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Trends in Parent-Reported ADHD Diagnosis and Treatment Among U.S. Children, 2016–2023

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Abstract

Objective: Attention-deficit/hyperactivity disorder (ADHD) is a neurodevelopmental disorder starting in childhood, often persisting into adulthood. Diagnosis rates have risen since the first U.S. estimates in the 1990s, with variations across sex, race/ethnicity, and other factors. This study explores ADHD diagnosis and treatment among U.S. children from 2016 to 2023, with a focus on identifying differences across sociodemographic and clinical characteristics.

Methods: Data from the National Survey of Children's Health (NSCH; 2016–2023) on parent-reported ADHD diagnoses and treatments among non-institutionalized U.S. children aged 3–17 years were analyzed. Trends over time and across sociodemographic and clinical subgroups were assessed using logistic regression models and joinpoint regression analysis.

Results: ADHD diagnosis prevalence estimates were stable from 2016 to 2019 (8.6% to 8.8%), rising after the onset of the COVID-19 pandemic in 2020 to 10.5% in 2023. Yet, from 2016 to 2023, overall ADHD treatment rates declined (76.9% to 70.8%), particularly for medication treatment (62.5% to 53.0%), while behavioral treatment stayed steady (47.3% to 48.2%). ADHD diagnosis trends differed by race, insurance status, and ADHD severity, increasing only for children in Asian, White, and multiracial groups; with private insurance, and with mild or moderate ADHD. Treatment prevalence differences by sex narrowed over time, as medication use decreased for males and behavioral treatment increased for females, specifically adolescent females.

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Conclusions: With a widening gap between the prevalence of ADHD diagnosis and treatment, fewer children are receiving recommended care than in the past. These results may inform interventions to improve healthcare access and address systemic barriers to treatment for all children with ADHD.

Introduction

Attention-deficit/hyperactivity disorder (ADHD) is a neurodevelopmental disorder that starts in childhood, often lasts into adulthood, and is associated with higher risk of poor health outcomes (Egbert et al., 2018; Ghirardi et al., 2020; Holton & Nigg, 2016; Nigg, 2013). National prevalence estimates of a parent-reported current ADHD diagnosis among children in the United States (U.S.) have increased over time, from 6% in the late 1990s, to about 7% in 2007, remaining steady between 8% and 9% from 2011 to 2020, followed by an increase to just under 11% in 2022 (Akinbami et al., 2011; Bitsko et al., 2022; Cree et al., 2023; Danielson et al., 2018; Danielson, Claussen, Bitsko, et al., 2024; Faraone et al., 2021; Visser et al., 2014). The prevalence of ADHD diagnoses varies by sociodemographic and clinical characteristics; however, differences are likely due to variations in ADHD diagnostic practices and access to care, rather than biological differences (Tam et al., 2024; Yang et al., 2022).

Whether a child with ADHD receives an ADHD diagnosis is associated with a variety of child characteristics, such as symptom severity, presence of co-occurring disorders (Tam et al., 2024). Additionally, boys with ADHD receive a diagnosis more often than girls (Tam et al., 2024). However, from 2016 to 2022, the relative difference in prevalence between boys and girls narrowed from 2.3 to 1.8 (Danielson et al., 2018; Danielson, Claussen, Bitsko, et al., 2024), partly due to an increasing recognition of inattentive symptoms, which are more common among girls (Hinshaw et al., 2022), and resulting in more diagnoses.

Socioeconomic, contextual, and policy factors can affect whether a family has access to and seeks behavioral healthcare for their child (Bozinovic et al., 2021; Collins & Cleary, 2016; Feng et al., 2024). Economic risk (i.e., poverty) may be associated with health risks (e.g., stress) that increase ADHD symptoms and impairment, and may also decrease access to healthcare and ADHD diagnosis (Bozinovic et al., 2021; Yang et al., 2022). The well-documented disparities in ADHD healthcare receipt among racial/ethnic minoritized groups (Tam et al., 2024) stem more from differences in access than the need for care (Yang et al., 2022). Historically, White non-Hispanic children were more likely to receive ADHD diagnoses compared to other racial/ethnic groups (Morgan et al., 2013; Tam et al., 2024), but this gap has narrowed over time (Chung et al., 2019; Collins & Cleary, 2016). U.S. data from the National Survey of Children's Health (NSCH) from the past two decades show that Black and White children have had a similar prevalence of ADHD diagnosis (Visser et al., 2014), except in 2016, when Black children had a higher prevalence (Danielson et al., 2018; Danielson, Claussen, Bitsko, et al., 2024). ADHD diagnoses among Hispanic and Asian children increased from 2016 to 2022 but remain lower than non-Hispanic and White children, respectively (Danielson, Claussen, Bitsko, et al., 2024; Wong & Landes, 2022). Understanding the influence of sociodemographic factors on access to ADHD diagnosis and care can inform efforts to reduce disparities.

Pediatric clinical practice guidelines vary by age and include medication, behavioral interventions, and school support as components of effective treatment for ADHD (AACAP Work Group on Quality Issues, Pliszka, 2007; Barbaresi et al., 2020; Wolraich et al., 2019). The prevalence of ADHD medication use among children and adolescents has generally increased over the past several decades (Hales et al., 2018; Hoagwood et al., 2016; Safer, 2016; Toce et al., 2022; Visser et al., 2014), though decreases have also been reported in recent years (Board et al., 2020). Using parent report, the percentage of children receiving behavioral treatment for ADHD in the prior 12 months was similar in 2016 and 2022 (47% vs. 44%) (Danielson et al., 2018; Danielson, Claussen, Bitsko, et al., 2024). During this time, the percentage of children with ADHD who received no treatment also increased from 23% in 2016 to 30% in 2022 (Danielson et al., 2018; Danielson, Claussen, Bitsko, et al., 2024).

While historical trends in ADHD diagnosis and treatment prevalence are well-documented, it remains unclear how trends occurred during the intervening years between 2016 and 2023, especially throughout the COVID-19 pandemic. Moreover, a nuanced trend analysis can uncover whether these changes have impacted sociodemographic and clinical subpopulations differently. The current study aims to fill this knowledge gap by examining annual national sampling of population trends in ADHD diagnosis, medication treatment, and behavioral treatment for ADHD among U.S. children from 2016 to 2023. By exploring both overall trends and differences by sociodemographic and clinical characteristics, this analysis provides deeper insights into the evolving landscape of ADHD care.

Methods

This study used annual data on non-institutionalized children in the U.S. aged 3–17 years from the 2016–2023 National Survey of Children's Health (NSCH), a nationally representative, population-based parentor caregiver-reported survey (hereafter referred to as parent) on the health and healthcare needs of children. The Health Resources and Services Administration's (HRSA) Maternal and Child Health Bureau directs and sponsors NSCH, and the U.S. Census Bureau administers the survey by mail and online methods. Full details on survey methodology are available.[1] Institutional review board approval is not needed for secondary analyses of de-identified data. The annual overall response rates ranged from 35.8% to 43.1% and annual interview completion rates among screened households known to have children ranged from 69.7% to 81.2%.

Parents were asked if they had ever been told by a doctor or healthcare provider that their child had ADHD or ADD, followed by whether the child currently had ADHD. Parents of children with current ADHD were asked about ADHD severity, current ADHD medication receipt, and behavioral treatment for ADHD in the past 12 months. Treatment was also examined as a composite indicator of receipt of any ADHD-specific treatment. Children with missing data for current ADHD diagnosis (<1% across 2016–2023) and children less than 3 years old were excluded from the analysis; annual analytic sample sizes ranged from

[1] https://www.census.gov/programs-surveys/nsch/technical-documentation/complete-technical-documentation.html

18,499 to 45,266, with an overall analytic sample size of 282,720. For subgroup analyses, we combined 2 data years, with subgroup analyses ranging from 51,958 to 90,368.

Analysis

Weighted prevalence estimates and 95% Clopper-Pearson confidence intervals (CIs) were calculated for current ADHD diagnoses among all children, and for co-occurring conditions and each treatment type (any ADHD treatment, ADHD medication, and ADHD behavioral treatment) among children with current ADHD. For annual treatment estimates, we calculated both the absolute percentage (i.e., representing children receiving ADHD treatment in relation to all children) and the relative percentage (i.e., representing children receiving ADHD treatment in relation to all children with a current ADHD diagnosis). Using joinpoint regression analysis, we examined annual trend data to identify points (i.e., "joinpoints") with significant slope changes in temporal trends between 2016 and 2023 for current ADHD diagnosis and treatment. We reported the annual percent change (APC) overall and for identified joinpoints.

