagnoses typically more severe/chronic and reduced for diagnoses that are expected to be less so.

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Disclosures
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Introduction

The Paul Wellstone and Pete Domenici Mental Health Parity and Addiction Equity Act (MHPAEA)(1), implemented in 2010, requires parity in coverage for mental health and substance use disorder (MH/SUD) and general medical services. By eliminating benefit limits on MH/SUD services, such as higher copayments and caps on the number of inpatient days and outpatient visits covered by health plans,(2) a primary aim of parity advocates was to increase financial protection for individuals with the most disabling conditions. The logic was that those with the most severe conditions used more services and encountered those limits more often. As a result, they were likely to spend more, placing them at risk of greater financial losses.

Prior published studies have found that parity did not lead to increases in MH/SUD service use or total spending, but that beneficiary out-of-pocket costs were significantly lower after parity relative to a comparison group of unaffected health plan members.(3-6) These prior studies examined the effects of a parity directive instituted in the Federal Employees Health Benefits (FEHB) Program in January 2001, and, more recently, the effects of a 2007 Oregon state parity law that is similar to the MHPAEA. However, these studies did not examine possible differential effects of parity based on diagnosis. Because of the recent implementation of the MHPAEA and its regulations, there is no empirical evidence yet on the law's effects. Additionally, because the MHPAEA is implemented nationwide and the Patient Protection and Affordable Care Act (PPACA) extends MHPAEA provisions to new plans offered through state health insurance exchanges and to Medicaid benchmark plans, there is no obvious national comparison group of individuals who will not experience parity that would allow a rigorous evaluation of MHPAEA's effects on individuals with relatively severe versus less severe disorders.

In the absence of an obvious national comparison group to assess whether the MHPAEA's effects might differ by diagnosis severity, we explore this question in the context of the FEHB Program parity directive, a similar (although not identical) parity policy. In June 1999, President Clinton directed the Office of Personnel Management (OPM) to require all FEHB plans to offer comprehensive parity benefits for in-network services as of 2001. The FEHB Program, covering approximately 8.5 million enrollees, is the largest private health insurer in the U.S. The OPM encouraged plans to use managed care techniques to control any increases in MH/SUD expenditures that could result from the parity benefit expansion.

Using a difference-in-difference design comparing a national sample of FEHB Program enrollees with a comparison national group of individuals included in the Thomson Reuters MarketScan data, we examine the impact of the FEHB Program parity policy on spending and intensity of service use for individuals diagnosed with one of three disorders: 1) bipolar disorder, a typically chronic and severe illness; 2) major depression, a disorder that exhibits greater heterogeneity in both severity and chronicity; and 3) adjustment disorder, a condition one would expect to be typically acute in nature and less severe. In this study we use the term "parity policy" to refer to the combined effects of benefit design and the management of care, which we cannot disaggregate. Given that this is the same insurance context of the current MHPAEA, empirical evidence regarding the effects of the FEHB Program parity

policy can shed light on how the new MHPAEA law might differentially affect treatment for mental illnesses of varying diagnostic severity levels.

Method

Health Plans

For this analysis, we pool data from the seven FEHB plans studied in the original evaluation of the FEHB Program parity policy.(5) The plans were selected based on region, population size, and interest in participation. All plans were preferred provider organizations (PPOs). Of the seven plans, four contracted with managed behavioral health carve-out organizations to manage MH/SUD service use both before and after parity implementation, two implemented carve-outs at the same time the parity policy took effect, and one managed MH/SUD services internally (i.e., no carve-out) both before and after parity implementation. The MarketScan database comparison group included enrollees of PPO health plans operated by large, self-insured employers and were matched to the FEHB plans.

We used administrative data from the FEHB and MarketScan plans that included enrollment, inpatient, outpatient, and pharmacy claims, as well as their associated costs (total and out-of-pocket) for the period 2 years pre-parity implementation (1999 and 2000) and compared them to the second year post-parity (2002). We focused on the second year, anticipating that any effects of parity would be more prominent in the second year, after health plans had a longer opportunity to adjust to the new policy.

Selection of Cohort

To ensure that the results reflected the effects of parity and not changes in plan enrollee composition, we required continuous enrollment for all four study years. Using the baseline year (1999), we divided the study population into mutually-exclusive diagnostic cohorts that would be expected to differ in illness severity and/or chronicity: bipolar disorder, major depression, and adjustment disorder.

