

Is Attention Deficit Hyperactivity Disorder Increasing Among Girls in the US?

Trends in Diagnosis and the Prescribing of Stimulants

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Abstract

Objective: To use a single national data source to discern trends in the prevalence of office-based visits resulting in a diagnosis of attention deficit hyperactivity disorder (ADHD) among girls, and trends in the prescribing of stimulant pharmacotherapy (including methylphenidate) for its treatment in the US.

Methods: Data from the US National Ambulatory Medical Care Survey were utilised for this analysis. The number and rate of office-based physician visits resulting in a diagnosis of ADHD (*International Classification of Diseases, 9th Revision, Clinical Modification* code 314.00 or 314.01) were discerned from the beginning of 1990 to the end of 1998, for children aged 5 to 18 years. Gender-specific trend analyses were conducted using four time intervals: 1991 to 1992, 1993 to 1994, 1995 to 1996, and 1997 to 1998.

Results: The estimated number of office-based visits documenting a diagnosis of ADHD among children increased from 947 208 in 1990 to 3 234 180 in 1998. The rate of office-based visits documenting a diagnosis of ADHD among children increased from 19.4 per 1000 of the US population aged 5 to 18 years in 1990 to 59.0 per 1000 in 1998, a 3-fold increase ($p < 0.05$). The annualised mean number of office-based visits documenting a diagnosis of ADHD among girls tripled between 1991 to 1992 and 1997 to 1998 (from 296 389 to 886 798), whereas the number for boys increased 2.2-fold (from 1 006 243 to 2 200 021). The US population-adjusted rate of office-based visits documenting a diagnosis of ADHD among girls increased 2.7-fold between 1991 to 1992 and 1997 to 1998 (from 12.3 per 1000 girls to 33.4 per 1000; $p < 0.05$), whereas the rate among boys doubled (from 39.5 per 1000 boys to 78.7 per 1000; $p < 0.05$). Documentation of a diagnosis of ADHD and the prescribing of stimulant pharmacotherapy increased

2.8-fold for girls, from 7.5 per 1000 girls in 1991 to 1992 to 21.1 per 1000 in 1997 to 1998 ($p < 0.05$), as compared with a 2.2-fold increase among boys (from 25.5 per 1000 boys to 57.0 per 1000; $p < 0.05$).

Conclusion: Over the time frame 1990 to 1998, the rate of ADHD as well as the prescribing of stimulant medications for its treatment increased significantly among children aged 5 to 18 years. Between 1991 to 1992 and 1997 to 1998, the increased rate of diagnosis of ADHD among girls contributed to the overall upward trend. The rapidly increasing rate of ADHD among girls, and the prolonged nature of the disorder, represent significant public health problems. There exists a need for additional research examining both the aetiology and treatment of ADHD by gender.

Epidemiological studies utilising standardised diagnostic criteria report that between 3 and 6% of the school-age population (elementary through to high school) may have attention deficit hyperactivity disorder (ADHD).^[1,2] Past studies suggest that boys are referred for evaluation more often than girls, as the expression of the disorder in boys is often more disruptive to parents and teachers.^[3-13] More severe behaviours must typically be displayed before a referral is made for a girl; as a consequence girls may be significantly underdiagnosed for ADHD.^[3-13] This, however, may be changing. In 1998, the Council on Scientific Affairs of the American Medical Association reported that the criteria for diagnosing ADHD in children have broadened, and there is a growing awareness of the persistence of ADHD into adolescence and adulthood.^[2] As a result, more children, especially girls, and adolescents and adults are being diagnosed with ADHD, treated with stimulant pharmacotherapy, and treated for longer periods of time.^[2,14-22]

Estimates of the number of children diagnosed with ADHD and prescribed stimulant pharmacotherapy vary widely.^[14-21] The diversity of methodologies, geographical settings, and racial and socioeconomic characteristics in the populations examined may account for these differences.^[2] In an effort to address these issues, using a national data source for the time frame of the beginning of 1990 to the end of 1995, we previously reported a 2.3-fold increase in the population-adjusted rate of physician office-based visits documenting a diagnosis of ADHD; a 2.9-fold increase in the population-adjusted rate of

ADHD patients prescribed stimulant pharmacotherapy; and a 2.6-fold increase in the population-adjusted rate of patients with ADHD being prescribed methylphenidate among school-age children.^[21] Interestingly, our study also discerned that from 1990 to 1995, the male : female ratio narrowed from 5.4 : 1 to 3.1 : 1 for the number of office-based visits documenting a diagnosis of ADHD.

The present study builds on our previous research,^[21] and was designed to determine at the national level the number and rate of US physician office-based visits documenting a diagnosis of ADHD among children aged 5 to 18 years, and the use of stimulant pharmacotherapy for its treatment over the time frame of the beginning of 1990 to the end of 1998. In addition, we discern population-adjusted rates in total (1990 to 1998), and by gender (1991 to 1998), in order to examine trends among girls.

