Foster Care, Externalizing Disorders, and Antipsychotic Use Among Medicaid-Enrolled Youths

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Objectives: **The authors investigated the extent to which clinical diagnoses of externalizing disorders explain higher rates of antipsychotic use by foster care youths.** ***Methods:*** **Medicaid claims data from 44 states for 2009 for youths in foster care (N=301,894) and those not in foster care (N=5,092,574) were analyzed, excluding those with schizophrenia, bipolar disorder, autism, and major depressive disorder. Logistic regressions assessed the relationship between foster care, externalizing disorders, and antipsychotic use.** ***Results:*** **Foster care youths had higher rates of externalizing disorders than the comparison group (attention-deficit hyperactivity disorder, 17.3% versus 6.5%; disruptive behavior disorder, 7.2% versus 2.5%; conduct disorder, 2.3% versus .5%) and greater antipsychotic use (7.4% versus 1.4%). Foster care remained a significant predictor of antipsychotic use after control for demographic and diagnostic covariates, including externalizing disorders (adjusted odds ratio=2.59, 95% confidence interval=2.54–2.63).** ***Conclusions:*** **High rates of externalizing disorder diagnoses only partially explained elevated levels of antipsychotic use in this vulnerable population. (*Psychiatric Services* 65:1281–1284, 2014; doi: 10.1176/appi.ps.201300455)**

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The broadening use of antipsychotic medications by children and adolescents who do not have psychotic, developmental, or major mood disorders has raised concerns in recent years (1). Although pediatric use of some second-generation antipsychotics has been approved by the U.S. Food and Drug Administration (FDA) for specific clinical indications, including schizophrenia, bipolar mania, and agitation associated with autism (2), antipsychotics are increasingly being used to treat externalizing disorders, including attention-deficit hyperactivity disorder (ADHD), disruptive behavior disorder, and conduct disorders (3). Clinical trials have demonstrated rapid improvement in externalizing symptoms after antipsychotic treatment; however, significant cardiometabolic side effects, including weight gain and hyperlipidemia, have also been observed (4), which highlights the need to weigh potential risks and benefits when considering antipsychotic treatment for externalizing behaviors of children and adolescents.

Relatively high rates of antipsychotic use have been reported among youths in foster care (5–7). In one state foster care system, 37.9% of youths had been prescribed at least one psychotropic medication over the course of a year and about half of these had received an antipsychotic (7). Approximately 8.4% of children continuously enrolled in another state's foster care system received an antipsychotic, comparable with 9.7% in the youth population with disabilities who receive Supplemental Security Income (SSI) (6). Given the well-documented, high levels of mental health need among foster care youths (8,9), elevated rates of antipsychotic use are not unexpected. However, the extent to which such use corresponds with clinical diagnoses of externalizing disorders has not been established. The aim of this study was to determine the degree to which elevated rates of antipsychotic treatment among foster care youths is explained by clinical diagnoses of externalizing disorders.

Methods

Data were derived from Medicaid Analytic eXtract (MAX), a claims database

maintained by the Centers for Medicare and Medicaid Services. Our initial sample included all Medicaid fee-for-service claims for 2009 from 44 states (excluding Arizona, Delaware, Maine, Nevada, Oregon, and Rhode Island). To minimize the likelihood of including youths who might have received additional mental health services not billed to Medicaid, we included only those who were continuously eligible for Medicaid throughout the 12-month period, did not receive any long-term care or care through a health maintenance organization, and were not Medicare eligible.

We limited our foster care sample to youths who were eligible for foster care for all of 2009, which included 86.8% of otherwise eligible youths who had one or more months of foster eligibility. Our comparison group consisted of youths who were eligible for Medicaid for all of 2009 on the basis of either family income (Temporary Assistance for Needy Families and the State Children' Health Insurance Program; 93.0%), disability (SSI; 6.5%), or a combination of income- and disability-based eligibility months (.5%).

Clinical diagnoses of mental disorders were determined by the presence of any claims (inpatient or outpatient) during calendar year 2009 that included the corresponding *ICD-9-CM* diagnostic code. To focus our analyses on antipsychotic use for externalizing disorders in the absence of any additional mental disorder diagnosis for which antipsychotic use is strongly indicated, we removed from our sample individuals with any diagnosis for which an FDA-approved indication exists for antipsychotic use (for youths of any age and for any individual antipsychotic medication). These diagnoses include schizophrenia, bipolar disorder, and autism (2), as well as major depressive disorder. The Rutgers University Institutional Review Board determined that this project did not constitute human subjects research.

