

Impact of State Mental Health Parity Laws on Access to Autism Services

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Objectives: This study examined the effect of state mental health parity laws on family financial burden, satisfaction with health insurance, and receipt of needed mental health services for privately insured children ages three to 17 with autism spectrum disorder (ASD). **Methods:** Data came from the 2005–2006 wave of the National Survey of Children With Special Health Care Needs. An econometric approach with instrumental variables was used to control for the nonrandom selection of states according to their mental health parity laws. The study analyzed data for 949 youths with ASD and private health insurance. Six outcome variables were examined, including several measures of family financial burden, satisfaction with health insurance, and receipt of needed mental health services. **Results:** Families of children needing mental health services and living in a state with a strict parity law had a 61% higher probability of reporting out-of-pocket spending >\$1,000 compared with those not living in a strict parity state. Compared with families of children living in a strict parity state that did not specify ASD, those living in a strict parity state that specified ASD had a 92% higher probability of reporting unreasonable out-of-pocket spending. All other results were statistically insignificant. **Conclusions:** In contrast with previous research, this study did not find strong evidence that state mental health parity laws positively affected service access for children with ASD. Future research on the effect of autism insurance reform will provide a more precise test of the impact of insurance mandates on improving access to treatment services for children with ASD. (*Psychiatric Services* 64:967–973, 2013; doi: 10.1176/appi.ps.201200411)

Autism spectrum disorder (ASD) is a chronic developmental disorder recently estimated to affect one in 88 children in the United States (1). Gaining coverage for mental health services related to ASD is critical to families and children. Mental health parity laws may help to ensure such access. Understanding these laws' effect on children with ASD is critical and may foreshadow the effect of more expansive and condition-specific health care coverage for individuals with ASD.

Currently 49 states have passed some form of mental health parity legislation that makes insurance coverage for mental health conditions more equal to coverage for general health care. Federal parity legislation, enacted in 1996 and again in 2008, is less restrictive than state laws, requiring parity only if a health plan offers mental health coverage. Insurers have traditionally limited coverage for mental health conditions because economic models predict increased use in response to decreased cost-

sharing (2,3) and because of adverse selection, in which individuals with the most costly conditions (mental disorders, for example) are more likely to seek insurance (4,5).

Mental health parity laws vary widely in coverage and scope across states and in the states' definitions of mental illness. Peck and Scheffler (6) reported definitions across three categories: broad-based mental illness, serious mental illness, and biologically based mental illness. Mental health conditions covered by state parity laws also fall into categories with respect to ASD coverage. Autism Speaks, a science and advocacy organization, reviewed the 49 states with mental health parity laws and identified three different scenarios: 25 states included ASD in mental health parity coverage, 17 states excluded ASD, and seven states did not specify mental health conditions or mental illnesses for inclusion in or exclusion from mental health coverage (Rogers A, "Effect of the Mental Health Parity Addiction Equity Act on Autism," personal communication, 2010). We built upon this review and incorporated the variation across states in our estimation strategy.

Several published articles have examined the effect of state parity laws on adults and children with mental health needs (7–11). The research on children finds that parity laws reduce family financial burden but do not improve receipt of needed mental health services. In particular, Barry and Busch (10) found that state laws with moderately strict parity criteria lead to less out-of-pocket spending and financial burden, especially for families reporting a need for mental health services. Moderately strict parity refers to state laws that differ

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from federal legislation, are not limited to a particular segment of the population (such as state employees), or do not exist solely to allow insurers to impose limits for services. Our study extends this research using the same definition of moderately strict (hereafter strict) parity in two significant ways. First, we examined the effects of mental health parity legislation for the subpopulation of children with ASD by using nationally representative data collected between 2005 and 2007. Second, we distinguished between strict parity laws that explicitly or implicitly cover ASD from those that do not.