Trends in ADHD diagnosis and treatment indicators by sociodemographic and clinical characteristics were examined across 2-year increments (2016–17, 2018–19, 2020–21, 2022–23) to increase the stability of estimates given small sample sizes for some subgroups in single years. Because joinpoints were found in overall trends, logistic regression was used to assess differences in prevalence from 2016–17 to 2022–23 using prevalence ratios (PRs) and CIs across sociodemographic and clinical characteristics. Sociodemographic and clinical characteristics included sex (male, female), age group (3–5 years, 6–11 years, 12–17 years), race (White, Black, American Indian or Alaska Native, Asian, Native Hawaiian or Pacific Islander, multiracial), ethnicity (Hispanic/Latino, non-Hispanic/Latino), primary language in the household (English, another language), highest education in the household (less than high school, high school, more than high school), family income level (<100% federal poverty level (FPL), 100%–199% FPL, ≥200% FPL), health insurance status (private only, any public, none), region (Northeast, Midwest, South, West), urbanicity[2] (rural, suburban, urban), ADHD severity (mild, moderate, severe; based on parent perception), and presence of a currently diagnosed co-occurring condition (selected conditions identified in the Diagnostic and Statistical Manual of Mental Disorders [American Psychiatric Association, 2022]) that were also assessed in the survey included anxiety, autism spectrum disorder, behavior or conduct problem, depression, intellectual disability or developmental delay, learning disability, speech or language disorder, and Tourette syndrome). Co-occurring conditions were dichotomized as those with and without the specific condition. An interaction term between the characteristic and year interval was included to understand if changes in prevalence between 2016–17 to 2022–23 differed across subgroups (e.g., males and females). Trends in the prevalence of co-occurring conditions among children with ADHD were also examined. To determine whether trends by sex were similar for age groups, we examined ADHD diagnosis and treatment indicators stratified by sex for those aged 6–11 years and 12–17 years, as the group for 3–5 years was not stable.

[2]Rural includes children living outside of core based statistical areas or living in micropolitan statistical areas; suburban includes children living in a metropolitan statistical area but not in a metropolitan principal city; urban includes children living in a metropolitan principal city.

Analyses stratified by family income level incorporated multiple imputed values included in the public use dataset for children with missing data for family income level (21.2% of analytic sample), appropriately accounting for the uncertainty associated with the missing data. An alpha level of 0.05 was used for all analyses to determine statistical significance. Joinpoint regression analysis was carried out using Joinpoint Regression Program (Version 5.2.0.0 – April 2024) from Statistical Methodology and Applications Branch, Surveillance Research Program, National Cancer Institute. All other analyses were conducted using SAS-callable SUDAAN v.11.0.1 (RTI International; Cary, NC) and incorporated design variables and sample weights to produce nationally representative estimates.

Results

Main Trends in Diagnosis and Treatment

Among U.S. children ages 3–17 years, the prevalence of current ADHD diagnoses increased from 8.7% in 2016 to 10.5% in 2023 (Figure 1). The joinpoint analyses identified a significant overall increase for ADHD diagnosis from 2016 to 2023 (APC = 3.09%) and a steeper increase from 2019 to 2023 (APC = 5.52%, Supplemental Table 1). From 2016 to 2019, estimates remained stable at just under 9% and increased between 2020 and 2022 to 10.5%. Estimates for 2022 and 2023 were similar.

The absolute prevalence of children receiving any ADHD treatment among all children increased from 6.7% in 2016 to 7.4% in 2023 (Figure 1). Joinpoint analyses identified a significant overall increase for any ADHD treatment from 2016 to 2023 (APC = 1.67%) and a steeper increase from 2019 to 2023 (APC = 3.60%, Supplemental Table 1). However, this increase was not proportional to the increase in ADHD diagnoses. When treatment was examined as a relative percentage, the majority of children with ADHD received treatment, but the estimates dropped from 76.9% (CI = 74.4–79.3) in 2016 to 70.8% (CI = 68.2–73.3) in 2023.

When examining ADHD medication and behavioral treatment separately, the absolute prevalence of children receiving either treatment did not significantly increase from 2016 to 2023 (5.4% to 5.5% and 4.1% to 5.1%, respectively; see Figure 1). At the same time, the relative percentage of children with ADHD receiving ADHD medication dropped from 62.5% in 2016 to 53.0% in 2023 (Supplemental Table 1). Joinpoint analyses identified a significant overall decrease in receipt of ADHD medication among children with ADHD for 2016–2023 (APC = −2.50%) and a steeper decrease from 2018 to 2023 (APC = −3.24%, Supplemental Table 1). In contrast, the relative percentage of children with ADHD receiving behavior treatment remained steady (47.3% and 48.2%, respectively; Supplemental Table 1).

Diagnostic Trends by Sociodemographic and Clinical Characteristics

Prevalence of diagnosed ADHD increased from 2016–17 to 2022–23 for children of Asian race (PR = 1.59), multiracial (PR = 1.22), and White race (PR = 1.29) only (race p-interaction = 0.029); for both Hispanic/Latino (PR = 1.22) and non-Hispanic/Latino children (PR = 1.21; ethnicity p-interaction = 0.986); and with private insurance only (PR = 1.37; insurance p-interaction = 0.007). Prevalence of diagnosed ADHD also increased among

females (PR = 1.33) and males (PR = 1.14; sex p-interaction = 0.067); children living in households with the highest education level of high school (PR = 1.17) and more than high school (PR = 1.27; highest household education p-interaction = 0.077), Post hoc analyses showed no significant interaction between year intervals and race/ethnicity, stratified by health insurance status. From 2016–17 to 2022–23, prevalence of mild (PR = 1.23) and moderate (PR = 1.28) ADHD increased, but not severe ADHD (Table 1).

Trends in Diagnosis of Co-Occurring Conditions Among Children with ADHD

Among children with ADHD, from 2016–17 to 2022–23 the prevalence of co-occurring anxiety (PR = 1.25) and depression (PR = 1.16) diagnoses alone increased, while prevalence of co-occurring behavior problems decreased (PR = 0.88; Table 2). The proportion of children without any of the selected co-occurring disorders stayed relatively steady throughout the study period (ranging from 21.8% to 25.0%). The prevalence of other selected co-occurring disorders alone among children with ADHD did not significantly change.

Treatment Trends by Sociodemographic Subgroups and Clinical Characteristics

Between 2016–17 and 2022–23, the prevalence of receiving any treatment decreased among males (79.5% vs 70.7%, PR = 0.89), but not females (69.3% vs 69.6%; PR = 1.00; p-interaction = 0.006, Table 3). Otherwise, decreasing trends in prevalence of any treatment were seen across sociodemographic and clinical subgroups over the period. Similarly, between 2016–17 and 2022–23, the prevalence of receiving ADHD medication decreased for males (65.8% and 53.3%, PR = 0.81) but not for females (57.3% and 53.4%, PR = 0.93; p-interaction = 0.023, Table 4). Trends in decreasing prevalence of medication treatment were similar by other sociodemographic and clinical subgroups over the period. ADHD behavioral treatment increased from 2016–17 and 2022–23 for females (37.7% and 47.0%, PR = 1.25), while it decreased slightly but not significantly among males (48.9% to 46.0%; PR = 0.94; p-interaction = 0.001) (Table 5). Prevalence of receipt of behavioral treatment also increased for children with private insurance only (PR = 1.16), but not other insurance types (p-interaction = 0.047). Receipt of ADHD behavioral treatment decreased over time among children with co-occurring anxiety (PR = 0.92), whereas their peers without co-occurring anxiety showed no statistically significant changes (p interaction = 0.030).

Age by Sex Trends

When examining trends by sex separately for children ages 6–11 years and 12–17 years, all 4 groups (younger females, older females, younger males, older males) showed significant increases in the prevalence of ADHD diagnosis between 2016–17 and 2022–23 (Figure 2), with PRs ranging from 1.11–1.32 (Supplemental Table 2). Receipt of any ADHD treatment decreased over time among males with ADHD ages 6–11 years and 12–17 years (PR = 0.88 and 0.90, respectively), but not among females. Medication treatment decreased among males 6–11 years (PR = 0.78) and 12–17 years (PR = 0.84), but not among females. ADHD behavioral treatment increased only among females 12–17 years (PR = 1.32), but not among males. Notably, for males ages 6–11 years who had the highest prevalence of medication treatment in 2016–17 (72.8%, CI = 68.6–76.8), there was a significant decrease by 2018–19

(62.6%, CI = 57.6–67.5), at this time point medication treatment trends became more similar among males and females of both age groups. See Figure 2 and Supplemental Table 2.

Discussion

Among U.S. children and adolescents, ADHD diagnoses were stable from 2016 to 2019 but increased starting in 2020 across most subgroups, but particularly for mild and moderate ADHD and for those with private insurance only. There was a greater increase in ADHD diagnosis among females; however, prevalence among males continues to be almost double that of females. During this time, the percentage of children with ADHD receiving any treatment decreased significantly, resulting in a rise from 1 in 4 children receiving no treatment in 2016 to nearly 1 in 3 by 2023. The widening gap overall between ADHD diagnosis and treatment was largely due to decreases in ADHD medication treatment which began around 2018, with no changes in ADHD behavioral treatment among children with ADHD overall. The decrease in medication treatment was specific to males, with an increase in behavioral treatment among females, specifically females aged 12–17 years.

Trends in ADHD Diagnosis

The increasing trends in ADHD diagnosis from 2020 to 2023 could have been affected by several factors, including the COVID-19 pandemic. The pandemic was associated with increases in stress and mental health symptoms in general and may have exacerbated ADHD symptoms due to changes in routines and family stress (Bailie & Linden, 2023; Becker et al., 2020). Virtual schooling may have presented more opportunity for parents to observe existing ADHD symptoms (Becker et al., 2020) and returning to school after virtual learning was associated with overall increases in challenging behaviors among all students (Court et al. 2023), potentially increasing the need for ADHD evaluations.

