SUPPLEMENT ARTICLE

National Estimates and Factors Associated With Medication Treatment for Childhood Attention-Deficit/Hyperactivity Disorder

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ABSTRACT

OBJECTIVE. In this study we identified child and family-level characteristics that were associated with medication treatment for attention-deficit/hyperactivity disorder using nationally representative survey data.

METHODS. National Survey of Children's Health data from 79 264 youth 4 to 17 years of age were used. Data were weighted to adjust for the complex survey design of the National Survey of Children's Health. Gender-specific logistic regression models were generated to identify child and family-level characteristics that were collectively associated with current medication status among youth with a reported diagnosis of attention-deficit/hyperactivity disorder.

RESULTS. Nationally, 7.8% of youth aged 4 to 17 years had a reported attention-deficit/hyperactivity disorder diagnosis, and 4.3% had both a disorder diagnosis and were currently taking medication for the disorder. Current medication treatment among youth with attention-deficit/hyperactivity disorder was associated with white race, younger age, English spoken in the home, health care coverage, a health care contact within the last year, and reported psychological difficulties. Gender-specific logistic regression models revealed that, together, younger age, higher income, health care coverage, having psychological difficulties, and a health care contact in the past year were associated with medication use among boys with attention-deficit/hyperactivity disorder. Among girls with the disorder, younger age, psychological difficulties, fair-to-poor paternal mental health status, and a health care contact within the last year were collectively associated with current medication use.

CONCLUSIONS. Regardless of gender, younger age, the presence of psychological difficulties, and a recent health care contact were significantly associated with medication treatment for attention-deficit/hyperactivity disorder. However, additional health care access and income variables among boys and paternal mental health status among girls represented gender-specific factors that were also associated with medication treatment for the disorder. Future studies should characterize how and when the burden associated with attention-deficit/hyperactivity disorder leads to treatment, support, or services for this prevalent and impairing neurobehavioral disorder.

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Key Words
attention-deficit/hyperactivity disorder, ADHD, ADD, National Survey of Children's Health, psychopharmacology, child mental health

Abbreviations
ADHD—attention-deficit/hyperactivity disorder
ADD, attention-deficit disorder
NSCH—National Survey of Children's Health
CI— confidence interval
OR— odds ratio

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WANG AND COLLEAGUES[1] suggest that many people with mental disorders experience significant delays or never receive mental health care. Clearly, there is a gap between the recognition of mental health problems and the initiation of treatment, such that simply meeting the diagnostic criteria for a disorder does not entirely explain diagnosis, help-seeking, and treatment patterns.[2–6] For youth, factors leading to mental health treatment are further complicated because parents and guardians often act as gatekeepers to identification and treatment.[7] Attention-deficit/hyperactivity disorder (ADHD) is one of the most common psychiatric conditions of childhood,[8] with recent population-based studies reporting rates of diagnosed ADHD from 5% to nearly 8%.[4,9,10] The combination of medication and behavioral intervention, known as multimodal treatment, is the best treatment strategy for ADHD[11,12]; however, stimulant medication is the most efficacious, single treatment for reducing symptoms of ADHD.[13]

Youth with ADHD are at increased risk for academic failure, motor vehicle crashes, substance abuse, and illegal behavior.[14–17] Research also suggests that ADHD persists into adulthood, with reported rates of ADHD in adults >4%.[18] It is, therefore, important that public health and health care researchers understand the factors associated with the receipt of all forms of treatment for ADHD, because intervention may result in better outcomes among youth who received treatment.[19]

A growing number of studies have evaluated the individual-, family-, and school- or community-level factors associated with receiving a diagnosis of ADHD. Basic child-level demographic correlates of ADHD diagnosis are well documented and include male gender, younger age, and non-Hispanic white racial/ethnic group status.[3,20,21] Previous research has also found that single-parent family structures and a history of maternal mental health problems are associated with higher rates of ADHD.[22] In addition, Schneider and Eisenberg[4] found that ADHD diagnosis was related to characteristics of the youths' teachers, including older and nonwhite teachers, as well as to characteristics of the state's education laws. Specifically, ADHD diagnosis was more common among schools that were subject to stricter state-level accountability laws.