Methods

Data from the National Ambulatory Medical Care Survey (NAMCS) for the years 1990 to 1998 were utilised for this analysis.^[23-31] The NAMCS is an ongoing annual survey of US office-based physicians conducted by the National Center for Health Statistics (NCHS) of the US Centers for Disease Control and Prevention (CDC); data are collected by the US Bureau of the Census. The three-stage probability sampling procedure, sampling variation and estimation procedures for the NAMCS have been described elsewhere.^[32] Briefly, the unit of analysis is the physician office-based visit. The sampling frame for each year of the NAMCS is composed of

physician names as documented in the files maintained by the American Medical Association (AMA) and the American Osteopathic Association (AOA), and classified therein as being involved in 'office-based, patient care'. Physicians who are federally employed, hospital-based, or principally engaged in teaching, research or administration are excluded from the NAMCS, as are anaesthesiologists, radiologists and pathologists.

An initial probability sample is drawn from primary sampling units consisting of counties, groups of counties, county equivalents (i.e. parishes or independent cities), or towns and townships. Secondly, a probability sample is drawn from practising physicians from within each of these primary sampling units. Finally, a systematic sample of office-based visits to an individual physician during a randomly assigned 1-week reporting period is collected.

The physician sample size for the time frame 1990 to 1998 ranged from 1226 to 1883, with a response rate of between 67.9 and 74.2%, thereby yielding between 23 339 and 43 469 completed patient records. In turn, these patient records were weighted by the NCHS based on the probability of selection, differences in response rates and physician speciality distribution so as to yield unbiased national estimates of office-based visits of between 669 million and 829 million per year over the time frame examined. For example, in 1998, a total of 23 339 patient records were provided by 1226 physicians (67.9% response rate), thereby producing a weighted estimate of 829 280 407 office-based visits.

The NAMCS data collection form requested extensive information regarding patient characteristics, physician's diagnoses, prescribed pharmacotherapy and the speciality of the reporting physician. A maximum of three diagnoses were to have been reported by their *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD-9-CM) code.^[33] Up to five prescription medications were recorded for the years 1990 to 1994, with a maximum of six for the years 1995 to 1998. Physicians were instructed to record the specific brand or generic name for all new and continued medications. Code numbers corresponding to each

brand and generic name were assigned from the National Drug Code (NDC) directory, as was the primary class of pharmacotherapy to which the medication entry belonged.^[34-36] Anorexiant/CNS stimulant medications are classified as NDC category 0631, and include methylphenidate.

Data from office-based visits that resulted in a diagnosis of ADHD (ICD-9-CM codes 314.00 or 314.01) were extracted from the NAMCS databases and were analysed using SAS® (Release 6.12, SAS Institute Inc., Cary, NC, USA). This analysis was restricted to patients between 5 and 18 years of age in order to assess ADHD prevalence and trends in the prescribing of stimulant pharmacotherapy among school-age children.

By applying the sampling weights provided by the NCHS, national estimates per year for boys and girls combined were derived for: (i) the number and proportion of office-based visits resulting in a diagnosis of ADHD; (ii) the number and proportion of office-based visits resulting in a diagnosis of ADHD and the prescribing or continuation (henceforth referred to as 'prescribing' or 'prescribed') of stimulant pharmacotherapy; and, more specifically, (iii) the number and proportion of office-based visits resulting in a diagnosis of ADHD and the prescribing of methylphenidate. The overall rate (boys and girls combined) per year of office-based visits per 1000 of the US population aged 5 to 18 years for these three items was calculated based on the US Bureau of the Census estimates of the civilian non-institutionalised population on July 1, 1990, and each year thereafter until July 1, 1998.^[37]

To discern gender-specific rates, and trends therein, the methodology previously employed by Feldman et al.,^[38] Sclar et al.^[39-41] and Skaer et al.^[42] was used, as the unweighted number of girls with a reported diagnosis of ADHD per year was small. Thus, the time frame 1991 to 1998 (the 8 most recent years of the NAMCS) was partitioned into four, 2-year time intervals, as follows: 1991 to 1992, 1993 to 1994, 1995 to 1996 and 1997 to 1998. Annualised mean rates are reported for each 2-year time interval.

Proportional and population-adjusted comparisons across time intervals were assessed by chi-

square (χ^2) analysis. The *a priori* level of significance was set at $p < 0.05$.