We hypothesized that living in a state with strict parity is associated with less family financial burden, greater satisfaction with insurance, and greater receipt of needed mental health care for children with ASD. We also hypothesized that states with strict parity laws that explicitly or implicitly cover ASD will amplify these effects relative to states with laws that do not cover ASD.

Methods

Data

We used data from the 2005–2006 wave of the National Survey of Children With Special Health Care Needs (NS-CSHCN). The data include responses collected by telephone from parents and guardians of children with special health care needs between April 2005 and February 2007. Details of the sampling design and collection procedures have been described previously (12). A key attribute of the NS-CSHCN is the sampling design, which permits researchers to estimate state populations of children with special health care needs, as defined by a validated, five-question screener (13). This is the first wave of the NS-CSHCN that allows for identification of children with parent-reported ASD.

The study sample focused on the subpopulation of children ages three to 17 with ASD who are privately insured. We also excluded data from two states (Iowa and Idaho) that enacted mental health parity laws during the period the NS-CSHCN was being administered. Excluding a small number of observations with missing values, the sample totaled 949 children.

Study variables

The NS-CSHCN includes several parent-reported measures of family financial burden due to medical care, satisfaction with health insurance, and receipt of needed mental health services. Family financial burden was analyzed using the same four dichotomous outcomes as Barry and Busch (10). Specifically, we examined whether families reported out-of-pocket spending for medical care totaling \$1,000 or more, financial problems resulting from the child's health condition, need for additional income to cover the child's medical expenses, and charges not covered by insurance that are never or sometimes reasonable. We also analyzed adequacy of family-reported health insurance. Specifically, we used a dichotomous measure of whether families indicated that the child's health insurance offered benefits or covered services that met the child's needs usually or always. Finally, we analyzed a single measure indicating whether the child received needed mental health services during the past 12 months.

The primary independent variable was whether a state had a strict mental health parity law in effect as of April 2005. This variable was further categorized by whether a state had a parity law that explicitly or implicitly included or excluded ASD. Several sources were used to identify states with strict parity laws and their effective dates. Key sources used in previous research include Web sites of the National Conference of State Legislatures and the National Alliance on Mental Illness. Effective dates were compared across these sources and other published articles on the topic (7,14). Because there were discrepancies in effective dates across sources, we determined final effective dates by tracing each state law's history through Lexis-Nexis Academic and Hein online databases. Table 1 presents the results.

We used several other variables from the NS-CSHCN as controls: child demographic characteristics (age, race-ethnicity, and gender), household characteristics (one adult in the household, family income in relation to the federal poverty level, and whether the

interview was conducted in a language other than English), and maternal characteristics (such as education level). We included several variables to capture the severity of the child's special health care need, including how often the special need affects the child, stability of special health care needs, and severity of the child's difficulties. Finally, we included a dichotomous variable indicating whether the child needed mental health care or counseling in the past 12 months. The Northwestern University Institutional Review Board approved the use of these public-use, deidentified data.

Statistical analysis

Because states are not randomly assigned to parity laws, an ordinary least-squares (OLS) regression estimate of parity laws' effects may be biased; a state's decision to pass parity legislation may result from other factors also related to outcomes. Sturm and Pacula (7) found that states with below-average mental health service use were more likely to pass legislation than states with above-average use. To address this potential bias, we used an econometric approach with instrumental variables in a two-stage regression framework (15). Specifically, we tested candidate instrumental variables that were likely to predict passage and type of state parity law and that were unlikely to be correlated with our child-level outcome measures. In addition to the variables used by Barry and Busch (10), we also examined the strength of all significant predictors of mental health parity laws identified by Van Sickle-Ward (16). We found that three variables—state political party power index (17), political ideology index (18), and Squire's professionalism score (19)—yielded the strongest prediction of state parity law in first-stage regressions (results not shown). Like Barry and Busch, we found that professionalism of a state's legislature was negatively associated with passage of a parity law, whereas Democratic-dominated state executive and legislative branches and a Democratic-leaning electorate were positively associated with passage of a parity law; however, our joint F

statistics were lower than the ones reported by Barry and Busch.