To be included in a given diagnostic cohort, an individual was required to have: 1) at least 2 claims with the target diagnosis on different service dates, 2) a single inpatient claim with the target diagnosis, or 3) a single outpatient claim with the target diagnosis if there was no more than one other claim with a different diagnosis. Before creating the cohorts, we excluded persons with a schizophrenia diagnosis. We then established the bipolar cohort (ICD9 codes 296.0-296.1, 296.4-296.8, 301.11, 301.13) using the above algorithm. Claims data of persons not included in the bipolar cohort were then examined to establish the major depression cohort (ICD9 296.2 and 296.3) using the above algorithm. Finally, the adjustment disorder cohort (ICD9 309) was established from the remaining enrollees not yet selected into a cohort, again using the above algorithm.

Outcomes

We examined two types of outcomes: MH/SUD spending (any, total, and out-of-pocket) and utilization. We defined utilization consistent with Goldman et al.(5) Specifically, annual utilization outcomes included the number of: 1) psychotherapy visits; 2) medication

management visits; 3) inpatient MH/SUD days; and 4) MH/SUD prescription fills. We defined MH//SUD medications in two ways: medications used only for MH/SUD conditions; and an expanded list of medications that included those that could be used for MH/SUD as well as other conditions (e.g., valproate). The latter counted as MH/SUD care only if the enrollee used any MH/SUD services in the same calendar year as the medication.

Explanatory variables

Models included regional dummy variables (Northeast, West, South and Midwest) and patient level characteristics included sex, employee/dependent status, and age (centered). We also included an interaction term for sex and employee status because preliminary examination indicated that there may be an interaction between these two characteristics.

Statistical Analysis

We used a difference-in-difference approach to account for secular trends in spending and utilization during the study period. The primary explanatory variables of interest were an indicator of whether an individual was enrolled in an FEHB plan (versus comparison group plan), an indicator for study year, and their interaction. The interaction term is the difference-in-difference estimator, measuring the impact of parity on spending and utilization, controlling for secular time trends and thereby reflecting the impact of parity specifically. Separate models were fit to each outcome by diagnostic group.

We estimated two-part models for each spending outcome.(7) We observed that spending outcomes were highly skewed, given the illness severity of many of our cohort enrollees, and used a log-transformation to address this. Two-part models are essential in handling zeroes in the analysis of the log spending amounts: the first part estimates the parity policy's effect on the probability that any spending occurred in the given year, and the second part estimates its effect on the log spending amount for those having spending. The probability of any MH/SUD service use was modeled by probit regression, and the nonzero total and out-of-pocket log spending amounts were modeled by ordinary least squares. MH/SUD service utilization was characterized by Poisson counts that measure the number of annual service units per enrollee in the pre-parity and two post-parity years.

Because the interaction terms from our models do not have an intuitive interpretation on their original scale, we transformed results from the original scales to either the dollar (spending) or percent (utilization) scales. Raw dollar amounts were calculated using Duan's smearing estimate.(8) For both the spending and utilization results, bootstrap methods were implemented to approximate point estimates and 95% confidence intervals. We report results and statistical tests based on 2000 bootstrap samples.

Modeling the two-parts of spending (probability of spending and spending conditional on use) separately may bias the estimates if the correlation between use and spending outcomes is ignored.(9) As a check on this, we simultaneously fit the two-part models with a common subject-level random effect through a Bayesian approach in the R statistical software environment;(10) we found that the results from this approach were qualitatively the same and report the findings from the separate models. All other statistical models, including Poisson regression, were estimated by PROC GENMOD in SAS v9.2.

A risk of testing multiple outcomes is the possibility of falsely rejecting a null hypothesis of no effect of parity on spending or utilization and, often, adjustments for multiplicity are used. We used a conservative Bonferroni procedure to test the global null hypothesis that parity had no effect on each of our outcomes within each diagnostic cohort. To maintain an overall type I error rate of 5%, and with 7 tests per diagnostic group, the global null hypothesis is rejected if the p-value is <.007.(11) We do compute confidence intervals but note that they have not been adjusted for multiplicity. We provide the estimates and standard errors for all comparisons, including post-parity year 2001(which is not a focus of our analysis) in Appendix 1.