Trends in diagnosis may also be affected by changes in access to healthcare such as limits to in-person care (Bannett et al., 2022) and increased availability of telehealth (Ali et al., 2023). Access to diagnosis is affected by health insurance. Previous data showed higher prevalence of ADHD and other neurodevelopmental diagnoses among publicly insured children (Danielson et al., 2018; Danielson, Claussen, Bitsko, et al., 2024; Straub et al., 2022). In our findings, those with private insurance showed the most pronounced increases; the prevalence of ADHD among children with private insurance in 2022–23 was still lower than for children with any public insurance (9.3% and 13.5%, respectively), but the difference narrowed compared to 2016–17 (6.8% and 12.4%, respectively). Telehealth has become more easily accessible since the beginning of the pandemic (Ali et al., 2023), with close to half of children receiving some ADHD care via telehealth in 2021 (Danielson, Claussen, Arifkhanova, et al., 2024), but unmet treatment needs among children using public insurance remain (Ali et al., 2023). A lack of increase in ADHD diagnosis among uninsured children during the COVID-19 pandemic may not reflect a difference in ADHD symptoms compared to children with private insurance, but a lack of access to diagnostic services. In schools, ADHD is described as a health impairment rather than an educational disability (Briesch et al., 2023; Fabiano et al., 2024). Different from most other neurodevelopmental disorders that are identified as educational disabilities and assessed in schools, the health

impairment classification for ADHD may limit access to diagnosis if not obtained through a healthcare provider (Briesch et al., 2023; Fabiano et al., 2024). For this reason, lack of health insurance coverage can impact receiving a diagnosis. This discrepancy may have been more pronounced during the COVID-19 pandemic, where school services, including assessments of special needs, were often limited (Becker et al., 2020).

Changes in awareness of ADHD, including through increased discussion in social media (Yeung et al., 2022), may also have impacted the trends in ADHD diagnosis, including the difference in trends for males and females. Our results point to a narrowing of the sex differences in ADHD prevalence, especially among adolescents. ADHD was once considered an externalizing condition, characterized by hyperactivity, that decreased with age, but there is increased recognition of inattentive symptoms which are seen more often among girls and older adolescents (Faraone et al., 2024; Hinshaw et al., 2022). Future research could examine whether sex differences in diagnosis narrow further with increased recognition of ADHD, or whether sex differences in the life course of ADHD may persist, such as impairment among females increasing at later ages (Hinshaw et al., 2022). Increased awareness of different ADHD symptoms may also contribute to the increasing trends in diagnosis for children with mild and moderate symptoms but not severe symptoms (Yeung et al., 2022). This may point to a change in awareness of more subtle ADHD symptoms and perception of when to seek a diagnostic evaluation.

Notably, while ADHD diagnosis among children increased for almost all subgroups when examined by categories of three common indicators of socioeconomic status – highest household education, income, and insurance status – the subgroup trends within these indicators did not align with one another (e.g., trends for the lowest socioeconomic status of each indicator varied). More information is needed to examine differences in risk factors that may contribute to symptoms and impairments versus differences in awareness and in seeking and accessing care (Bannett et al., 2022; Bozinovic et al., 2021; Yang et al., 2022).

Our findings show an increase in the prevalence of co-occurring anxiety and depression among children with ADHD. During the same period, the overall prevalence of childhood anxiety and depression has increased, especially among adolescents aged 12–17 years (Sappenfield et al., 2024). The pandemic may have exacerbated anxiety along with ADHD among children, and the symptoms of co-occurring anxiety may have prompted families to seek care that may have resulted in an ADHD diagnosis (Bittner Gould et al., 2022). Children with ADHD and co-occurring disorders likely experience greater impairment than their peers with less complex ADHD and may need comprehensive treatments that address a range of symptoms (Barbaresi et al., 2020).

Trends in ADHD Treatment

Increases in the prevalence of ADHD diagnoses were not associated with corresponding absolute increases in treatment, especially not medication treatment. Notably, medication treatment began declining prior to the COVID-19 pandemic. This downward trend in medication treatment was significant in males, especially younger males, who had the highest prevalence of medication treatment in 2016. However, in 2018, their medication receipt became more comparable to that of older males and of females. The factors

influencing the decreasing trends cannot be determined from the current study. Nevertheless, electronic health records reveal similar declines in pediatric stimulant prescription fills, especially among younger children, starting several years before the pandemic (Board et al., 2020; IQVIA Government Solutions Inc, 2023). We found different trends for males and females for ADHD treatment overall; in 2016–2017 males received more of both types of ADHD treatment, but by 2022–23, the gaps in treatment prevalence between males and females no longer existed. Generally, this narrowing was based on stable levels or increases in treatment for females and decreases for males, especially in medication treatment. ADHD treatment recommendations do not differ by sex (Faraone et al., 2021; Hinshaw et al., 2022; Wolraich et al., 2019) and differences in treatment by sex have lessened over time.

The COVID-19 pandemic may have added to the decreasing trends in ADHD medication receipt (He et al., 2025). Due to changes in in-person healthcare, access to new prescriptions for ADHD medications were reduced, especially in low-income areas (Bannett et al., 2022). Adaptations to health care delivery systems during the pandemic, such as temporary changes to regulations to allow prescription of stimulant medications through telehealth, improve access to medication; however, access to telehealth can vary by geographic and socioeconomic factors (Ali et al., 2023; Kolbe et al., 2022). Further, demand for medication has outpaced production, resulting in widespread medication shortages announced in 2022 (FDA, 2022), which could have affected receipt of medication treatment. Information about patterns of ADHD medication uptake and discontinuation before and during the pandemic and the impact of continuing shortages on treatment could inform efforts to improve access to care.

In contrast to decreasing ADHD medication treatment trends, the trend for behavioral treatment for ADHD did not significantly change across the study period, with fewer than half of children with ADHD receiving behavioral treatment. Behavioral therapy is a recommended first-line treatment for ADHD, particularly for young children (Wolraich et al., 2019), with evidence for effectiveness in reducing symptoms and impairment (Evans et al., 2018). However, multiple barriers – such as limited local availability, financial constraints, and shortage of trained providers – can all impede access to behavioral treatment (Baweja et al., 2021). While telehealth for ADHD provides promising opportunities for increased access, it also presents challenges with implementation of behavioral treatment for some families and providers (Breaux et al., 2021; Spencer et al., 2020). Addressing attitudinal barriers such as increasing training and education of families and clinicians and structural barriers such as integrating behavioral health services into primary care settings may also improve service utilization (Baweja et al., 2021). Examining barriers to receipt of behavioral treatment could inform service delivery planning, particularly in circumstances where traditional healthcare delivery models are disrupted or unavailable (Curfman et al., 2021).

Regarding clinical characteristics, mild and moderate ADHD diagnoses increased, while severe diagnoses remained stable. No differences in treatment trends by severity were observed. In addition, among the increasing percentage of children with ADHD and co-occurring anxiety, the percentage receiving ADHD treatment decreased, including behavioral treatment. This decrease differed from the overall trend for behavioral treatment.

These trends may have implications for clinical care. Behavioral treatment is recommended for children with ADHD and co-occurring anxiety disorder; however, having multiple conditions present challenges to receiving an accurate diagnosis and treatment (Barbaresi et al., 2020).

Children with an ADHD diagnosis who do not receive ADHD-focused treatment may receive support in schools; this may have been more pronounced with families increased observation of children's learning challenges during virtual schooling, and the increased behavioral and social challenges experienced by children in schools in recent years (Becker et al., 2020; Court et al. 2023). Children may also be receiving care focused on the co-occurring conditions such as anxiety, depression, or behavior problems rather than ADHD-focused treatment.

Limitations

This study is subject to several limitations. All indicators reported in this analysis were based on parent report, which may be subject to recall bias, and do not necessarily reflect validated diagnoses. However, there is evidence that parent-reported indicators related to ADHD diagnosis have good validity compared to other data sources (Cree et al., 2023). The sample had small cell sizes for some subgroups, resulting in unstable estimates and limited power to detect significant trends. The analyses conducted in this descriptive study were not adjusted for multiple comparisons, which may increase the risk of Type I error (i.e., falsely identifying a significant association where none exists). For Native Hawaiian or Pacific Islander children, no estimates for treatment variables could be calculated. Another limitation is that the treatment questions included in the NSCH are broad, and it is not known whether the treatment received is evidence-based or effective (Wolraich et al., 2019). Finally, the NSCH had a relatively low annual overall response rate during the study period (35.8%–43.1%). While a low response rate can result in a biased sample, sample weights were developed by the U.S. Census Bureau in part to adjust for non-response and mitigate potential bias.