We used a two-stage least-squares (2SLS) estimation procedure in Stata version 12 (ivregress) to fit the models (20). Furthermore, we used Stata version 12 svy procedures to correctly incorporate the complex design and weights used in the NS-CSHCN for subpopulation estimates.

Results

Table 2 shows descriptive statistics, weighted to reflect this subpopulation of U.S. children with special needs. Forty-six percent lived in a state with some type of strict parity law. A greater percentage of children with ASD covered by private insurance lived in a state with a condition-specific parity law (35%) than lived in a parity law state that did not explicitly or implicitly cover ASD (11%). There was only one significant difference among the control variables by type of parity law: 88% of children living in condition-specific parity law states were male, compared with just under 80% of children living in other types of parity states ($p < .05$). As expected, states differed significantly across parity law type according to the instrumental variables used in the estimation procedure ($p < .001$).

Table 3 presents OLS and 2SLS estimates of the effects of strict parity laws. For both estimation approaches, model 1 included a separate control for needing mental health services, whereas model 2 included an interaction between needing mental health services and the parity law effect. OLS estimates revealed no significant effects of strict parity laws on child outcomes in either model. After accounting for unobserved heterogeneity in the 2SLS estimates, analyses indicated that the point estimates of the parity effect uniformly increased. In model 1, living in a strict parity law state implied a 22% increase in parental reports that the child's health insurance met his or her needs ($p < .05$). Although not always significant, in most cases the direction of the parity effect differed for children with parent-reported need for mental health services (model 2). Specifically, children needing mental health services and living in a strict parity state

Table 1

Parity laws in the United States, by level of restriction and coverage of autism spectrum disorder (ASD)

Strict parity law					
ASD explicitly or implicitly covered		ASD not explicitly or implicitly covered		No strict parity law in effect	
State (N=17)	Effective date	State (N=11)	Effective date	State (N=22)	Effective date
Alabama	2001	Colorado	1998	Alaska ^a	2009
Arkansas	1997	Delaware	1999	Arizona ^{a,b}	1998
California	2000	Hawaii	1998	Florida ^b	1983
Connecticut	2000	Idaho ^c	2006	Illinois ^b	2002
Georgia	1998	Indiana	1997	Kansas ^b	2002
Iowa ^c	2006	Maryland ^a	1994	Louisiana ^b	2000
Kentucky	2000	New Mexico ^a	2000	Massachusetts ^b	2001
Maine	1996	Oklahoma	2000	Michigan ^{a,b}	2000
Minnesota	1995	South Dakota	1998	Mississippi ^b	1991
Missouri	1999	Utah	2001	Nevada ^b	2000
Montana	2000	West Virginia	2002	New York	2007
Nebraska	1999			North Carolina	2008
New Hampshire	1995			North Dakota ^{a,b}	1985
New Jersey	1999			Ohio	2007
Rhode Island	1995			Oregon	2008
Virginia	2000			Pennsylvania ^b	1999
Vermont	1998			South Carolina ^b	1997
				Tennessee ^b	2000
				Texas ^b	1997
				Washington	2008
				Wisconsin ^{a,b}	1999
				Wyoming ^a	2008

^a State laws were unclear with respect to treatment of ASD. None were considered to explicitly or implicitly cover ASD.

^b State with a parity law in effect during the study period but which failed to meet the study criteria for strict parity. Although lacking strict parity, 6 of these states (Florida, Illinois, Kansas, Louisiana, Massachusetts, and Mississippi) had laws that explicitly or implicitly covered ASD.

^c Excluded from the analysis because the parity law for this state was enacted during the time of survey data collection.

were 61% more likely to report out-of-pocket spending greater than \$1,000, whereas those not needing mental health services were 39% less likely to report such expenses ($p < .01$). Living in a parity law state also implied an increased likelihood of satisfaction with health insurance for those who did not need mental health services (33%, $p < .05$) and a decreased likelihood of satisfaction among those needing mental health services (−27%, not significant). There was no effect of parity on receiving needed mental health care or whether a parent reported unreasonable out-of-pocket spending.