Results

FEHB Program and comparison group enrollees were relatively similar with respect to sex, age, employee status, and the proportion of individuals with a given diagnosis (Table 1). The greatest difference between the two groups was that FEHB Program enrollees predominately resided in the South (FEHB=64.3%, comparison=15.9%) and the comparison cohort enrollees predominately resided in the Midwest (FEHB=6.8%, comparison=59.5%).

In both the FEHB Program and comparison groups, among those with bipolar, major depression or adjustment diagnoses in 1999, the probability of having any MH/SUD use, as well as average total and out-of-pocket MH/SUD spending conditional on use in the subsequent year (2000) were highest for the bipolar disorder group and lowest for the adjustment disorder group (Table 2). Similarly, the probability of using each type of service in 2000 was highest for the bipolar disorder group and lowest for the adjustment disorder group.

Table 3 reports difference-in-differences estimates for the probability of any MH/SUD use and total and out-of-pocket spending conditional on any use pre- (2000) and the second year post-parity (2002) among FEHB Program and comparison group enrollees with bipolar, major depression and adjustment disorder diagnoses. Relative to the comparison group, we found no change in the probability of any MH/SUD service use among FEHB Program enrollees in all three diagnostic categories comparing 2000 to 2002. Conditional on any use, total spending was statistically unchanged for bipolar disorder and major depression but decreased for adjustment disorder (−$114[−$193,−$41]), and out-of-pocket costs declined as a result of parity by a comparable dollar amount for all three diagnostic categories among FEHB Program enrollees relative to the comparison group (bipolar disorder: −$86[−$121, −$52], major depression: −$78[−$92, −$63], adjustment disorder: −$78[−$95, −$63]).

Table 4 reports difference-in-differences estimates for the quantity of specific MH/SUD services used by FEHB Program and comparison group enrollees with bipolar, major depression and adjustment disorder diagnoses before and after parity. In all three disorders, there was a statistically significant decrease in annual psychotherapy utilization only for enrollees in the adjustment disorder cohort: −12%[−17.0%, −6.1%]) after parity among FEHB Program enrollees relative to comparison group enrollees. There were no significant utilization changes due to the parity policy for medication management visits, prescriptions,

or inpatient days. Because utilization of some services, such as inpatient bed days, was quite low, the corresponding 95% confidence intervals are wide.

Discussion

The effects on MH/SUD utilization and spending of implementing a comprehensive parity policy in the context of managed care in the FEHB Program differed across diagnoses of varying severity. While total MH/SUD spending among users of these services was unchanged for enrollees with bipolar disorder and major depression after parity implementation for FEHB enrollees relative to comparison group enrollees, total MH/SUD spending among users was significantly lower on average for those diagnosed with adjustment disorder, a diagnosis that is considered less severe and/or chronic than the other two. Parity implementation provided additional financial protection in the form of decreased out-of-pocket costs to enrollees across all three diagnostic categories –a change that is consistent with prior studies of parity among all MH/SUD users in the FEHB Program and individuals subject to the Oregon state parity law(5, 6) – but the proportional reduction in out-of-pocket costs (i.e., the change in out-of-pocket costs relative to pre-period spending levels) was lower for bipolar disorder and major depression relative to adjustment disorder. Also, the differential proportional effect of the policy's implementation on out-of-pocket spending for adjustment disorder likely reflects the post-parity decrease in total MH/SUD spending for this group and not an explicit effort to differentially improve the financial protection for those with adjustment disorder relative to the other two conditions.

Notably, there was a statistically significant decline in annual psychotherapy utilization only for individuals in the adjustment disorder cohort. While prior research has noted an overall secular trend in declining rates of psychotherapy,(12-15) the difference-in-difference design of this study controls for secular trends. Thus, the reductions observed here represent the net effect of the FEHB parity policy, which included both parity in benefit design and the encouragement of benefit management.

In summary, there are two main statistically significant effects of the parity policy in this study: 1) additional financial protection, particularly for those with major depression and bipolar disorder (but not proportional to out-of-pocket costs by diagnosis); and 2) preservation of spending/services for diagnoses that are, on average, more severe but a reduction in spending/services for those that are expected to be less so.