Antipsychotic use was determined by the presence of any prescription drug claim during calendar year 2009 for either first- or second-generation antipsychotics, without regard to dosage or days supplied. Age, race-ethnicity, and gender were obtained through the MAX patient-level summary file. *ICD-9-CM* codes identified the diagnoses of externalizing disorders of interest: ADHD, disruptive behavior disorder, and conduct disorder. Because foster care youths are more likely than youths not in foster care to exhibit a variety of psychiatric symptoms, three additional variables were created. Given the trauma experienced by many foster care youths (10), we created a stress-related disorder variable that included acute stress disorder and posttraumatic stress disorder. Substance use disorder encompassed alcohol- and drug-related disorders. Other mental disorders included all mental disorders other than those previously specified, including but not limited to mild or moderate depression, anxiety, and adjustment disorders and related conditions. A comorbidity variable was coded as no diagnosis, one diagnosis, or two or more diagnoses.

Prevalence of antipsychotic use was determined overall and within demographic and diagnostic subgroups of interest, with stratification by foster status. The unadjusted effect of foster status on antipsychotic use was first calculated through a logistic regression model (model 1). A second model controlled for demographic characteristics (model 2), and a third model controlled for demographic characteristics and diagnoses (model 3). All analyses were conducted with SAS, version 9.4.

Results

Foster care youths differed significantly in several respects from those not in foster care. Compared with youths not in foster care, those in foster care were significantly older and more likely to be male (51.6% versus 50.9%), African American (36.8% versus 29.1%), and non-Hispanic (87.1% versus 75.9%). Foster care youths had higher rates of all mental disorder diagnoses, including ADHD (17.3% versus 6.5%), disruptive behavior disorder (7.2% versus 2.5%), and conduct disorder (2.3% versus .5%). The proportion of youths with stress-related disorders was more than six times larger in the foster care group than in the comparison group (3.1% versus .5%). Foster care youths were more likely to have any mental disorder diagnosis (37.1% versus 16.5%) and to have more than one diagnosis (6.0% versus 1.6%). [A table summarizing data on demographic and clinical characteristics is available in an online data supplement to this report.]

The rate of antipsychotic use was considerably higher among youths in foster care than in the comparison group (7.4% versus 1.4%). Rates were higher in the foster care group across all demographic and diagnostic variables, including ADHD (25.5% versus 14.1%), disruptive behavior disorder (28.2% versus 16.1%), conduct disorder (37.6% versus 25.5%), stress-related disorders (31.5% versus 13.3%), substance use disorders (18.7% versus 7.1%), and other mental disorders (6.5% versus 2.6%). [A table in the online data supplement summarizes data on rates of antipsychotic use.] As shown in Table 1, logistic regression indicated a strong association of foster care status with antipsychotic use that progressively decreased after the analysis controlled for demographic variables and diagnostic variables, including externalizing diagnoses; however, the association remained statistically significant in the full model (model 3).

ADHD, disruptive behavior disorder, and conduct disorder were also each highly significant predictors of antipsychotic use in the multivariate model, as were the additional diagnostic variables. Post-hoc analysis limited to youths with one or more diagnoses revealed that comorbidity (one diagnosis versus two or more diagnoses) was associated with foster care status (adjusted odds ratio [AOR]=1.55, 95% confidence interval [CI]=1.47–1.62). However, the odds of antipsychotic use associated with foster care status remained statistically significant after the analysis controlled for comorbidity (AOR=2.00, CI=1.96–2.04).

Discussion

Consistent with previous reports, the prevalence of antipsychotic use (6,11) and clinically diagnosed mental disorders (8,9) was substantially higher among foster care youths than among youths enrolled in Medicaid who were not in foster care. Although demographic characteristics explained a small portion of the difference, mental disorder diagnoses explained a larger share, reducing the OR from 4.19 (adjusted for demographic characteristics) to 2.59

(adjusted for demographic characteristics and diagnoses). Even after the analysis controlled for demographic and diagnostic variables, foster care status more than doubled the odds of antipsychotic use.