Table 4 presents the OLS and 2SLS estimates for the three-level categorical variable that distinguished the specific type of parity law. The reference category is parity states without condition specificity. In contrast

to what was expected, we found that living in a parity state with condition specificity increased the probability of reporting unreasonable out-of-pocket spending. Specifically, living in a condition-specific parity state implied a 92% increase in the probability of reporting unreasonable out-of-pocket spending ($p < .05$). Similarly, living in states without parity laws implied an increased probability of reporting unreasonable out-of-pocket spending compared with states in the reference category (51%, $p < .05$). The only other significant effect of parity law type was a decreased probability of reporting that insurance meets needs in states without a parity law compared with states with a non-ASD-specific parity law (−54%, $p < .05$). None of these results conformed to our hypotheses about the impact of condition-specific parity laws.

Table 2Descriptive statistics by type of state parity law, NS-CSHCN 2005–2006^a

Variable	Full sample (unweighted N=949)	Strict condition- specific (ASD) parity state (unweighted N=342)	Strict non-ASD- specific parity state (unweighted N=194)	Not a strict parity state (unweighted N=413)	p ^b
Independent					
Lives in strict parity state	45.9	100.0	100.0	.0	<.001
Lives in strict condition-specific (ASD) parity state	34.6	100.0	.0	.0	<.001
Lives in strict non-ASD-specific parity state	11.3	.0	100.0	.0	<.001
Does not live in strict parity state	54.1	.0	.0	100.0	<.001
Age (mean±SE years)	9.8±.2	10.0±.4	10.2±.4	9.7±.3	.568
Male	82.4	88.2	78.1	79.7	.042
Race-ethnicity					.318
Hispanic	8.8	7.4	4.8	10.5	
Nonwhite	11.1	13.6	12.4	9.2	
White	80.1	79.0	82.9	80.2	
Interview not conducted in English	.7	.0	1.5	.9	.133
1 adult in household	9.7	7.5	10.1	11.0	.442
Mother has high school education or less	16.0	14.8	16.8	16.6	.913
% of federal poverty level					.069
<50%	.5	1.1	.3	.1	
<100%	2.0	.3	.3	3.4	
<133%	4.2	1.4	4.5	5.9	
<150%	2.9	.7	3.7	4.2	
<185%	2.7	2.4	3.3	2.7	
<200%	3.8	4.1	3.4	3.8	
<300%	18.4	20.2	13.1	18.3	
<400%	20.1	22.0	22.8	18.4	
≥400%	45.4	47.8	48.6	43.3	
Parent-reported severity of child's health problems					.694
Minor	16.0	15.1	14.6	16.9	
Moderate	63.0	60.9	64.3	64.0	
Severe	19.1	21.2	20.9	17.4	
Parent-reported time affected by special health care need					.459
Never	6.1	7.5	4.7	5.5	
Sometimes	37.2	38.6	37.5	36.2	
Usually	17.9	13.5	25.4	19.2	
Always	38.8	40.3	32.4	39.1	
Parent-reported stability of special health care need					.149
Needs change all of the time	8.5	9.7	6.5	8.1	
Needs change only once in a while	30.6	37.1	32.9	26.1	
Needs are usually stable	60.9	53.3	60.6	65.8	
Parent-reported need for mental health or counseling services in past 12 months	50.9	53.4	49.2	49.6	.713
Dependent					
Reported spending ≥\$1,000	46.2	45.9	47.7	46.1	.961
Out-of-pocket spending unreasonable	52.4	56.8	47.7	50.5	.374
Child's health care caused financial problems	37.0	37.9	42.5	35.3	.610
Child's health care requires additional income	34.7	34.0	38.0	34.4	.860
Child's health insurance meets needs	68.9	66.5	69.6	70.2	.726
Child received mental health service	81.0	78.2	69.3	85.3	.334
Instrumental					
State's party power index (mean±SE) ^c	1.58±.1	1.93±.1	1.99±.1	1.28±.1	<.001
State's political ideology index (mean±SE) ^d	-.11±.0	-.09±.0	-.12±.0	-.12±.0	.005
State's legislative professionalism score in 1986 (mean±SE) ^e	.33±.0	.34±.0	.18±.0	.36±.0	<.001