Our findings are consistent with the theory that health plans will respond to parity regulation by ratcheting up managed care to control spending increases that might otherwise accompany benefit expansion. Concerns about spending increases following benefit expansion under parity were consistent with the early research literature on this topic.(16) The RAND Health Insurance Experiment (HIE), a randomized experiment of insurance benefit design on health care use and spending that was conducted in the 1970s and 1980s before managed care became widespread, found that, among individuals enrolled in fee-for-service plans, decreases in enrollee cost sharing increased use of outpatient mental health services at twice the rate as for general medical outpatient services.(17) In its parity directive for the FEHB Program, the OPM explicitly encouraged FEHB plans to use managed care

techniques to control any spending increases that could result from the directive's implementation. Therefore, it is not possible to separate out the effects of parity from changes in care management in this study. We speculate, however, that our findings of a decline in utilization are likely the result of increased benefit management that occurred alongside implementation of parity. This is consistent with prior research, which has shown that FEHB Program health plans were significantly more likely to contract with managed behavioral health carve-outs after parity.(18) This finding is relevant given that a key difference between the FEHB Program parity directive and the MHPAEA relates to how plans are permitted to use managed care. Unlike the FEHB Program directive, MHPAEA regulations implemented in 2011 expressly prohibit health plans from imposing more restrictive managed care techniques for MH/SUD benefits than for other health benefits as a method of controlling spending after parity.(19) It is possible that this regulatory provision could affect spending in response to parity among enrollees in these three diagnostic groups.

There are several limitations to consider in this analysis. First, we determine our diagnostic cohorts based on diagnosis information on claims in the baseline year. Given the often episodic nature of the symptomatic course of these illnesses, we cannot rule out whether changes in utilization post-parity are due to changes in symptom course independent of parity. Similarly, in claims data we cannot observe clinical outcomes, so we are unable to determine whether the post-parity policy changes in utilization were associated with differential clinical outcomes. A second consideration is that utilization patterns and care management practices have changed since the study period. For example, between 1997 and 2008 MH/SUD hospitalization rates increased 15%, while lengths of stay grew shorter by 11% (from 7.9 to 7.2 days).(20) Third, while we did not detect changes in utilization for higher intensity services, such as hospitalization, as a result of parity, it is likely that we were underpowered to detect changes for this service type. Finally, our approach excluded enrollees not continuously enrolled all four study years and so we cannot comment on the effect of the parity policy on spending and utilization among those individuals. However, this exclusion criterion was necessary to ensure that our study results were not biased by utilization patterns reflective of changes in the enrollee population, and enables a study design that provides more confidence that changes we observe are due to the FEHB Program parity policy rather than secular trends.

Our study provides important new information regarding the effect of implementing a comprehensive MH/SUD parity policy on diagnoses that vary in severity and chronicity. In the FEHB plans studied, care management appears to have played an important role in determining the relative effects of parity on individuals diagnosed with illnesses generally considered more severe and chronic versus less severe and more acute in nature. The results suggest that the interpretation of the MHPAEA regulations regarding parity in benefit management by plans, managed behavioral health organizations, and the government (in terms of its role in oversight and compliance monitoring) may be critical in determining whether the law achieves advocates' goal of increasing financial protection and access to care particularly for those with the most disabling conditions.

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Appendix 1

Regression results (Poisson and logistic) of annual spending and service utilization outcomes for FEHBP enrollees diagnosed with bipolar disorder, major depression and adjustment disorder post-parity implementation, compared to pre-parity (2000).

Change in annual spending and utilization				
Bipolar Disorder				
	2001		**2002**	
MHSA Spending	**Estimate**	**S.E.**	**Estimate**	**S.E.**
Probability of any spending	0.0105	0.0659	−0.0080	0.0659
Conditional on use:				
Total spending	−0.0562	0.0340	−0.0459	0.0421
Out-of-pocket spending	−0.2164	0.0329	−0.1684	0.0383
MHSA service utilization	**Estimate**	**S.E.**	**Estimate**	**S.E.**
Psychotherapy	−0.0104	0.0408	−0.1178	0.0522
Medication Management	−0.0565	0.0494	0.0437	0.0604
Prescriptions	−0.0336	0.0220	−0.0169	0.0244
Inpatient MHSA (bed days)	0.0002	0.2385	0.2519	0.2452
Major Depression				
MHSA Spending	**Estimate**	**S.E.**	**Estimate**	**S.E.**
Probability of any spending	−0.0000	0.0251	−0.0005	0.0272
Conditional on use:				
Total spending	−0.0490	0.0183	−0.0418	0.0225
Out-of-pocket spending	−0.2240	0.0187	−0.2047	0.0222
MHSA service utilization	**Estimate**	**S.E.**	**Estimate**	**S.E.**
Psychotherapy	0.0277	0.0203	−0.0617	0.0276
Medication Management	−0.0671	0.0280	−0.0179	0.0335
Prescriptions	−0.0071	0.0120	−0.0069	0.0140
Inpatient MHSA (bed days)	0.1018	0.2050	0.2366	0.2473
Adjustment Disorder				
MHSA Spending	**Estimate**	**S.E.**	**Estimate**	**S.E.**
Probability of any spending	0.0483	0.0255	0.0228	0.0282
Conditional on use:				
Total spending	−0.0481	0.0364	−0.1199	0.0431
Out-of-pocket spending	−0.1861	0.0372	−0.2263	0.0429
MHSA service utilization	**Estimate**	**S.E.**	**Estimate**	**S.E.**
Psychotherapy	−0.0322	0.0327	−0.1837	0.0443
Medication Management	0.0500	0.0971	0.1128	0.1282