Implications

The rise in the prevalence of ADHD diagnoses may indicate improved awareness and recognition, particularly among girls and children with mild to moderate symptoms. Improved awareness of ADHD can lead to earlier diagnoses, ideally allowing for more timely treatment and services. Only 1 in 4 children with ADHD had no co-occurring disorders throughout the study period. Therefore, assessment and treatment of pediatric ADHD commonly involve multiple conditions. Clinical guidelines recommend that clinicians regularly screen children with ADHD for co-occurring conditions and account for co-occurring conditions when developing evidence-based treatment plans (Barbaresi et al., 2020). While the prevalence of ADHD diagnoses increased, the prevalence of ADHD medication treatment among those diagnosed has been declining. Children with ADHD and other special healthcare needs face challenges in accessing care (McLellan et al., 2022). Public health strategies to support children with special healthcare needs, including ADHD, can address differences in access to services and financing of services, and improve family and child wellbeing and quality of life overall (McLellan et al., 2022). Our findings may

inform healthcare providers, policymakers, and educators about the current state of ADHD diagnosis and treatment, and inform efforts aimed at improving access to care, reducing disparities, and supporting children with ADHD and their families.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

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Disclaimer

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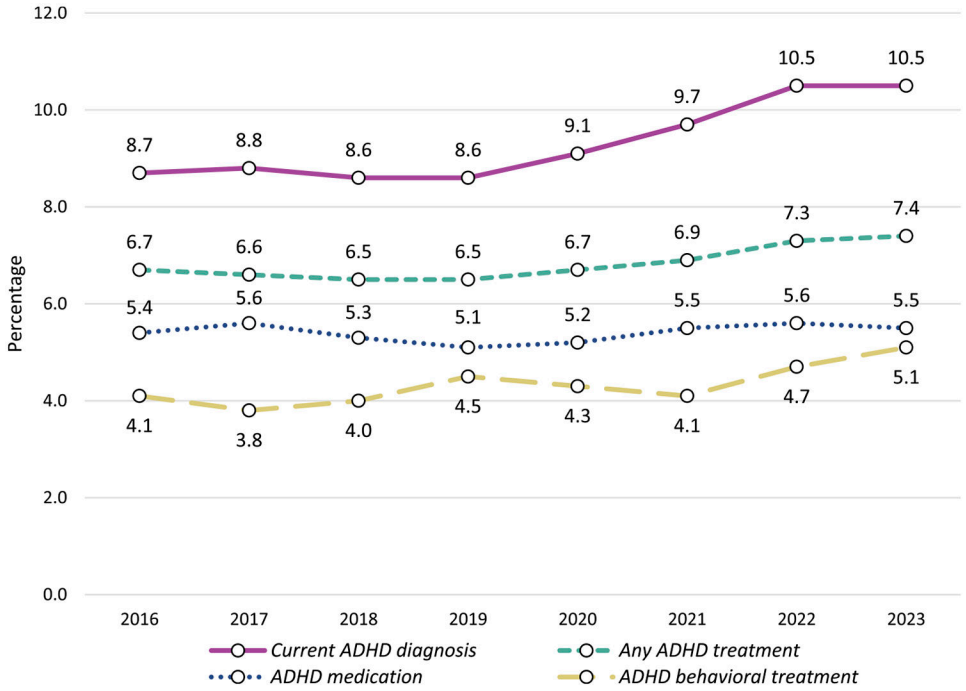

Figure 1.

Annual Weighted prevalence trends for parent-reported ADHD diagnosis and treatment among U.S. Children aged 3–17 Years, National Survey of Children's Health, 2016–2023. ADHD: attention deficit/hyperactivity disorder.

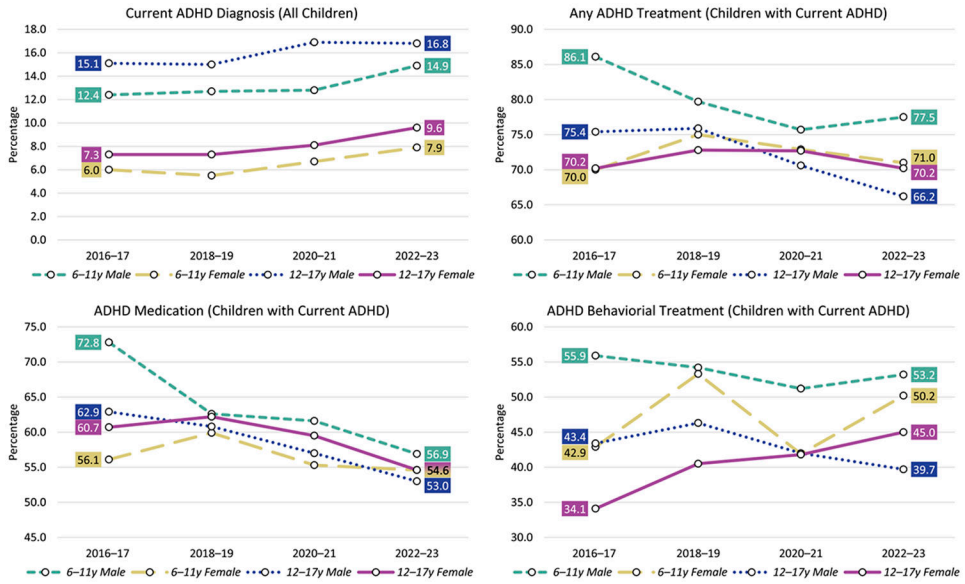

Figure 2.

Prevalence trends for ADHD diagnosis, any ADHD treatment, medication, and behavioral treatment among U.S. Children aged 6–17 Years by age group and sex, National Survey of children's health, 2-year increments, 2016–2023. ADHD: attention-deficit/hyperactivity disorder.

Table 1.

Prevalence trends for current ADHD diagnosis among children aged 3–17 Years by sociodemographic characteristics, National Survey of children's health, 2-year increments, 2016–2023.

	2016–17	2018–19	2020–21	2022–23	2016–17 vs 2022–23	Interaction test
	Weighted % (CI)	Weighted % (CI)	Weighted % (CI)	Weighted % (CI)	PR (CI)	*p*-value
Overall	8.7 (8.3–9.2)	8.6 (8.2–9.1)	9.4 (9.0–9.8)	10.5 (10.1–10.9)	**1.20 (1.13–1.28)**	
Sex						0.067
Male	11.7 (11.0–12.5)	11.8 (11.0–12.5)	12.5 (11.9–13.2)	13.4 (12.8–14.0)	**1.14 (1.06–1.24)**	
Female	5.6 (5.0–6.2)	5.3 (4.8–5.8)	6.1 (5.7–6.6)	7.4 (7.0–7.9)	**1.33 (1.17–1.51)**	
Age						0.468
3–5 Years	2.3 (1.5–3.2)	1.9 (1.4–2.6)	1.9 (1.5–2.3)	2.2 (1.9–2.6)	0.99 (0.67–1.47)	
6–11 Years	9.3 (8.5–10.1)	9.2 (8.5–10.0)	9.8 (9.2–10.5)	11.5 (10.8–12.2)	**1.23 (1.11–1.37)**	
12–17 Years	11.3 (10.5–12.2)	11.2 (10.5–12.0)	12.6 (11.9–13.3)	13.3 (12.7–13.9)	**1.17 (1.08–1.28)**	
Race [1]						0.029
American Indian or Alaska Native	9.0 (5.6–13.4)	7.9 (5.2–11.4)	6.7 (4.6–9.4)	8.4 (6.2–11.2)	0.94 (0.57–1.55)	
Asian	1.9 (1.4–2.6)	2.6 (1.7–3.7)	1.9 (1.4–2.6)	3.0 (2.3–3.9)	**1.59 (1.08–2.36)**	
Black	11.6 (9.9–13.6)	9.6 (8.2–11.1)	10.1 (8.9–11.4)	10.9 (9.7–12.3)	0.94 (0.77–1.14)	
Multiracial	9.4 (7.8–11.1)	8.8 (7.1–10.7)	11.8 (10.0–13.8)	11.4 (10.3–12.6)	**1.22 (1.00–1.49)**	
White	8.5 (8.0–9.1)	8.9 (8.4–9.4)	9.7 (9.2–10.2)	11.0 (10.5–11.4)	**1.29 (1.19–1.38)**	
Ethnicity						0.986
Hispanic/Latino	6.6 (5.5–7.8)	6.5 (5.5–7.7)	7.5 (6.5–8.6)	8.0 (7.2–8.9)	**1.22 (1.00–1.48)**	
Non-Hispanic/Latino	9.5 (9.0–10.0)	9.3 (8.9–9.8)	10.1 (9.7–10.5)	11.4 (11.0–11.9)	**1.21 (1.13–1.29)**	
Primary						0.84
Language in Home						
English	9.7 (9.2–10.2)	9.5 (9.0–10.0)	10.5 (10.1–11.0)	11.7 (11.3–12.2)	**1.21 (1.14–1.29)**	
Another Language	2.9 (1.7–4.6)	3.5 (2.3–5.0)	3.1 (2.3–4.1)	3.8 (3.1–4.6)	1.30 (0.78–2.16)	
Highest Education in Household						0.077
Less than High School	9.1 (6.5–12.2)	6.7 (4.9–8.9)	6.4 (5.0–8.1)	7.6 (6.0–9.6)	0.84 (0.57–1.22)	
12 years, High School Graduate	10.0 (8.7–11.3)	10.2 (9.0–11.6)	10.9 (9.8–12.1)	11.7 (10.7–12.8)	**1.17 (1.00–1.38)**	
More than High School	8.3 (7.9–8.7)	8.4 (8.0–8.9)	9.4 (9.0–9.8)	10.5 (10.1–10.9)	**1.27 (1.19–1.36)**	
Family Income Relative to FPL [2]						0.672