A variety of factors associated with medication treatment of ADHD have been documented across numerous commercial, clinical, and community-based data sets. Specifically, male gender, younger age, white race, non-Hispanic ethnicity, health insurance, 2-parent family structures, and residence in the western region of the United States have all been associated with medication treatment for ADHD.[2,4,10,20,23–31] However, to our knowledge, investigations of factors associated with medication treatment for ADHD have not been analyzed in a gender-specific manner. Using national survey data, we recently found that medication rates among boys and girls with an ADHD diagnosis were comparable despite clear differences in rates of ADHD diagnosis by gender.[10] It is unclear whether there are gender differences in the factors associated with medication treatment among youth with ADHD.

For this study we used data from the largest national survey of children's health to (*a*) document and confirm those characteristics associated with a reported ADHD diagnosis, (*b*) identify gender-specific characteristics associated with medication treatment for ADHD, and (*c*) generate gender-specific multivariate models for medicated ADHD among youth.

METHODS

Data from the 2003 National Survey of Children's Health (NSCH) were used for all analyses. The NSCH survey design is described briefly in the article by Kogan and Newacheck[32] in this issue; more in-depth information can be found elsewhere.[33] Human subjects review for this analysis was not required. The dependent variables of interest included ADHD diagnosis and current medication treatment for ADHD. An adult most knowledgeable about the target youth provided information on ADHD diagnosis, which was inferred from a positive response to the question: "Has a doctor or other health professional ever told you that [child] had Attention Deficit Disorder or Attention Deficit Hyperactivity Disorder, that is, ADD or ADHD?" Although previously known as attention-deficit disorder (ADD), the disorder was renamed in the 1994 revision of the *Diagnostic and Statistical Manual*[34] and, therefore, ADHD will be used throughout this article. If ADHD was endorsed by the adult, current medication treatment for ADHD was queried with the question, "Is [child] currently taking medication for ADD or ADHD?"

Sample

Although a small number of 2- and 3-year-olds were reported to have an ADHD diagnosis ($n = 34$), relative SEs indicated estimate instability (SE >30%), and 2- and 3-year-olds were, therefore, excluded from all analyses. The final sample included 79 264 youth 4 to 17 years of age with information on both ADHD diagnosis and gender.

A total of 6497 youth (4683 boys, 1814 girls) had a reported ADHD diagnosis and 72 767 did not. Of the youth with ADHD, 3786 were reported to be "currently" taking medication for ADHD (2756 boys, 1030 girls) at the time of the survey.

Statistical Analysis

All statistical estimates were generated by using SUDAAN software (Research Triangle Institute, Research Triangle Park, NC) to adjust for the complex survey design of the NSCH. A number of child- and family-level characteristics were cross-tabulated with

ADHD diagnosis and current medication treatment. χ^2 statistics were inspected to test for the existence of unadjusted associations, and 95% confidence intervals (CIs) were examined for observed differences in rates across demographic subgroups. Child-level factors included age, race, ethnicity, whether the child was born in the United States, whether the child had health care coverage of any kind, whether the child had a medical contact in the last year, whether the child had psychological difficulties, the burden associated with reported psychological difficulties, and whether the child had ever repeated a grade. Family-level factors included the primary language spoken in the home, family structure, poverty income ratio, highest level of education in the family, number of children and adults in the household, and qualitative reports of maternal and paternal mental health.

After identification of factors significantly ($P < .10$) associated with ADHD medication treatment, gender-specific, logistic regression models were built and evaluated for fit. Only independent variables with significant crude associations with medication status were entered into the regression models. To aid in interpretation of the models, the following variables were collapsed into dichotomous valence groups: age (4–12 vs 13–17 years), highest education in the family (less than high school versus high school or more), poverty income ratio (≥200% vs <200%), psychological difficulties and associated burden (any difficulties regardless of burden versus no difficulties), family structure (2-parent structures versus other structures), and number of children in the home (1 vs ≥2). The gender-specific logistic regression models identified factors significantly associated with current medication status while controlling for the other significant factors in the model. Final gender-specific models were trimmed by removing nonsignificant predictors in a backward stepwise fashion by using a *P*-to-leave value of .10. Overall model fit was assessed by inspecting model Wald *F*-test statistics.

RESULTS

Prevalence of ADHD

An estimated 7.8% (95% CI: 7.4%–8.1%) of American youth 4 to 17 years old had a reported ADHD diagnosis. Gender-specific rates confirmed previous reports of more cases of ADHD among boys, with 11.0% (95% CI: 10.4%–11.5%) of boys and 4.4% (95% CI: 4.1%–4.8%) of girls having the diagnosis (odds ratio [OR]: 2.7; 95% CI: 2.4%–2.9%).