^a Values are weighted percentages and means±SE, with weights and design elements of the National Survey of Children With Special Health Care Needs (NS-CSHCN) applied to the study subpopulation (N=949).

^b Values reflect the comparison across the three parity law types; means were compared by t tests and proportions by chi square tests.

^c The index ranges from 0 to 3, with higher scores indicating a more Democratic versus Republican state government.

^d The index ranges from -1 to 1, with positive scores indicating an electorate that self-identify more as liberals than conservatives.

^e Possible scores range from .04 to .66, with higher scores indicating a higher percentage of professionalism in the state's legislature compared with the U.S. Congress in 1986.

Table 3Effect of strict state parity laws on outcomes of children with an autism spectrum disorder^a

Outcome	Ordinary least-squares estimate				2-stage least-squares estimate ^b			
	Model 1		Model 2		Model 1		Model 2	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Out-of-pocket spending >\$1,000								
Parity law in effect	-.03	.03	-.04	.05	-.09	.10	-.39**	.13
Needed mental health care	.10*	.04	.09*	.04	.10*	.04	-.18†	.11
Parity × mental health need			.01	.08			.61**	.19
Out-of-pocket spending unreasonable								
Parity law in effect	.03	.05	.04	.08	-.07	.11	-.07	.14
Needed mental health care	.01	.06	.02	.09	.01	.05	-.08	.12
Parity × mental health need			-.02	.13			.18	.21
Child's health has caused financial problems								
Parity law in effect	.02	.03	-.02	.06	.05	.09	.07	.12
Needed mental health care	.09*	.03	.05	.05	.09*	.04	.08	.10
Parity × mental health need			.08	.08			.01	.18
Needed additional income to care for child								
Parity law in effect	-.00	.03	-.06	.05	-.05	.09	-.12	.12
Needed mental health care	.12**	.04	.06	.06	.12**	.04	.03	.01
Parity × mental health need			.12	.07			.19	.18
Insurance meets needs								
Parity law in effect	-.02	.05	-.00	.06	.22*	.10	.33*	.14
Needed mental health care	-.02	.03	-.00	.05	-.01	.04	.11	.10
Parity × mental health need			-.03	.07			-.27	.20
Received all needed mental health care (unweighted N=469)								
Parity law in effect	-.09	.06	—	—	-.12	.15	—	—

^a All estimates are weighted with weights and design elements of the National Survey of Children With Special Health Care Needs applied to the study subpopulation. Model 1 regressed each of the outcomes on living in a strict parity law state, child demographic characteristics (age, gender, and race-ethnicity), being interviewed in a language other than English, one adult in household, mother with high school education or less, poverty level, parent-reported severity, parent-reported time affected, parent-reported stability of need, and child needing mental health services in the past 12 months. Model 2 added to model 1 an interaction between needing mental health services and living in a strict parity law state. Unweighted N=949 for all four models.

^b First-stage model 1, $F=5.10$, $df=3$ and 47 , $p=.004$; first-stage model 2, with parity law in effect, $F=10.02$, $df=6$ and 47 , $p<.001$, parity law in effect × needed mental health care, $F=4.47$, $df=6$ and 47 , $p=.001$

* $p<.05$, ** $p<.01$

† $p<.10$

Discussion

This study found no strong evidence that state mental health parity laws lower family financial burden or increase either satisfaction with health insurance or receipt of needed mental health services for children with ASD. Although having a strict parity law was associated with a lower likelihood of higher out-of-pocket spending for autism services, this applied only for those who did not report needing mental health services. For children with need, living in a strict parity state increased the probability of out-of-pocket spending. Our findings of the effect of strict parity on satisfaction with health insurance also ran counter to expectations. Although we anticipated amplified effects for condition-specific parity laws, we found none.