	2016–17	2018–19	2020–21	2022–23	2016–17 vs 2022–23	Interaction test
	Weighted % (CI)	Weighted % (CI)	Weighted % (CI)	Weighted % (CI)	PR (CI)	*p*-value
< 100% of FPL	10.0 (8.7–11.5)	9.9 (8.7–11.1)	10.5 (9.3–11.8)	11.9 (10.6–13.2)	**1.18 (1.00–1.40)**	
100–199% of FPL	9.6 (8.3–11.0)	9.0 (8.0–10.2)	10.5 (9.4–11.7)	11.1 (10.1–12.2)	1.16 (0.99–1.36)	
≥200% of FPL	7.9 (7.4–8.4)	8.1 (7.6–8.6)	8.7 (8.2–9.1)	9.9 (9.5–10.4)	**1.25 (1.16–1.35)**	
Health Insurance Status						0.007
Private Only	6.8 (6.4–7.2)	7.2 (6.8–7.7)	7.7 (7.3–8.1)	9.3 (8.9–9.7)	**1.37 (1.26–1.48)**	
Any Public	12.4 (11.3–13.6)	11.7 (10.7–12.6)	13.0 (12.2–14.0)	13.5 (12.7–14.4)	1.09 (0.98–1.22)	
None	6.1 (4.6–8.0)	5.7 (4.1–7.5)	6.4 (5.0–8.1)	7.2 (5.8–8.9)	1.17 (0.83–1.65)	
Census Region						0.459
Northeast	7.8 (6.9–8.8)	8.2 (7.2–9.3)	8.7 (7.8–9.6)	10.2 (9.4–11.1)	**1.31 (1.13–1.51)**	
Midwest	9.4 (8.6–10.3)	9.0 (8.2–9.9)	9.3 (8.7–10.0)	10.7 (10.1–11.3)	**1.14 (1.02–1.27)**	
South	10.2 (9.4–11.2)	10.0 (9.2–10.7)	11.5 (10.8–12.2)	12.1 (11.3–12.9)	**1.18 (1.06–1.31)**	
West	6.3 (5.3–7.4)	6.3 (5.4–7.4)	6.5 (5.7–7.4)	7.9 (7.4–8.5)	**1.26 (1.06–1.49)**	
Urbanicity [3]						0.208
Rural	10.7 (9.7–11.7)	10.0 (9.0–11.1)	11.3 (10.3–12.4)	12.3 (11.2–13.4)	**1.15 (1.01–1.31)**	
Suburban	8.5 (7.9–9.1)	8.7 (8.1–9.3)	9.3 (8.8–9.8)	10.7 (10.2–11.2)	**1.26 (1.16–1.38)**	
Urban	8.5 (7.6–9.6)	7.9 (7.1–8.8)	8.8 (8.0–9.6)	9.4 (8.7–10.2)	1.11 (0.97–1.27)	
ADHD severity						-
Mild	3.4 (3.2–3.7)	3.6 (3.3–3.9)	3.9 (3.6–4.1)	4.2 (4.0–4.5)	**1.23 (1.12–1.36)**	
Moderate	3.8 (3.5–4.1)	3.8 (3.5–4.0)	4.2 (3.9–4.5)	4.9 (4.6–5.1)	**1.28 (1.16–1.42)**	
Severe	1.4 (1.1–1.6)	1.2 (1.0–1.4)	1.3 (1.1–1.4)	1.3 (1.2–1.5)	0.99 (0.79–1.24)	

Notes: ADHD: attention-deficit/hyperactivity disorder. CI: 95% confidence interval. PR: prevalence ratio. FPL: federal poverty level. *P*-value or PR in **bold** indicates statistically significant interaction at the $\alpha = 0.05$ level.

[1] Excludes Native Hawaiian or Pacific Islander due to small cell sizes resulting in unstable estimates.

[2] Multiple imputation was used to estimate values for respondents with missing data on indicators used to calculate family income level (data were imputed for 21.2% of respondents represented in this table).

[3] The U.S. Census Bureau reviewed this data product to ensure appropriate access, use, and disclosure avoidance protection of the confidential source data used to produce this product. CBDRB-FY25-POP001-0025.

Table 2.

Prevalence trends for selected co-occurring conditions among children aged 3–17 Years with current ADHD, National Survey of children's health, 2-year increments, 2016–2023.

	2016–17	2018–19	2020–21	2022–23	2016–17 vs 2022–23
	Weighted % (CI)	Weighted % (CI)	Weighted % (CI)	Weighted % (CI)	PR (CI)
Current co-occurring disorder					
Anxiety	31.7 (29.3–34.3)	36.3 (33.9–38.8)	36.8 (34.6–38.9)	39.6 (37.8–41.5)	**1.25 (1.14–1.37)**
Autism spectrum disorder	14.2 (12.0–16.7)	14.9 (13.0–16.9)	14.3 (12.6–16.1)	16.5 (15.0–18.1)	1.16 (0.96–1.40)
Behavior or conduct problem	50.1 (47.1–53.0)	46.9 (44.2–49.6)	51.3 (49.1–53.6)	43.9 (41.9–45.9)	**0.88 (0.82–0.94)**
Depression	15.3 (13.6–17.1)	17.7 (15.8–19.8)	17.3 (15.6–19.0)	17.8 (16.5–19.2)	**1.16 (1.01–1.34)**
Intellectual disability or developmental delay	22.7 (20.5–25.0)	25.7 (23.4–28.1)	25.9 (23.9–28.0)	23.1 (21.5–24.9)	1.02 (0.90–1.15)
Learning disability	37.9 (35.1–40.8)	36.8 (34.3–39.4)	40.6 (38.3–42.9)	37.3 (35.4–39.2)	0.98 (0.90–1.08)
Speech or language disorder	14.3 (12.6–16.0)	15.2 (13.3–17.3)	17.5 (15.6–19.5)	16.1 (14.6–17.7)	1.13 (0.97–1.31)
Tourette syndrome	1.2 (0.8–1.8)	1.1 (0.7–1.7)	1.3 (0.8–1.9)	1.1 (0.8–1.5)	0.94 (0.58–1.52)
None of these disorders	24.4 (22.0–26.9)	25.0 (22.6–27.6)	21.8 (20.0–23.7)	22.2 (20.7–23.8)	0.91 (0.81–1.03)

Note: ADHD: attention-deficit/hyperactivity disorder. CI: confidence interval. PR: prevalence ratio. PR in **bold** indicates statistically significant at the $\alpha = 0.05$ level.

Table 3.

Prevalence trends for any ADHD treatment among U.S. Children aged 3–17 Years with current ADHD by sociodemographic and clinical factors, National Survey of children's health, 2-year increments, 2016–2023.

	2016–17	2018–19	2020–21	2022–23	2016–17 vs 2022–23	Interaction test
	Weighted % (CI)	Weighted % (CI)	Weighted % (CI)	Weighted % (CI)	PR (CI)	*p*-value
Overall	76.3 (73.8–78.8)	76.1 (73.6–78.5)	72.4 (70.3–74.3)	70.3 (68.5–72.1)	**0.92 (0.88–0.96)**	–
Sex						**0.006**
Male	79.5 (77.0–81.9)	77.4 (74.5–80.1)	72.3 (69.8–74.8)	70.7 (68.5–72.9)	**0.89 (0.85–0.93)**	
Female	69.3 (63.4–74.7)	73.1 (68.2–77.7)	72.4 (68.8–75.8)	69.6 (66.3–72.8)	1.00 (0.92–1.10)	
Age						0.935
3–5 Years	63.5 [1] (46.5–78.3)	69.4 (56.2–80.6)	62.5 (51.4–72.7)	53.3 (45.1–61.3)	0.84 (0.63–1.11)	
6–11 Years	81.0 (76.4–85.1)	78.3 (73.8–82.3)	74.8 (71.6–77.8)	75.3 (72.2–78.3)	**0.93 (0.87–0.99)**	
12–17 Years	73.7 (70.5–76.7)	74.9 (71.8–77.8)	71.2 (68.4–73.9)	67.6 (65.3–69.9)	**0.92 (0.87–0.97)**	
Race [2]						0.094
American Indian or Alaska Native	82.0 [1] (63.2–93.7)	77.9 [1] (59.2–90.9)	72.4 [1] (55.2–85.9)	68.3 [1] (51.7–82.1)	0.83 (0.63–1.10)	
Asian	70.4 (55.5–82.6)	76.0 [1] (57.3–89.5)	62.5 (47.0–76.3)	66.2 (53.6–77.4)	0.94 (0.73–1.21)	
Black	78.6 (71.9–84.4)	76.7 (68.5–83.6)	70.2 (63.8–76.0)	70.5 (63.7–76.7)	0.90 (0.80–1.01)	
Multiracial	81.3 (74.4–87.0)	65.8 (54.1–76.3)	68.0 (58.8–76.3)	73.1 (68.4–77.5)	**0.90 (0.82–0.99)**	
White	75.1 (72.0–78.0)	76.8 (74.1–79.3)	73.5 (71.3–75.6)	70.2 (68.1–72.2)	**0.93 (0.89–0.98)**	
Ethnicity						0.909
Hispanic/Latino	72.3 (62.8–80.5)	68.4 (59.5–76.4)	71.1 (64.4–77.1)	65.3 (60.0–70.4)	0.90 (0.78–1.04)	
Non-Hispanic/Latino	77.3 (74.9–79.5)	78.0 (75.8–80.1)	72.7 (70.7–74.6)	71.6 (69.7–73.5)	**0.93 (0.89–0.96)**	
Primary Language in Home						0.625
English	77.3 (75.1–79.4)	76.4 (73.9–78.7)	72.8 (70.8–74.8)	71.1 (69.2 –72.9)	**0.92 (0.89–0.95)**	
Another Language	58.3 [1] (31.2–82.2)	70.4 [1] (53.1–84.2)	68.8 (56.0–79.7)	57.0 (46.6–67.0)	0.98 (0.62–1.55)	
Highest Education in Household						0.264
Less than High School	80.7 [1] (61.3–93.1)	82.5 (71.1–90.8)	69.1 (56.1–80.2)	58.3 (46.0–69.9)	**0.72 (0.55–0.95)**	
12 years, High School Graduate	76.8 (71.2–81.7)	72.5 (65.6–78.8)	71.4 (66.3–76.1)	71.0 (66.7–75.1)	0.93 (0.85–1.01)	
More than High School	75.4 (72.9–77.8)	76.5 (74.0–79.0)	73.0 (70.8–75.1)	71.2 (69.2–73.1)	**0.94 (0.91–0.98)**	
Family Income Relative to FPL [3]						0.759