Factors Associated With ADHD Diagnosis

Unadjusted rates and ORs for reported ADHD by child- and family-level characteristics are presented in Table 1. ADHD rates increased with age, with youth 9 years and older 2.5 times more likely to have an ADHD diagnosis as compared with younger youth. Primarily English-speaking, non-Hispanic, and US-born youth were also more likely to have an ADHD diagnosis, although rates of ADHD were comparable across racial groups. Those with health care coverage and those who had seen a health professional in the previous year had significantly higher rates of ADHD. Prevalence of ADHD was highest among those below poverty, with youth from families of higher incomes having lower rates of ADHD. Youth from 2-parent biological/adoptive households were the least likely to have ADHD compared with other family structures. ADHD was markedly more common among youth with psychological difficulties, with prevalence increasing with increasing burden. Finally, prevalence of ADHD was >3 times higher among youth who had ever repeated a grade.

Prevalence of Medicated ADHD

Of the youth with ADHD, 56.3% (95% CI: 54.3%–58.1%) were taking medication for the disorder at the time of the survey. Thus, 4.3% (95% CI: 4.1%–4.6%) of the population of youth 4 to 17 years of age had both an ADHD diagnosis and were taking medication treatment. Boys with ADHD were no more likely than girls with ADHD to be medicated for the disorder. Rates of medicated ADHD were highest among those 9 to 12 years of age at 64.0% (Table 2).

Unadjusted Associations With Medication Treatment Among Those With ADHD, According to Gender

Among youth with ADHD, neither country of birth nor the number of adults in the home was associated with current medication for ADHD for either gender. In addition, likelihood of medication was unrelated to whether or not the child ever repeated a grade or lived in a metropolitan statistical area.[35]

Factors associated with medication treatment among youth with ADHD are reported according to gender in Table 2. Among boys with ADHD, significant associations between child- and family-level characteristics and ADHD medication included the following: age, ethnicity, language spoken in the home, health care access and use indicators, and level of burden because of psychological difficulties. Specifically, boys 13 to 17 years of age were significantly less likely than those in the youngest age group to be medicated. Non-Hispanics and youth from families speaking English in the home were both more likely than their respective referent groups to be medicated. Medicated boys with ADHD were ~4 times more likely to have had a health care contact in the last year compared with nonmedicated boys with ADHD. Medication for ADHD was more common among boys with psychological difficulties; rates increased slightly with greater associated burden.

Among girls with ADHD, significant unadjusted associations were noted between medication for ADHD and

TABLE 1 **Percentage of Youth With Reported ADHD According to Child- and Family-Level Characteristics**

	Reported ADHD		OR[a]	95% CI
	%	SE		
Age, y				
4–8	4.1	0.2	—	—
9–12	9.7	0.3	2.5	2.2–2.9
13–17	9.7	0.3	2.5	2.2–2.9
Highest education in family				
Less than high school	6.5	0.7	—	—
12 y, high school graduate	8.6	0.3	1.4	1.1–1.7
More than high school	7.6	0.2	1.2	1.0–1.5
Race				
White	8.6	0.2	—	—
Black	7.7	0.5	0.9	0.8–1.0
Multiracial	9.7	1.1	1.1	0.9–1.5
Other	4.5	0.7	0.5	0.4–0.7
Ethnicity				
Non-Hispanic/Latino	8.6	0.2	2.5	2.0–3.0
Hispanic/Latino	3.7	0.3	—	—
Primary language in home				
English	8.6	0.2	7.4	5.3–10.2
Any other language	1.3	0.2	—	—
Child born in the United States				
Yes	8.1	0.2	3.3	2.3–4.7
No	2.6	0.5	—	—
Percentage of poverty level				
<100	9.6	0.5	—	—
100–199	8.0		0.8	0.7–1.0
>200	7.4	0.2	0.8	0.7–0.9
Any health care coverage				
Yes	8.1	0.2	1.7	1.4–2.1
No	4.9	0.5	—	—
No. of children in home				
1	9.5	0.3	1.4	1.2–1.6
2	7.5	0.2	1.1	0.9–1.3
3	7.1	0.5	1.0	0.8–1.2
≥4	7.1	0.5	—	—
Family structure				
2 parents, biological or adopted	5.6	0.2	—	—
2 parents, stepfamily	13.2	0.7	2.6	2.3–2.9
Single mother, no father present	9.8	0.4	1.8	1.7–2.1
Other	9.3	0.7	1.7	1.5–2.0
Health burden of psychological difficulties				
No difficulties	1.9	0.1	—	—
Difficulties, no burden	22.7	1.9	15.6	13.6–17.9
Difficulties, little burden	35.5	1.2	29.2	25.3–33.6
Difficulties, medium burden	45.7	1.7	44.7	37.9–52.6
Difficulties, great deal of burden	58.2	2.5	73.7	59.0–92.0
Past 12 mo any health contact				
Yes	8.5	0.2	2.1	1.8–2.5
No	4.2	0.3	—	—
Mother's mental health				
Fair-to-poor	15.6	1.0	2.5	2.1–2.9
Excellent-to-good	7.0	0.2	—	—
Father's mental health				
Fair-to-poor	11.0	1.1	1.8	1.4–2.2
Excellent-to-good	6.6	0.2	—	—
Repeated grade				
Yes	20.8	0.8	3.4	3.0–3.8
No	7.2	0.2	—	—