Our findings do not align with those of Barry and Busch (10), who found

significant beneficial effects of strict parity laws on financial burden, which were heightened for children with identified need. There are several reasons why our results may differ. First, if availability of ASD-specific therapies differs between states, possibly because of state-specific availability of publicly funded services, it is likely that families of privately insured children with ASD will not benefit from protections and access to services that parity laws afford children with other mental health conditions. It is also possible that our findings reflect changes in the landscape of ASD treatments since the Barry and Busch analysis in 2001. Finally, results from their analysis may be sensitive to the use of sample weights and identification of states with strict parity. In additional analysis (not shown), we found regression estimates from the

2001 NS-CSHCN data to be sensitive to the use of sample weights, whereas the 2005–2006 data were not. Our set of parity states also differed slightly from those of Barry and Busch given differences in our study periods and our interpretation of strict parity in a few states.

Some of our 2SLS findings on out-of-pocket spending aligned with a recent study of children with ASD (21), which found that families living in states with parity legislation were 29% less likely than families in nonparity states to report \$500 or more in out-of-pocket spending. Although the size of the effect was much larger than what we found using a \$1,000 threshold, there are several notable differences between the parity definition used in their study and our analysis. In particular, the authors identified only four states as having ASD-relevant

Table 4

Effect of condition-specific state parity laws on outcomes of children with an autism spectrum disorder^a

Outcome	Ordinary least-squares estimates (unweighted N=949)		2-stage least-squares estimates (unweighted N=949) ^b	
	Coefficient	SE	Coefficient	SE
Out-of-pocket spending >\$1,000				
Parity law type (reference: law without condition specificity)				
Parity law in effect with condition specificity	-.02	.03	.53	.47
No parity law in effect	.01	.03	.35	.25
Needed mental health care	.10*	.04	.09†	.04
Out-of-pocket spending unreasonable				
Parity law type (reference: law without condition specificity)				
Parity law in effect with condition specificity	.09	.07	.92*	.44
No parity law in effect	.04	.05	.51*	.25
Needed mental health care	.00	.06	-.01	.05
Child's health has caused financial problems				
Parity law type (reference: law without condition specificity)				
Parity law in effect with condition specificity	-.06	.04	-.36	.46
No parity law in effect	-.06†	.04	-.22	.24
Needed mental health care	.09*	.03	.09*	.04
Needed additional income to care for child				
Parity law type (reference: law without condition specificity)				
Parity law in effect with condition specificity	-.04	.07	-.31	.50
No parity law in effect	-.03	.07	-.01	.26
Needed mental health care	.12**	.04	.12**	.04
Insurance meets needs				
Parity law type (reference: law without condition specificity)				
Parity law in effect with condition specificity	-.02	.09	-.68	.49
No parity law in effect	.00	.09	-.54*	.26
Needed mental health care	-.02	.03	-.01	.04
Received all needed mental health care (unweighted N=469)				
Parity law type (reference: law without condition specificity)				
Parity law in effect with condition specificity	.08	.08	-.41	.67
No strict parity law in effect	.16**	.05	-.10	.35

^a All estimates are weighted with weights and design elements of the National Survey of Children With Special Health Care Needs applied to the study subpopulation. Each of the outcomes was regressed on parity law type, child demographic characteristics (age, gender, and race-ethnicity), being interviewed in a language other than English, one adult in household, mother with high school education or less, poverty level, parent-reported severity, parent-reported time affected, parent-reported stability of need, and child needing mental health services in the past 12 months.

