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Foster Care, Externalizing Disorders, and Antipsychotic Use Among Medicaid Youth

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Abstract

Objectives—The authors investigated the extent to which clinical externalizing disorder diagnoses explain increased rates of antipsychotic use in foster youth.

Methods—Medicaid claims data from 44 states for 2009 were analyzed to determine antipsychotic use rates among foster youth (n=301,894) and non-foster youth (n=5,092,574), excluding individuals diagnosed with schizophrenia, bipolar, autistic, or major depressive disorder. Logistic regressions assessed the relationship among foster status, externalizing disorder diagnoses, and antipsychotic use.

Results—Foster youth had higher rates of externalizing disorder diagnoses (ADHD: 17.3% vs. 6.5%; disruptive behavior disorder: 7.2% vs. 2.5%; conduct disorder: 2.3% vs. .5%) and antipsychotic use (7.4% vs. 1.4%) compared to non-foster youth. Foster care remained a significant predictor of antipsychotic use after controlling for demographic and diagnostic covariates, including externalizing disorder diagnoses (adjusted odds ratio [AOR]=2.59; 95% confidence interval [C.I.]=2.54–2.63).

Conclusions—High rates of externalizing disorder diagnoses only partially explain elevated levels of antipsychotic use in this vulnerable population.

The broadening use of antipsychotic medications in children and adolescents outside of psychotic, developmental, and major mood disorders has become a topic of concern in recent years (1). While some second generation antipsychotics have been approved by the

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US Food and Drug Administration for pediatric use 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 [ADHD], disruptive behavior, and conduct disorders) (3). While clinical trials demonstrate rapid improvement in externalizing symptoms following antipsychotic treatment, significant cardiometabolic side effects, including weight gain and hyperlipidemia, have also been observed (4), highlighting the need to weigh potential risks versus benefits when considering antipsychotic treatment for externalizing behaviors in children and adolescents.

Relatively high rates of antipsychotic use have been reported in foster youth (5–7). In one state foster care system, 37.9% of youth had been prescribed at least one psychotropic medication over the course of a year and approximately one-half 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 disabled/SSI (Supplemental Security Income) youth population (6). Given the well-documented, high levels of mental health need in foster youth (8, 9), elevated rates of antipsychotic use are not unexpected. However, the extent to which such use corresponds with clinical externalizing disorder diagnoses has not been established. The aim of this study was to determine the degree to which the elevated rates of antipsychotic treatment among foster youth 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 from 44 states (excluding Arizona, Delaware, Maine, Nevada, Oregon, and Rhode Island) from 2009. To minimize the likelihood of including youth 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 an HMO, and were not Medicare eligible.

We limited our foster sample to those who were eligible for foster care for all of 2009, which included 86.8% of otherwise eligible youth who had one or more months of foster eligibility. Our comparison group consisted of youth who were eligible for Medicaid based on any combination of family income [TANF (Temporary Assistance for Needy Families) and SCHIP (State Children' Health Insurance Program)] or disability (SSI) for all of 2009.

Clinical mental disorder diagnoses were determined by the presence of any claims (inpatient or outpatient) during calendar year 2009 that included the corresponding ICD-9-CM diagnostic code. In order to focus our analyses on antipsychotic use for externalizing diagnoses in the absence of any additional mental disorder diagnosis for which antipsychotic use is strongly indicated, we removed from our study sample individuals with any diagnosis for which an FDA-approved indication exists for antipsychotic use (for youth of any age and for any individual antipsychotic medication). These diagnoses included schizophrenia, bipolar disorder, and autism (2), as well as major depressive disorder. This project was

determined by the Rutgers University Institutional Review Board not to be human subject 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 dose or days supplied. Age, race/ethnicity, and gender were obtained through the MAX patient-level summary file. ICD-9-CM codes identified the externalizing diagnoses of interest: ADHD, disruptive behavior disorder, and conduct disorder. Since foster youth are more likely than non-foster youth to exhibit a variety of psychiatric symptoms, three additional variables were created. Given the trauma experienced by many foster youth (10), we created a stress-related disorder variable which included acute stress disorder and post-traumatic stress disorder (PTSD). 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 non-major 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, stratifying by foster status. The unadjusted effect of foster status on antipsychotic use was first calculated through logistic regression (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 using SAS statistical software, version 9.4.