[a] OR indicates likelihood of having a reported ADHD diagnosis given the demographic characteristic.

TABLE 2 **Percentage of Youth With Reported ADHD Currently Taking Medication for ADHD, According to Gender and Child- and Family-Level Characteristics**

	Boys With Reported ADHD				Girls With Reported ADHD			
	Medicated ADHD, % (SE)	Unmedicated ADHD, %	Medicated vs Unmedicated		Medicated ADHD, % (SE)	Unmedicated ADHD, %	Medicated vs Unmedicated	
			OR[a]	95% CI			OR[a]	95% CI
Age, y								
4–8	60.2 (3.2)	39.8	—	—	70.1 (4.5)	29.9	—	—
9–12	65.2 (2.0)	34.8	1.3	0.9–1.7	61.3 (3.5)	38.8	0.7	0.4–1.1
13–17	48.7 (1.9)	51.3	0.6	0.5–0.9	43.9 (2.8)	56.1	0.3	0.2–0.5
Highest education in family								
Less than high school	49.3 (6.1)	50.7	—	—	64.4 (9.2)	35.6	—	—
12 y, high school graduate	53.3 (2.4)	46.7	1.2	0.7–2.0	54.9 (4.0)	45.1	0.7	0.3–1.6
More than high school	59.1 (1.5)	40.9	1.5	0.9–2.4	54.4 (2.5)	45.6	0.7	0.3–1.5
Race								
White	59.3 (1.4)	40.7	—	—	57.3 (2.2)	42.7	—	—
Black	50.5 (3.9)	49.5	0.7	0.5–1.0	42.3 (6.4)	57.7	0.6	0.3–0.9
Multiracial	48.3 (8.0)	51.7	0.6	0.3–1.2	51.7 (9.0)	48.3	0.8	0.4–1.7
Other	46.4 (8.7)	53.7	0.6	0.3–1.2	58.9 (17.9)	41.1	1.1	0.3–4.6
Ethnicity								
Hispanic/Latino	43.9 (5.13)	56.2	—	—	44.3 (8.4)	55.7	—	—
Non-Hispanic/Latino	57.6 (1.3)	42.4	1.7	1.1–2.7	56.2 (2.1)	43.8	1.6	0.8–3.2
Primary language in home								
English	57.3 (1.3)	42.8	3.3	1.6–6.7	56.1 (2.1)	43.9	11.3	2.8–46.2
Any other language	28.8 (7.3)	71.2	—	—	10.2 (6.5)	89.8	—	—
Percentage of poverty level								
<100	49.9 (3.5)	50.1	—	—	51.0 (5.2)	49.0	—	—
100–199	59.2 (2.8)	40.8	1.5	1.0–2.1	59.5 (4.4)	40.5	1.4	0.8–2.4
>200	60.0 (1.5)	40.1	1.5	1.1–2.0	55.5 (2.8)	44.5	1.2	0.8–1.9
Any health care coverage								
Yes	58.5 (1.3)	41.5	3.8	2.4–6.0	56.2 (2.1)	43.8	2.0	1.0–3.9
No	27.0 (4.5)	73.0	—	—	39.5 (8.2)	60.5	—	—
Past 12 mo any health contact								
Yes	59.3 (1.3)	40.7	3.2	2.1–4.7	56.0 (2.1)	44.0	1.6	0.9–3.0
No	31.5 (4.2)	68.5	—	—	44.0 (7.3)	56.0	—	—
No. of children in home								
1	59.4 (1.6)	40.6	1.4	1.0–2.1	55.5 (2.6)	44.5	0.6	0.3–1.0
2	56.7 (1.9)	43.3	1.3	0.9–1.9	53.6 (3.1)	46.4	0.5	0.3–1.0
3	57.5 (3.2)	42.6	1.3	0.8–2.0	48.9 (5.0)	51.1	0.4	0.2–0.9
>4	51.0 (4.6)	49.0	—	—	69.1 (6.3)	30.9	—	—
Family structure								
2 parents, biological or adopted	58.5 (1.8)	41.5	—	—	62.2 (2.8)	37.8	—	—
2 parents, stepfamily	54.3 (3.1)	45.7	0.8	0.6–1.1	50.1 (5.7)	49.9	0.6	0.4–1.0
Single mother, no father present	57.0 (2.5)	43.0	0.9	0.7–1.2	52.0 (3.8)	48.0	0.7	0.5–1.0
Other	51.6 (4.5)	48.1	0.8	0.5–1.1	48.0 (6.6)	52.0	0.6	0.3–1.0
Health burden of psychological difficulties								
No difficulties	39.1 (2.7)	60.9	—	—	44.9 (4.7)	55.1	—	—
Difficulties, no burden	52.9 (2.5)	47.2	1.8	1.3–2.3	45.9 (4.1)	54.1	1.0	0.6–1.7
Difficulties, little burden	62.6 (2.3)	37.4	2.6	2.0–3.5	61.7 (3.9)	38.3	2.0	1.2–3.2
Difficulties, medium burden	64.0 (2.9)	36.0	2.8	2.0–3.9	62.1 (4.3)	37.9	2.0	1.2–3.4
Difficulties, great deal of burden	65.5 (3.6)	34.5	3.0	2.0–4.3	55.2 (6.0)	44.8	1.5	0.8–2.8
Mother's mental health								
Excellent-to-good	58.4 (1.4)	41.6	—	—	56.1 (2.3)	43.9	—	—
Fair-to-Poor	50.7 (4.1)	49.3	0.7	0.5–1.0	62.2 (6.0)	37.8	1.3	0.8–2.2
Father's mental health								
Excellent-to-good	56.8 (1.6)	43.2	—	—	59.7 (2.6)	40.3	—	—
Fair-to-poor	53.2 (5.7)	46.8	0.9	0.5–1.4	30.7 (7.8)	69.3	0.3	0.1–0.6