^b First stage, parity law in effect with condition specificity, $F=5.10$, $df=3$ and 47 , $p=.523$; first stage, no parity law in effect, $F=5.10$, $df=3$ and 47 , $p=.004$

* $p<.05$, ** $p<.01$

† $p<.10$

parity legislation in 2005, in contrast to the 25 states we verified. This difference underscores the complexity embedded within mental health

parity legislation and the difficulty of classifying it in uniform ways.

The study findings suggest that more specific policy in recent state

autism insurance reforms may not automatically translate into benefits for families. According to Autism Votes, 31 states have enacted autism insurance reform laws as of January 2013 (www.autismspeaks.org/advocacy/states). Unlike mental health parity legislation, most of these laws explicitly name ASD treatments such as applied behavior analysis (ABA) and speech, occupational, and physical therapies. Although the impact of more specific policy on outcomes for children with ASD remains unclear empirically, previous research on the politics of policy specificity suggests that political fragmentation contributes to ambiguity in mental health policy (16). If the enactment of autism-specific insurance reform signals less political fragmentation, we anticipate a positive impact on families. The implementation of autism insurance reform will allow us to test the impact of a more specific policy that can be compared with our study results.

Although the use of instrumental variables to address selection bias is a strength of our study, the technique requires that specific conditions be met in order to yield unbiased estimates. Two key conditions include the strength of these variables and the "exclusion restriction" (15). The exclusion restriction cannot be tested empirically. For our instrumental variable estimates to be unbiased, we must assume that the political variables used as instrumental variables have no independent effect on child outcomes. We believe this assumption is reasonable because our dependent variables reflect family-level perceptions of economic strain and unmet need that are unlikely to be influenced by state-level political climate. "Weak" instruments (F statistics <10) can be identified empirically and lead to estimates that are biased toward the OLS estimates and less precisely estimated (15,22). Although some of our models had F statistics below the desired threshold, J statistics testing the joint hypotheses of correct model specification and orthogonality conditions were not rejected. We explored alternative estimating methods for dealing with weak instruments (such as limited information maximum likelihood) and found no substantive differences in our results.

In addition to selection bias, other bias may arise from the effect of parity law passage on the pool of privately insured children with ASD. Our analysis examined the impact of parity only on individuals who had secured health insurance after parity law enactment. This criterion may represent a more restricted pool of privately insured individuals than is available in states without parity laws.

There are other important limitations of our study. The findings are subject to the limitations of concepts measured in the survey responses. It is possible that parents do not think of their child as needing mental health treatments when considering interventions such as ABA. Only 50% of parents of children with ASD reported need for mental health treatments in the past 12 months, compared with 74% who reported needing speech, physical, or occupational therapies for their children with ASD. This tendency could explain the lack of effects with respect to receipt of needed mental health services, but it does not explain the counterintuitive direction of some effects for those with need. Another potential limitation stems from the variation in implementation patterns and possible lagged effects, which could have introduced measurement error in our estimates. The data used in this study do not include information about the implementation of parity law across or within states. Because all strict parity laws were passed no later than 2002, it is less likely that variation in implementation would have affected our estimates. Our study design ensured that states had at least three years to implement parity laws before outcome data were collected.

Offsetting these limitations is the strength of using nationally representative data to identify state-level effects for a particular developmental condition. These data allowed us to identify the effect of state legislation for a subpopulation that has significant policy relevance to the mental health community. To our knowledge we are among the first to test the effect of strict mental health parity on children with ASD across the United States. Future releases of the NS-CSHCN include greater numbers

of children with ASD, which will allow for more robust estimates of the effect of autism insurance reform in future research.

Conclusions

In contrast to previous research with children who have special health care needs, this study found that state mental health parity laws did not have a large impact on the family financial burden or satisfaction with health insurance or on receipt of needed mental health care among privately insured children with ASD. When statistically significant results were found, they often did not imply benefits for families of children with ASD. Future research on the effect of autism insurance reform will provide a more precise test of the impact of insurance mandates on improving the ability of families to provide needed treatment services for children with ASD.

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