	2016–17	2018–19	2020–21	2022–23	2016–17 vs 2022–23	Interaction test
	Weighted % (CI)	Weighted % (CI)	Weighted % (CI)	Weighted % (CI)	PR (CI)	*p*-value
<100% of FPL	76.4 (70.9–81.1)	75.5 (69.2–80.8)	70.8 (64.4–76.5)	67.8 (62.3–72.8)	**0.89 (0.80–0.98)**	
100–199% of FPL	74.7 (67.2–80.9)	78.4 (73.0–83.1)	71.1 (66.1–75.6)	68.5 (64.3–72.4)	0.92 (0.82–1.02)	
≥200% of FPL	77.1 (74.4–79.6)	75.4 (72.0–78.5)	73.4 (71.0–75.7)	71.9 (69.8–73.9)	**0.93 (0.89–0.97)**	
Health Insurance Status						0.856
Private Only	75.1 (72.1–77.9)	74.4 (70.9–77.6)	72.6 (70.0–75.1)	70.2 (68.0–72.4)	**0.94 (0.89–0.98)**	
Any Public	78.1 (73.7–82.1)	79.7 (76.1–82.9)	73.8 (70.6–76.8)	71.9 (68.8–74.9)	**0.92 (0.86–0.98)**	
None	67.4 (53.6–79.4)	62.9 [1] (45.2–78.4)	54.0 (41.2–66.4)	59.3 (47.9–70.0)	0.88 (0.68–1.14)	
Census Region						0.773
Northeast	78.4 (73.0–83.1)	68.8 (61.5–75.6)	70.0 (64.9–74.7)	70.2 (66.1–74.0)	**0.89 (0.82–0.97)**	
Midwest	77.8 (73.7–81.6)	78.2 (74.0–82.1)	72.7 (69.4–75.9)	73.0 (70.0–75.8)	**0.94 (0.88–1.00)**	
South	77.9 (74.4–81.2)	79.7 (76.1–83.0)	73.9 (70.8–76.8)	71.4 (68.0–74.7)	**0.92 (0.86–0.98)**	
West	68.6 (59.3–77.0)	70.7 (63.2–77.4)	69.6 (63.0–75.7)	64.8 (61.5–68.1)	0.94 (0.83–1.08)	
Urbanicity [4]						0.502
Rural	75.6 (70.7–80.0)	76.6 (72.1–80.7)	74.5 (70.3–78.3)	69.5 (64.6–74.0)	**0.92 (0.84–1.00)**	
Suburban	75.0 (71.2–78.6)	75.4 (72.0–78.7)	71.4 (68.6–74.1)	70.5 (68.2–72.8)	**0.94 (0.89–1.00)**	
Urban	78.9 (74.5–82.9)	77.2 (72.3–81.6)	73.0 (68.9–76.8)	70.4 (66.4–74.2)	**0.89 (0.83–0.96)**	
ADHD severity						0.307
Mild	61.6 (57.6–65.4)	62.2 (57.8–66.5)	57.7 (54.2–61.2)	54.2 (51.2–57.2)	**0.88 (0.81–0.96)**	
Moderate	82.9 (78.4–86.7)	83.9 (81.0–86.6)	81.3 (78.8–83.6)	79.2 (76.5–81.6)	0.96 (0.90–1.01)	
Severe	94.9 (91.4–97.3)	92.0 (81.9–97.5)	87.9 (82.7–92.0)	89.2 (85.3–92.4)	**0.94 (0.90–0.99)**	
Current co-occurring disorder [5]						
Any of these disorders	80.0 (77.0–82.8)	80.1 (77.3–82.7)	76.0 (73.8–78.1)	73.4 (71.3–75.4)	**0.92 (0.88–0.96)**	0.374
Anxiety	82.7 (79.3–85.8)	84.5 (81.1–87.6)	79.2 (76.3–81.9)	76.7 (74.2–79.0)	**0.93 (0.88–0.97)**	0.775
Autism spectrum disorder	80.2 (67.8–89.5)	82.8 (77.0–87.6)	74.9 (68.4–80.7)	72.1 (66.1–77.6)	0.90 (0.77–1.04)	0.659
Behavior or conduct problem	86.6 (83.9–88.9)	85.7 (82.2–88.7)	81.5 (79.0–83.8)	80.4 (77.4–83.1)	**0.93 (0.89–0.97)**	0.073
Depression	84.6 (80.3–88.4)	85.0 (79.2–89.6)	80.0 (75.6–83.9)	80.8 (77.6–83.8)	0.96 (0.90–1.01)	0.782
Intellectual disability or developmental delay	80.4 (75.7–84.6)	81.0 (76.6–84.8)	76.1 (71.8–80.0)	74.1 (69.6–78.2)	**0.92 (0.85–1.00)**	0.678
Learning disability	78.5 (73.4–83.1)	80.3 (76.6–83.7)	74.6 (71.2–77.8)	72.0 (68.7–75.1)	**0.92 (0.85–0.99)**	0.66
Speech or language disorder	75.7 (69.7–81.0)	74.0 (66.4–80.7)	75.7 (70.2–80.5)	69.3 (63.4–74.7)	0.92 (0.82–1.02)	0.934

	2016–17	2018–19	2020–21	2022–23	2016–17 vs 2022–23	Interaction test
	Weighted % (CI)	**Weighted % (CI)**	**Weighted % (CI)**	**Weighted % (CI)**	**PR (CI)**	***p*-value**
Tourette syndrome	84.7 (70.9–93.7)	87.8 (74.8–95.5)	68.2 [1] (42.7–87.6)	79.7 (67.8–88.7)	0.94 (0.79–1.12)	0.934
None of these disorders	65.0 (59.7–70.0)	64.0 (58.3–69.5)	59.7 (54.8–64.5)	59.9 (56.1–63.7)	0.92 (0.83–1.02)	

Notes: ADHD: attention-deficit/hyperactivity disorder. CI: 95% confidence interval. PR: prevalence ratio. FPL: federal poverty level. *P*-value or PR in **bold** indicates statistically significant interaction at the $\alpha = 0.05$ level.

[1]Estimate is unstable.

[2]Excludes Native Hawaiian or Pacific Islander due to small cell sizes resulting in unstable estimates.

[3]Multiple imputation was used to estimate values for respondents with missing data on indicators used to calculate family income level (data were imputed for 19.7% of respondents represented in this table).

[4]The U.S. Census Bureau reviewed this data product to ensure appropriate access, use, and disclosure avoidance protection of the confidential source data used to produce this product. CBDRB-FY25-P0P001-0025.

[5]Compared to the percentage without the specific disorder who received any ADHD treatment.

Table 4.

Prevalence trends for ADHD medication treatment among U.S. Children aged 3–17 Years with current ADHD by sociodemographic and clinical factors, National Survey of children's health, 2-year increments, 2016–2023.

	2016–17	2018–19	2020–21	2022–23	2016–17 vs 2022–23	Interaction test
	Weighted % (CI)	Weighted % (CI)	Weighted % (CI)	Weighted % (CI)	PR (CI)	*p*-value
Overall	63.1 (60.3–65.9)	60.9 (58.1–63.5)	57.1 (54.9–59.4)	53.3 (51.4–55.3)	**0.84 (0.80–0.89)**	–
Sex						**0.023**
Male	65.8 (62.7–68.8)	61.0 (57.8–64.3)	57.4 (54.6–60.2)	53.3 (50.9–55.8)	**0.81 (0.76–0.86)**	
Female	57.3 (51.4–63.0)	60.4 (55.5–65.2)	56.6 (52.6–60.5)	53.4 (50.1–56.6)	0.93 (0.83–1.05)	
Age						0.539
3–5 Years	35.7[1] (16.9–58.4)	46.6[1] (30.7–63.0)	22.3 (14.7–31.4)	20.9 (15.1–27.8)	0.59 (0.31–1.10)	
6–11 Years	67.5 (63.0–71.9)	61.8 (57.4–66.2)	59.5 (56.0–63.0)	56.1 (52.9–59.4)	**0.83 (0.76–0.91)**	
12–17 Years	62.2 (58.6–65.7)	61.2 (57.6–64.7)	57.8 (54.7–60.9)	53.6 (51.0–56.1)	**0.86 (0.80–0.93)**	
Race [2]						0.66
American Indian or Alaska Native	73.5[1] (54.4–87.8)	65.5[1] (46.8–81.3)	58.5[1] (41.2–74.4)	57.8 (42.3–72.3)	0.79 (0.56–1.10)	
Asian	48.4[1] (32.6–64.5)	49.9[1] (30.8–69.1)	47.4[1] (32.6–62.6)	44.8 (32.2–57.9)	0.93 (0.61–1.41)	
Black	64.3 (56.4–71.7)	62.4 (54.2–70.0)	58.8 (52.2–65.1)	53.2 (46.6–59.7)	**0.83 (0.70–0.98)**	
Multiracial	63.1 (54.2–71.4)	49.3 (39.0–59.7)	48.4 (39.9–57.0)	51.0 (45.7–56.2)	**0.81 (0.68–0.95)**	
White	62.8 (59.6–65.9)	61.6 (58.6–64.6)	57.9 (55.4–60.5)	54.0 (51.8–56.2)	**0.86 (0.81–0.92)**	
Ethnicity						0.512
Hispanic/Latino	56.9 (47.7–65.8)	51.2 (42.2–60.1)	50.1 (42.9–57.3)	44.0 (38.6–49.6)	**0.77 (0.64–0.94)**	
Non-Hispanic/Latino	64.6 (61.9–67.2)	63.3 (60.7–65.7)	59.0 (56.9–61.1)	55.8 (53.8–57.8)	**0.86 (0.82–0.91)**	
Primary Language in Home						0.866
English	64.5 (61.9–67.0)	62.1 (59.5–64.7)	57.7 (55.5–60.0)	54.8 (52.9–56.8)	**0.85 (0.81–0.90)**	
Another Language	36.5[1] (16.2–61.0)	38.7[1] (19.9–60.4)	50.7 (35.7–65.6)	26.0 (18.3–34.9)	0.71 (0.37–1.39)	
Highest Education in Household						0.154
Less than High School	68.3[1] (49.9–83.4)	62.4[1] (46.5–76.5)	57.0 (44.6–68.8)	39.6 (28.2–51.9)	**0.58 (0.40–0.84)**	
12 years, High School Graduate	66.0 (59.7–71.9)	59.2 (52.2–65.9)	56.9 (51.2–62.6)	56.9 (52.1–61.7)	**0.86 (0.76–0.97)**	
More than High School	61.3 (58.6–64.0)	61.2 (58.5–63.9)	57.2 (54.8–59.6)	53.5 (51.5–55.5)	**0.87 (0.82–0.92)**	
Family Income Relative to FPL [3]						0.875
100% of FPL	61.2 (54.6–67.4)	61.6 (55.1–67.7)	54.7 (47.9–61.4)	49.1 (43.5–54.7)	**0.80 (0.69–0.94)**	