Change in annual spending and utilization				
	Bipolar Disorder			
Prescriptions	0.0250	0.0289	0.0248	0.0320
Inpatient MHSA (bed days)	0.2193	0.4877	0.6250	0.5837

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Table 1

Population characteristics of continuously enrolled Federal Employees Health Benefit (FEHB) Program and comparison plan enrollees (N=29,615).

	FEHB Plans (N=19,094)		Comparison Plans (N=10,521)	
Characteristic	**N**	%	**N**	%
Female	12,392	64.9	7,211	68.5
Employee	11,827	61.9	6,692	63.6
Mean age [s.d.]*	46.2 [8.3]		43.6 11.0]	
Geographical Region				
Northeast	2,177	11.4	1,755	16.7
South	12,271	64.3	1,671	15.9
Midwest	1,292	6.8	6,262	59.5
West	3,354	17.6	833	7.9
Psychiatric Diagnosis*				
Bipolar Disorder	2,557	13.4	1,177	11.2
Major Depression	10,412	54.5	5,245	49.9
Adjustment Disorder	6,125	32.1	4,099	39.0

Notes: We compare enrollees of seven FEHB plans with enrollees of comparison plans operated by large, self-insured employers in the MarketScan database over the period 1999-2002. Age was established in the baseline year (1999).

Table 2

Annual service utilization and spending pre-parity (2000) among enrollees diagnosed in 1999 with bipolar disorder, major depression and adjustment disorder in FEHB and comparison plans (N=29,615).

	FEHB Plans (N=19,094)		**Comparison Plans (N=10,521)**	
	Pre Parity (2000)		**Pre Parity (2000)**	
Bipolar disorder	N = 2,557		N=1,177	
Major depression	N = 10,412		N = 5,245	
Adjustment disorder	N = 6,125		N = 4,099	
Probability of any MH/SUD use	**N**	%	**N**	%
Bipolar Disorder	2,287	89.4	1,104	93.8
Major Depression	8,791	84.4	4,699	89.6
Adjustment Disorder	3,483	56.9	2,599	63.4
Conditional on use, per person MH/SUD spending	**Mean**	**s.d.**	**Mean**	**s.d.**
Bipolar disorder				
Total spending	$3,116	$5,293	$3,576	$5,220
Out-of-pocket spending	$787	$1,086	$389	$430
Major Depression				
Total spending	$1,929	$3,049	$2,414	$3,931
Out-of-pocket spending	$563	$732	$301	$427
Adjustment Disorder				
Total spending	$1,105	$1,431	$1,214	$1,785
Out-of-pocket spending	$428	$432	$179	$241
MH/SUD Utilization				
Bipolar Disorder	**N**	%	**N**	%
Any psychotherapy visit	1,328	51.9	725	61.6
Any medication management visit	1,023	40.0	570	48.4
Any MH/SUD hospitalization	175	6.8	89	7.6
Any MH/SUD prescription	2,059	80.5	1,050	89.2
Conditional upon use	**Mean**	**s.d.**	**Mean**	**s.d.**
# Psychotherapy visits	10.8	10.3	10.8	10.9
# Medication management visits	4.4	3.5	4.6	3.9
# MH/SUD inpatient days	14.2	12.7	16.1	17.5
Major Depression	**N**	%	**N**	%
Any psychotherapy visit	5,047	48.5	3,035	57.9
Any medication management visit	3,269	31.4	1,918	36.6
Any MH/SUD hospitalization	290	2.8	117	2.2
Any MH/SUD prescription	7,590	72.9	4,319	82.4
Conditional upon use	**Mean**	**s.d.**	**Mean**	**s.d.**
# Psychotherapy visits	10.5	10.1	11.6	12.1