There are a number of reasons that foster care youths might be more likely than youths not in foster care to receive psychotropic medication for the same diagnosis. In a foster care setting, challenging behavior might be more likely to result in medically based interventions, as opposed to behavioral interventions, than in a non–foster care family setting. Case workers are rarely given the time, resources, and training necessary to assess foster care youths for mental health needs and provide referrals for behavioral interventions (12,13). The limited number of psychiatrists and primary care physicians who treat foster care youths may come under pressure from teachers and foster care parents to intervene medically in order to render a youth's behaviors more manageable and increase the possibility of successful, stable placement (14). However, medication alone does not help youths to learn adaptive coping skills or manage traumatic events, which are highly prevalent among foster care youths (10).

We did not assess psychotherapeutic interventions that youths may have been receiving concurrently with antipsychotics because of uncertainty about the consistency with which these services are captured in claims data. However, a recent study reported that foster care youths who were beginning to take an antipsychotic were significantly less likely than youths eligible for Medicaid on the basis of family income to receive concurrent psychotherapy (15). Our finding that foster care youths were considerably more likely to receive antipsychotics even after we controlled for clinically diagnosed mental disorders is therefore of potential concern.

Our findings must be interpreted within the context of certain limitations. Given our inclusion criteria of continuous full-year foster care eligibility, our results may not generalize to youths who are in the foster care system for shorter or noncontinuous periods, although relatively few youths (13.2% of those with at least one month of foster care who were otherwise eligible) were removed from the sample for this reason. Claims data also did not allow us to assess the severity of symptoms or other relevant clinical details. Although foster care status doubled the odds of antipsychotic use even after the analysis controlled for comorbidity, it is possible that behavioral symptoms of foster care youths are consistently more severe in a way that cannot be captured in claims data. We defined antipsychotic use in the broadest possible terms, including any dosage or duration of use. We did not assess medication history beyond the year 2009, and thus we do not know the degree to which other first-line therapies had been prescribed without a successful response. Similarly, if an individual received one of the exclusion diagnoses prior to 2009 but did not have a claim that referenced the diagnosis in 2009, he or she would have been included in our sample in spite of having a strong diagnostic indication for antipsychotic use. Given these limitations, it is likely that the difference in antipsychotic use partly reflects differences in symptom severity and legitimate clinical need.

Table 1

Multivariate associations between antipsychotic use, foster care status, and characteristics of 5,394,468 Medicaid-enrolled youths

	Model 1		Model 2		Model 3	
Variable	OR	95% CI	OR	95% CI	OR	95% CI
Foster care	5.50	5.42–5.59	4.19	4.13–4.26	2.59	2.54–2.63
Age (reference: 14–18)						
0–5			.09	.09–.10	.15	.14–.15
6–9			.68	.67–.70	.52	.51–.53
10–13			1.01	.00–1.02	.78	.77–.80
Female (reference: male)			.41	.40–.41	.62	.61–.63
Race-ethnicity (reference: white)						
Black			.58	.57–.59	.66	.65–.67
Hispanic			.35	.34–.35	.61	.60–.62
Other			.41	.40–.43	.55	.53–.57
Psychiatric diagnosis (reference: none)						
ADHD					16.21	15.94–16.49
Disruptive behavior disorder					4.07	4.00–4.15
Conduct disorder					5.79	5.61–5.98
Stress-related disorder					5.30	5.11–5.50
Substance use disorder					1.73	1.65–1.82
Other mental disorder					6.72	6.58–6.88

Conclusions

Diagnoses of externalizing behavior disorders only partially accounted for high rates of antipsychotic use by foster care children without known indications for these medications. Further studies are needed to understand the contributions of increased symptom severity, constraints of the setting, trauma-related symptoms, and other factors to the increased odds of antipsychotic use in this population. As newer data become available, it will also be important to assess the degree to which recent changes in child welfare policy, including directives to states to implement psychotropic monitoring systems and integrate trauma-informed care into behavioral health treatment, lead to improvements in mental health management and clinical outcomes for youths in foster care.

Acknowledgments and disclosures

This study was supported by awards U19-HS-021112, HS017918 and R18HS019937 from the Agency for Healthcare Research and Quality, by Mental Health Services and Systems Training Program grant MH-16242 from the National Institute of Mental Health, and by the New York State Psychiatric Institute.

The authors report no competing interests.

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