	2016–17	2018–19	2020–21	2022–23	2016–17 vs 2022–23	Interaction test
	Weighted % (CI)	Weighted % (CI)	Weighted % (CI)	Weighted % (CI)	PR (CI)	*p*-value
100–199% of FPL	61.7 (54.2–68.7)	61.8 (55.2–67.9)	55.8 (50.5–61.0)	51.8 (46.8–56.8)	**0.84 (0.73–0.97)**	
≥200% of FPL	64.7 (61.7–67.7)	60.2 (56.8–63.5)	58.6 (55.9–61.3)	55.4 (53.1–57.6)	**0.86 (0.81–0.91)**	
Health Insurance Status						0.692
Private Only	61.7 (58.4–65.0)	59.6 (56.0–63.2)	56.9 (54.0–59.7)	53.6 (51.2–55.9)	**0.87 (0.81–0.93)**	
Any Public	64.6 (59.9–69.2)	63.7 (59.4–67.9)	58.9 (55.1–62.5)	54.4 (51.0–57.7)	**0.84 (0.77–0.92)**	
None	55.5 (41.3–69.1)	46.6 (32.4–61.3)	39.5 (28.4–51.4)	41.3 (31.1–52.0)	0.74 (0.53–1.05)	
Census Region						0.163
Northeast	58.7 (52.3–64.8)	51.1 (44.3–57.9)	52.1 (46.8–57.5)	52.3 (48.0–56.5)	0.89 (0.78–1.02)	
Midwest	64.5 (59.7–69.1)	62.0 (57.0–66.7)	60.2 (56.6–63.7)	58.4 (55.3–61.5)	**0.91 (0.83–0.99)**	
South	68.6 (64.7–72.3)	68.8 (65.0–72.4)	60.6 (57.3–63.9)	55.0 (51.3–58.5)	**0.80 (0.74–0.87)**	
West	51.1 (42.5–59.6)	48.0 (40.1–56.0)	47.8 (40.8–54.9)	44.3 (41.0–47.7)	0.87 (0.73–1.04)	
Urbanicity [4]						0.644
Rural	64.2 (59.1–69.2)	65.3 (59.9–70.4)	61.5 (56.7–66.1)	57.2 (52.3–62.1)	**0.89 (0.79–1.00)**	
Suburban	62.8 (58.9–66.5)	59.5 (55.8–63.1)	57.2 (54.3–60.2)	53.3 (50.9–55.8)	**0.85 (0.79–0.92)**	
Urban	63.2 (57.6–68.6)	61.5 (56.2–66.7)	54.8 (50.0–59.5)	51.4 (47.3–55.4)	**0.81 (0.72–0.91)**	
ADHD severity						0.738
Mild	47.3 (43.4–51.3)	44.8 (40.4–49.3)	43.3 (39.9–46.7)	36.2 (33.4–39.1)	**0.77 (0.68–0.86)**	
Moderate	69.0 (64.5–73.3)	69.2 (65.6–72.5)	65.6 (62.4–68.6)	61.4 (58.4–64.3)	**0.89 (0.82–0.96)**	
Severe	84.7 (79.0–89.4)	80.8 (72.3–87.7)	71.4 (63.3–78.7)	78.0 (73.2–82.3)	**0.92 (0.85–1.00)**	
Current co-occurring disorder [5]						
Any of these disorders	65.3 (62.0–68.4)	63.4 (60.4–66.4)	58.6 (56.1–61.2)	54.9 (52.7–57.2)	**0.84 (0.79–0.90)**	0.606
Anxiety	66.8 (62.6–70.9)	68.2 (64.2–71.9)	61.7 (58.2–65.1)	58.3 (55.5–61.0)	**0.87 (0.81–0.94)**	0.597
Autism spectrum disorder	63.1 (52.7–72.8)	61.8 (54.9–68.3)	54.7 (47.8–61.5)	48.0 (42.8–53.3)	**0.76 (0.63–0.92)**	0.302
Behavior or conduct problem	70.7 (67.1–74.2)	67.7 (63.8–71.4)	62.3 (59.0–65.6)	60.1 (56.8–63.4)	**0.85 (0.79–0.91)**	0.236
Depression	70.0 (64.3–75.3)	68.9 (62.9–74.5)	62.0 (56.6–67.2)	63.2 (58.7–67.5)	**0.90 (0.81–1.00)**	0.499
Intellectual disability or developmental delay	63.5 (58.5–68.4)	62.5 (58.2–66.7)	56.6 (52.6–60.5)	53.0 (49.7–56.4)	**0.82 (0.73–0.92)**	0.472
Learning disability	64.8 (59.5–69.8)	61.8 (56.4–67.0)	58.8 (53.8–63.6)	53.2 (48.8–57.5)	**0.83 (0.76–0.92)**	0.72
Speech or language disorder	58.5 (52.2–64.6)	58.3 (50.8–65.6)	53.3 (46.8–59.7)	46.8 (41.5–52.2)	**0.80 (0.69–0.93)**	0.668
Tourette syndrome	80.7 (66.5–90.8)	69.2 [1] (49.1–85.1)	52.1 [1] (31.6–72.0)	53.5 [1] (36.9–69.6)	**0.66 (0.48–0.92)**	0.071
None of these disorders	56.7 (51.0–62.2)	52.9 (46.7–58.9)	51.8 (47.0–56.7)	48.0 (44.1–51.9)	**0.85 (0.75–0.96)**	

Notes: ADHD: attention-deficit/hyperactivity disorder. CI: 95% confidence interval. PR: prevalence ratio. FPL: federal poverty level. P-value or PR in **bold** indicates statistically significant interaction at the $\alpha = 0.05$ level.

[1]Estimate is unstable.

[2]Excludes Native Hawaiian or Pacific Islander due to small cell sizes resulting in unstable estimates.

[3]Multiple imputation was used to estimate values for respondents with missing data on indicators used to calculate family income level (data were imputed for 19.7% of respondents represented in this table).

[4]The U.S. Census Bureau reviewed this data product to ensure appropriate access, use, and disclosure avoidance protection of the confidential source data used to produce this product. CBDRB-FY25-POP001-0025.

[5]Compared to the percentage without the specific disorder who received ADHD medication.

Table 5.

Prevalence trends for ADHD behavioral treatment among U.S. Children aged 3–17 Years with current ADHD by socio-demographic and clinical factors, National Survey of children's health, 2-year increments, 2016–2023.