RESULTS

Foster youth differed significantly in several respects from non-foster youth. As compared with non-foster youth, foster youth were significantly older, more likely to be male (51.6% vs. 50.9%), African American (36.8% vs. 29.1%), and non-Hispanic (87.1% vs. 75.9%). Foster youth had higher rates of all mental disorder diagnoses, including ADHD (17.3% vs. 6.5%), disruptive behavior disorder (8.0% vs. 6.2%), and conduct disorder (2.3% vs. 1.5%). Stress-related disorders were diagnosed 6.2 times as often in foster youth (3.1% vs. .5%). Foster youth were more likely to have any mental disorder diagnosis (37.1% vs. 16.5%), and to have more than one diagnosis (6.0% vs. 1.6%).

The prevalence of antipsychotic use was considerably higher among foster youth than non-foster youth overall (7.4% vs. 1.4%) and across all demographic and diagnostic variables, including ADHD (25.5% vs. 14.1%), disruptive behavior disorder (28.2% vs. 16.1%), conduct disorder (37.6% vs. 25.5%), stress-related disorders (31.5% vs. 13.3%), substance use disorders (18.7% vs. 7.1%), and other mental disorders (6.5% vs. 2.6%). Logistic regression revealed a strong association of foster status with antipsychotic use that progressively decreased after controlling for demographic variables and diagnostic variables, including externalizing diagnoses, though remained statistically significant in the full model (Table 1).

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 youth with one or more diagnoses revealed comorbidity (one diagnosis vs. two or more diagnoses; [AOR=1.55 (95% CI=1.47–1.62)]) did not significantly affect the odds of antipsychotic use associated with foster status (foster status: AOR=2.00 [95% CI=1.96–2.04]).

DISCUSSION

Consistent with previous reports, the prevalence of antipsychotic use (6, 11) and clinically diagnosed mental disorders (8, 9) among foster youth was substantially higher than that among non-foster Medicaid youth. While demographic characteristics explained a small portion of the difference, mental disorder diagnoses explained a larger share, reducing the odds ratio from 4.19 (adjusted for demographics) to 2.59 (adjusted for demographics and diagnoses). Even after controlling for demographic and diagnostic variables, foster status more than doubled the odds of antipsychotic use.

There are a number of reasons that foster youth might be more likely to receive psychotropic medication than non-foster youth for the same diagnosis. Challenging behavior might be more likely to result in medically based interventions, as opposed to behavioral interventions, in a foster care setting than in a non-foster care family setting. Case workers are rarely given the time, resources, and training necessary to assess foster youth for mental health need and provide referrals for behavioral interventions (12, 13). The limited number of psychiatrists and primary care physicians who treat foster youth may come under pressure from teachers and foster parents to intervene medically in order to render youth's behaviors more manageable and increase the possibility of successful, stable placement (14). However, medication alone does not help youth to learn adaptive coping skills or manage traumatic events, which are highly prevalent among foster youth (10). Although we did not assess psychotherapeutic interventions that youth may have been receiving concurrently with antipsychotics due to uncertainty over the consistency with which these services are captured in claims data, a recent study reported that foster youth beginning an antipsychotic were significantly less likely than youth eligible for Medicaid based on family income to receive concurrent psychotherapy (15). Our finding that foster youth are considerably more likely to receive antipsychotics even after controlling 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 eligibility, our results may not generalize to youth who are in the foster system for shorter or non-continuous periods of time, although relatively few (13.2% of youth with at least one month of foster care who were otherwise eligible) were eliminated for this reason. Claims data also do not allow us to assess the severity of symptoms or other relevant clinical details. While foster status doubled the odds of antipsychotic use even after controlling for comorbidity, it is possible that behavioral symptoms in foster youth 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 dose or duration of use. We did not assess medication history beyond the year 2009, so we do not

know the degree to which other first line therapies had been prescribed without a successful response. Given these limitations, it is likely that the difference in antipsychotic use partly reflects differences in symptom severity and legitimate clinical need.

CONCLUSIONS

Externalizing behavior disorder diagnoses only partially account for high rates of antipsychotic use in foster children without known indications for the 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 foster youth.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Multivariate associations between antipsychotic use, foster status, and child's clinical/demographic characteristics (N=5,394,468)

Variable	Odds Ratios of Antipsychotic Use					
	Model 1		Model 2		Model 3	
	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–.61
Hispanic			.35	.34–.35	.61	.60–.62
Other			.41	.40–.43	.55	.53–.51
Psychiatric Diagnosis (reference: no diagnosis)						
Attention Deficit Hyperactivity Disorder					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 Disorders					6.72	6.58–6.88

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