[a] OR indicates risk of being on medication for ADHD given the demographic characteristic.

age, language spoken in the home, race, number of children in the home, psychological difficulties, and paternal mental health (Table 2). Girls from primarily English-speaking families were 11 times more likely to be medicated for ADHD. In addition, black girls were significantly less likely to be medicated compared with white girls. A complex pattern emerged between medication status and psychological difficulties. Specifically, girls with a little to a medium amount of burden were significantly more likely to be medicated than girls with other degrees of burden. Finally, girls with ADHD were significantly less likely to be medicated for the disorder if their father had fair-to-poor mental health.

Gender-Specific Logistic Regression Models Predicting Medication Status

Gender-specific, weighted multivariate logistic regression models are reported in Table 3. Among boys with ADHD, younger age, higher income, health care coverage, the presence of psychological difficulties, and a health care contact in the past year were, together, associated with current ADHD medication treatment. These independent variables were significantly associated with each other; however, each bivariate correlation was <0.2. Highest education in the family, race, primary language, and number of children in the home did not contribute significantly to the multivariate gender-specific model. Although initially significant, the contribution of non-Hispanic ethnicity was no longer significant in the model after a recent health care contact was entered.

Among girls with ADHD, younger age, the presence of psychological difficulties, fair-to-poor paternal mental health, and a health care contact within the last year were associated with current ADHD medication treatment. Although crudely associated with medication treatment status among girls, race, primary language spoken in the home, health care coverage, number of children in the home, and family structure were not factors that contributed significantly to the final gender-specific multivariate model.

DISCUSSION

There were several factors associated with reported ADHD diagnosis that were all consistent with previous research findings.[9,10,25,26,30] Specifically, the results of our study corroborate previous research suggesting differences in ADHD diagnosis as a function of gender, race/ethnicity, language, and factors related to health care access and use. However, the factors associated with a reported ADHD diagnosis were not the same factors associated with current medication treatment among those with a reported diagnosis. In multivariate analysis, a small set of factors were related to ADHD medication treatment, and some of these factors were gender-specific.