	2016–17	2018–19	2020–21	2022–23	2016–17 vs 2022–23	Interaction test
	Weighted % (CI)	Weighted % (CI)	Weighted % (CI)	Weighted % (CI)	PR (CI)	*p*-value
Overall	45.4 (42.6–48.3)	49.3 (46.6–52.0)	44.9 (42.6–47.2)	46.3 (44.4–48.2)	1.02 (0.95–1.10)	
Sex						**0.001**
Male	48.9 (45.6–52.2)	50.7 (47.4–53.9)	46.2 (43.4–49.0)	46.0 (43.6–48.4)	0.94 (0.86–1.02)	
Female	37.7 (32.6–43.0)	46.0 (41.3–50.7)	42.1 (38.4–46.0)	47.0 (43.7–50.2)	**1.25 (1.07–1.45)**	
Age						0.925
3–5 Years	41.7[1] (24.2–60.9)	62.1 (47.7–75.1)	53.3 (41.7–64.7)	46.0 (38.0–54.2)	1.10 (0.70–1.74)	
6–11 Years	51.8 (47.3–56.3)	53.9 (49.6–58.2)	48.1 (44.6–51.6)	52.2 (49.0–55.5)	1.01 (0.91–1.12)	
12–17 Years	40.5 (36.8–44.2)	44.5 (40.9–48.0)	41.9 (38.8–45.1)	41.6 (39.1–44.1)	1.03 (0.92–1.14)	
Race [2]						0.127
American Indian or Alaska Native	62.5[1] (42.3–80.0)	52.5[1] (33.8–70.8)	-[4]	50.3 (35.4–65.1)	0.80 (0.53–1.21)	
Asian	48.8[1] (33.0–64.7)	61.6[1] (42.6–78.3)	36.0 (23.7–49.8)	49.2 (36.4–62.1)	1.01 (0.67–1.51)	
Black	50.6 (41.8–59.5)	60.2 (52.3–67.8)	51.4 (44.9–57.9)	50.7 (44.2–57.2)	1.00 (0.81–1.24)	
Multiracial	46.7 (37.8–55.6)	50.5 (40.1–61.0)	43.6 (35.3–52.1)	49.6 (44.4–54.8)	1.06 (0.86–1.31)	
White	43.2 (40.1–46.3)	46.3 (43.3–49.4)	43.9 (41.3–46.5)	45.0 (42.8–47.1)	1.04 (0.96–1.13)	
Ethnicity						0.212
Hispanic/Latino	51.7 (42.6–60.6)	47.7 (38.9–56.7)	45.2 (38.0–52.5)	47.0 (41.5–52.5)	0.91 (0.74–1.12)	
Non-Hispanic/Latino	44.0 (41.1–46.8)	49.7 (47.1–52.2)	44.8 (42.7–47.0)	46.2 (44.2–48.1)	1.05 (0.97–1.13)	
Primary Language in Home						0.889
English	45.3 (42.5–48.0)	48.8 (46.2–51.4)	44.7 (42.5–47.0)	46.2 (44.2–48.2)	1.02 (0.95–1.10)	
Another Language	46.7[1] (22.8–71.7)	55.2[1] (34.5–74.6)	52.6 (37.6–67.2)	49.4 (39.2–59.7)	1.06 (0.61–1.83)	
Highest Education in Household						0.475
Less than High School	48.3[1] (32.1–64.8)	54.7[1] (39.3–69.5)	55.5 (43.2–67.3)	38.0 (26.4–50.7)	0.79 (0.50–1.23)	
12 years, High School Graduate	42.5 (35.7–49.5)	46.6 (39.9–53.3)	45.6 (39.8–51.4)	44.2 (39.4–49.1)	1.04 (0.86–1.26)	
More than High School	45.6 (42.9–48.4)	49.5 (46.8–52.3)	43.7 (41.3–46.1)	47.7 (45.7–49.7)	1.05 (0.97–1.12)	

	2016–17	2018–19	2020–21	2022–23	2016–17 vs 2022–23	Interaction test
	Weighted % (CI)	Weighted % (CI)	Weighted % (CI)	Weighted % (CI)	PR (CI)	*p*-value
Family Income Relative to FPL [4]						0.099
<100% of FPL	48.4 (41.5–55.3)	56.8 (50.1–63.3)	49.1 (42.8–55.5)	46.2 (40.6–52.0)	0.96 (0.79–1.15)	
100–199% of FPL	48.5 (41.5–55.5)	49.9 (42.7–57.2)	45.4 (40.1–50.9)	44.1 (40.0–48.3)	0.91 (0.77–1.08)	
≥200% of FPL	42.6 (39.5–45.8)	46.1 (42.9–49.4)	43.1 (40.4–45.9)	47.1 (44.9–49.4)	**1.11 (1.01–1.21)**	
Health Insurance Status						**0.047**
Private Only	38.0 (34.8–41.2)	42.3 (38.9–45.8)	40.9 (38.1–43.7)	44.2 (41.9–46.5)	**1.16 (1.06–1.28)**	
Any Public	51.9 (46.9–56.8)	57.0 (52.9–61.1)	49.8 (46.1–53.5)	49.5 (46.2–52.9)	0.96 (0.85–1.07)	
None	43.0 (29.4–57.4)	44.5 (30.5–59.1)	35.7 (25.4–47.1)	41.7 (31.1–52.9)	0.97 (0.65–1.45)	
Census Region						0.883
Northeast	49.9 (43.5–56.2)	49.5 (42.7–56.2)	45.5 (40.2–50.9)	50.2 (45.9–54.5)	1.01 (0.87–1.17)	
Midwest	45.0 (40.2–49.9)	54.6 (50.0–59.2)	45.9 (42.3–49.5)	47.4 (44.3–50.5)	1.05 (0.93–1.19)	
South	43.0 (38.5–47.5)	47.7 (43.8–51.7)	43.3 (40.0–46.7)	44.3 (40.8–47.8)	1.03 (0.91–1.17)	
West	48.6 (40.1–57.1)	46.3 (38.4–54.3)	47.7 (40.5–54.9)	46.7 (43.4–50.1)	0.96 (0.80–1.16)	
Urbanicity [5]						0.128
Rural	42.2 (37.1–47.4)	47.6 (42.1–53.1)	43.6 (38.7–48.5)	41.2 (36.6–46.0)	0.98 (0.83–1.15)	
Suburban	41.9 (38.2–45.6)	46.6 (43.0–50.2)	43.3 (40.4–46.2)	46.2 (43.7–48.6)	**1.10 (1.00–1.22)**	
Urban	52.9 (46.9–58.9)	55.4 (50.1–60.7)	48.6 (43.8–53.3)	49.3 (45.3–53.3)	0.93 (0.81–1.07)	
ADHD severity						0.957
Mild	31.0 (27.2–34.9)	37.3 (32.8–41.9)	30.8 (27.6–34.1)	32.3 (29.5–35.1)	1.04 (0.90–1.21)	
Moderate	50.6 (46.2–55.0)	53.3 (49.7–56.8)	50.6 (47.2–53.9)	52.2 (49.4–55.0)	1.03 (0.93–1.14)	
Severe	66.3 (54.2–77.0)	70.8 (61.8–78.8)	70.8 (64.7–76.4)	69.6 (63.4–75.3)	1.05 (0.87–1.26)	
Current co-occurring disorder [6]						
Any of these disorders	52.1 (48.6–55.5)	57.5 (54.5–60.5)	52.3 (49.7–54.8)	52.6 (50.3–54.8)	1.01 (0.93–1.09)	0.965
Anxiety	62.6 (58.4–66.8)	65.2 (61.3–69.1)	58.3 (54.9–61.7)	57.4 (54.6–60.2)	**0.92 (0.85–0.99)**	**0.03**
Autism spectrum disorder	62.7 (52.4–72.3)	66.5 (59.5–73.0)	59.5 (52.9–65.9)	60.1 (54.5–65.5)	0.96 (0.80–1.14)	0.546
Behavior or conduct problem	61.0 (56.5–65.4)	65.8 (61.9–69.6)	61.4 (58.2–64.5)	62.3 (58.9–65.5)	1.02 (0.93–1.11)	0.285
Depression	67.3 (61.5–72.6)	67.5 (61.2–73.4)	63.7 (58.6–68.6)	62.1 (58.1–66.1)	0.92 (0.83–1.02)	0.075
Intellectual disability or developmental delay	60.1 (54.7–65.3)	66.0 (61.0–70.8)	56.5 (51.6–61.3)	58.8 (54.3–63.1)	0.98 (0.87–1.09)	0.425
Learning disability	55.0 (50.0–60.0)	60.8 (56.6–64.8)	52.9 (48.9–56.8)	52.1 (48.8–55.4)	0.95 (0.85–1.05)	0.06

	2016–17	2018–19	2020–21	2022–23	2016–17 vs 2022–23	Interaction test
	Weighted % (CI)	Weighted % (CI)	Weighted % (CI)	Weighted % (CI)	PR (CI)	*p*-value
Speech or language disorder	53.7 (47.4–60.0)	58.5 (50.9–65.8)	59.6 (53.5–65.5)	55.6 (50.1–61.1)	1.04 (0.89–1.20)	0.811
Tourette syndrome	57.5[1] (37.2–76.0)	53.7[1] (33.1–73.4)	53.3[1] (32.6–73.2)	58.8[1] (43.2–73.3)	1.02 (0.68–1.54)	0.963
None of these disorders	24.5 (19.0–30.7)	25.0 (19.5–31.1)	19.4 (16.0–23.2)	24.7 (21.2–28.3)	1.01 (0.77–1.32)	

Notes: ADHD: attention-deficit/hyperactivity disorder. CI: 95% confidence interval. PR: prevalence ratio. FPL: federal poverty level. P-value or PR in **bold** indicates statistically significant interaction at the $\alpha = 0.05$ level.

[1]Estimate is unstable.

[2]Excludes Native Hawaiian/Pacific Islander due to small cell sizes resulting in unstable estimates.

[3]Estimate could not be calculated due to small cell size.

[4]Multiple imputation was used to estimate values for respondents with missing data on indicators used to calculate family income level (data were imputed for 19.7% of respondents represented in this table).

[5]The U.S. Census Bureau reviewed this data product to ensure appropriate access, use, and disclosure avoidance protection of the confidential source data used to produce this product. CBDRB-FY25-POP001-0025.

[6]Compared to the percentage without the specific disorder who received ADHD behavioral treatment.