	FEHB Plans (N=19,094)		Comparison Plans (N=10,521)	
	Pre Parity (2000)		Pre Parity (2000)	
# Medication management visits	3.8	3.2	3.6	2.8
# MH/SUD inpatient days	10.5	10.6	14.4	19.2
Adjustment Disorder	**N**	%	**N**	%
Any psychotherapy visit	2,465	40.2	1,890	46.1
Any medication management visit	260	4.2	202	4.9
Any MH/SUD hospitalization	25	0.4	20	0.5
Any MH/SUD prescription	1,890	30.9	1,474	36.0
Conditional upon use	**Mean**	**s.d.**	**Mean**	**s.d.**
# Psychotherapy visits	11.3	9.6	10.1	10.1
# Medication management visits	3.3	2.4	3.2	2.4
# MH/SUD inpatient days	7.2	7.5	11.6	12.7

Notes: We compare enrollees of seven FEHB plans with enrollees of comparison plans operated by large, self-insured employers in the MarketScan database over the period 1999-2002.

Table 3

Difference-in-difference results for annual MH/SUD spending outcomes for enrollees diagnosed with bipolar disorder, major depression and adjustment disorder post-parity implementation (2002), compared to pre-parity (2000).

	2002	
Probability of Any MH/SUD Use	***% Change***	***95% CI***
Bipolar Disorder	−1.7	(−3.7, 0.4)
Major Depression	−1.9	(−3.0, 0.6)
Adjustment Disorder	0.6	(−1.5, 2.9)
MH/SUD Spending, Conditional on use	***$ Change***	***95% CI***
Bipolar Disorder		
Total spending	−140	(−377, 94)
Out-of-pocket spending	**−86**	(−121, −52)
Major Depression		
Total spending	−30	(−108, 49)
Out-of-pocket spending	**−78**	(−92, −63)
Adjustment Disorder		
Total spending	**−114**	(−193, −41)
Out-of-pocket spending	**−78**	(−95, −63)

Notes: Individuals were identified for each diagnostic group based on ICD-9 diagnosis codes in 1999 claims data. The difference-in-difference results reflect changes pre- (2000) versus post (2002) for individuals in the FEHB Program group relative to individuals in the comparison group. CI refers to confidence interval. Entries appear in bold text if p≤0.007 (Bonferroni adjusted p. values for multiple comparisons equivalent to p.<. 05).

Table 4

Difference-in-difference results for annual MH/SUD service utilization outcomes for enrollees diagnosed with bipolar disorder, major depression and adjustment disorder post-parity implementation (2002), compared to pre-parity (2000).

	2002	
	% Change	*95% CI*
Bipolar Disorder ^		
Psychotherapy Visits	−10.0	(−20.0, −1.7)
Medication Management Visits	3.8	(−7.2, 14)
MH/SUD Prescriptions	−1.7	(−6.1, 2.9)
Inpatient Days	17.0	(−18.0, 50.0)
Major Depression ^		
Psychotherapy Visits	−4.6	(−8.8, −0.7)
Medication Management Visits	−1.4	(−6.5, 3.7)
MH/SUD Prescriptions	−0.7	(−3.3, 2.0)
Inpatient Days	18.0	(−21.0, 51.0)
Adjustment Disorder ^		
Psychotherapy Visits	**−12.0**	(−17.0, −6.1)
Medication Management Visits	12.0	(−17.0, 39.0)
MH/SUD Prescriptions	2.7	(−4.2, 9.6)
Inpatient Days	53.0	(−100.0, 183.0)

Notes: Individuals were identified for each diagnostic group based on ICD-9 diagnosis codes in 1999 claims data. The difference-in-difference results reflect changes pre- (2000) versus post (2002) for individuals in the FEHB Program group relative to individuals in the comparison group. CI refers to confidence interval. Entries appear in bold text if p≤0.007 (Bonferroni adjusted p. values for multiple comparisons equivalent to p.<. 05).

^Adjusted changes are not conditional upon use but averaged among all enrollees in a diagnostic cohort.