Regardless of gender, younger age, the presence of psychological difficulties, and a health care contact within the last year were significantly associated with medication treatment among youth with ADHD. It is not clear why older youth are less likely to be medicated for ADHD, although ADHD symptoms of hyperactivity may lessen or become less pronounced over time, which may make ADHD treatment less likely. It is also possible that as youth become more involved in their own treatment decisions, they may be less likely to comply with medication because of social stigma or inability to manage their own medication regimen. Higher rates of psychological difficulties among medicated youth may be an indicator of severe ADHD or ADHD with comorbidities; unfortunately, this interpretation is speculative because the survey did not directly document comorbidity or detail the severity of ADHD-related impairment. However, repeated grade, which is potentially reflective of impairment, was not associated with current medication among those with ADHD. Contrary to our findings pertaining to ADHD diagnosis, variables related to race, ethnicity, and acculturation were not consistent predic-

TABLE 3 Gender-Specific Weighted Multivariate Logistic Regression Models Modeling Current ADHD Medication From Child- Family-Level Characteristics, Youth 4 to 17 Years With Reported ADHD

Child- and Family-Level Factors	β Coefficient[a]	SE β	Wald F	P Wald F[a]	OR	95% CI
Boys with reported ADHD						
Overall model	—	—	27.9	.00	—	—
Younger age	0.55	0.1	24.5	.00	1.7	1.4–2.2
>100% of poverty level	0.46	0.2	9.5	.00	1.6	1.2–2.2
Health coverage	1.27	0.2	30.0	.00	3.8	2.4–6.0
Health contact last 12 mo	1.01	0.2	21.0	.00	2.8	1.8–4.2
Psychological difficulties	0.80	0.1	36.7	.00	2.3	1.8–3.0
Girls with reported ADHD						
Overall model	—	—	6.0	.00	—	—
Younger age	0.80	0.2	13.6	.00	2.2	1.5–3.4
Health contact last 12 mo	0.64	0.4	2.7	.10	1.9	0.9–4.1
Psychological difficulties	0.57	0.2	5.6	.02	1.8	1.1–2.9
Fair-to-poor paternal mental health	−1.18	0.4	10.5	.00	0.3	0.2–0.6

[a] Estimates were rounded to 2 decimal places for increased specificity.

tors of medication status. However, among boys with ADHD, non-Hispanic ethnicity contributed to explained variance in medication use until a recent health care contact entered the model, suggesting that the relationship between ethnicity and medication status may be accounted for by health care use.

Although the rate of medication did not differ for boys and girls with ADHD, there were observed gender differences in the set of factors associated with current medication for ADHD. Among boys, health care access and use factors (eg, income, health insurance coverage, and health care contact in the last year) were associated with current medication for ADHD. Of the health care access and use indicators, only a recent health contact was associated with medication status among girls. This may indicate the availability of health care resources, but it might also indicate the health burden associated with ADHD. Additional information on the reason for recent health care visits may serve to support or refute hypotheses of the increased need for health care resources among this population of youth and help explain the gender differences we found.

Among girls, poor paternal mental health surfaced as a new factor associated with likelihood of medication treatment. It is unclear why this pattern was only observed among girls. It is unlikely that this finding is because of differences in family structure, because there were no differences in family structure by gender (Table 2). This finding may reflect family dynamics where family adversity and paternal factors result in less access to medication treatment for girls with ADHD.[36] The association between paternal mental health and medication for ADHD among their daughters is important because it adds to a growing body of literature on the potential role of paternal mental health on child development outcomes.[37,38] Additional population-based research on the role of fathers in the provision of mental health care is needed.

CONCLUSIONS

This study relied on proxy reports of ADHD diagnosis and medication treatment and, consequently, is subject to recall or telephone survey selection biases and other response errors. There are also several indicators not currently available in any national survey that could explain additional variance in medication treatment among youth with ADHD. Specifically, information on youths' ADHD subtype, receipt of nonpharmacological ADHD treatments, perceived level of burden, and associated co-occurring mental health conditions might all help explain which youth receive medication treatment. Additional factors that may impact familial tendencies toward or away from medication treatment for ADHD may include differences in the attributions of behavioral problems, beliefs associated with the acceptability of psychoactive medications as a treatment approach, or coordination of treatment and care in the treatment of youth with ADHD. Consequently, it is imperative that future national surveys and community-based studies of youth include and expand content pertaining to mental health conditions so that future research can clarify key factors associated with the receipt of treatment for mental health conditions, including ADHD. Future gender-stratified studies are needed to further characterize how and when the burden associated with ADHD leads to treatment, support, or services for this prevalent and impairing neurobehavioral disorder.

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