Results

Table I presents national estimates of the prevalence and characteristics of patients 5 to 18 years of age diagnosed with ADHD, the prevalence of use of stimulant pharmacotherapy for its treatment, and

the speciality of the reporting physician as discerned from office-based visits in each year of the time frame 1990 to 1998. This time frame gave rise to a 3.4-fold increase in the number of office-based visits documenting a diagnosis of ADHD; from 947 208 in 1990 to 3 234 180 in 1998. Patients were predominantly boys (range across years: 69.7 to 85.1%); between 9 and 12 years of age (mean range across

Table I. Characteristics of children aged 5 to 18 years diagnosed with attention deficit hyperactivity disorder (ADHD).^a Office-based visits from 1990 to 1998

Characteristic	Number of visits (%)								
	1990	1991	1992	1993	1994	1995	1996	1997	1998
Total office visits with a diagnosis of ADHD	947 208 (100.0)	1 129 480 (100.0)	1 475 783 (100.0)	2 908 459 (100.0)	2 429 851 (100.0)	2 357 833 (100.0)	2 653 963 (100.0)	2 939 457 (100.0)	3 234 180 (100.0)
Gender									
Girls	148 679 (15.7)	168 697 (14.9)	424 080 (28.7)	448 715 (15.4)	505 088 (20.8)	573 368 (24.3)	563 321 (21.2)	793 351 (27.0)	980 244 (30.3)
Boys	798 529 (84.3)	960 783 (85.1)	1 051 703 (71.3)	2 459 744 (84.6)	1 924 763 (79.2)	1 784 465 (75.7)	2 090 642 (78.8)	2 146 106 (73.0)	2 253 936 (69.7)
Age (years)									
5-8	406 827 (42.9)	393 025 (34.8)	405 270 (27.5)	871 948 (30.0)	844 510 (34.8)	677 552 (28.7)	884 457 (33.3)	740 860 (25.2)	714 218 (22.1)
9-12	360 589 (38.1)	622 250 (55.1)	631 119 (42.8)	789 287 (27.1)	981 623 (40.4)	1 061 618 (45.0)	980 633 (37.0)	1 514 422 (51.5)	1 476 358 (45.6)
13-18	179 792 (19.0)	114 205 (10.1)	439 394 (29.8)	1 247 224 (42.9)	603 718 (24.8)	618 663 (26.2)	788 873 (29.7)	684 175 (23.3)	1 043 604 (32.3)
Race									
White ^b	718 177 (75.8)	951 779 (84.3)	1 437 778 (97.4)	2 643 604 (90.9)	2 074 602 (85.4)	2 227 187 (94.5)	2 243 590 (84.5)	2 724 662 (92.7)	2 996 863 (92.7)
Non-White	194 201 (20.5)	177 701 (15.7)	38 005 (2.6)	264 855 (9.1)	355 249 (14.6)	130 646 (5.5)	410 373 (15.5)	214 795 (7.3)	237 317 (7.3)
Not ascertained	34 830 (3.7)								
Reporting physician									
Paediatrics	262 945 (27.8)	486 463 (43.1)	742 975 (50.3)	753 782 (25.9)	1 135 722 (46.7)	1 159 223 (49.2)	891 317 (33.6)	1 308 509 (44.5)	1 202 911 (37.2)
Psychiatry	383 277 (40.5)	413 241 (36.6)	315 138 (21.4)	424 663 (14.6)	644 364 (26.5)	435 962 (18.5)	886 206 (33.4)	802 253 (27.3)	1 343 062 (41.5)
Other	300 986 (31.8)	229 776 (20.3)	417 670 (28.3)	1 730 014 (59.5)	649 765 (26.7)	762 648 (32.3)	876 440 (33.0)	828 695 (28.2)	688 207 (21.3)
Prescribed stimulant^c									
Prescribed methylphenidate	562 059 (59.3)	885 203 (78.4)	772 954 (52.4)	2 147 638 (73.8)	1 849 747 (76.1)	1 760 493 (74.7)	2 112 403 (79.6)	2 002 791 (68.1)	2 302 636 (71.2)
Prescribed methylphenidate	518 780 (54.8)	775 453 (68.7)	726 718 (49.2)	2 011 615 (69.2)	1 493 621 (61.5)	1 461 867 (62.0)	1 874 092 (70.6)	1 299 963 (44.2)	1 533 934 (47.4)

a ADHD is defined as *International Classification of Diseases, 9th revision, Clinical Modification* code 314.00 or 314.01.

b Inclusive of individuals of Hispanic descent.

c National Drug Code category 0631, anorexiant/CNS stimulant medication.

Table II. Total number of office-based visits among children aged 5 to 18 years, and the number of visits and percentage resulting in a diagnosis (Dx) of attention deficit hyperactivity disorder^a (ADHD), a diagnosis of ADHD and prescribed (Rx) a stimulant,^b and a diagnosis of ADHD and prescribed methylphenidate: 1990 to 1998

Year	Total office visits among children aged 5-18 years		Dx ADHD		Dx ADHD and Rx stimulant		Dx ADHD and Rx methylphenidate	
	n	(%)	n	(%)	n	(%)	n	(%)
1990	86 394 083	100	947 208	1.1	562 059	0.7	518 780	0.6
1991	80 347 428	100	1 129 480	1.4	885 203	1.1	775 453	1.0
1992	96 493 137	100	1 475 783	1.5	772 954	0.8	726 718	0.8
1993	84 155 428	100	2 908 459	3.5	2 147 638	2.6	2 011 615	2.4
1994	81 207 626	100	2 429 851	3.0	1 849 747	2.3	1 493 621	1.8
1995	84 245 489	100	2 357 833	2.8	1 760 493	2.1	1 461 867	1.7
1996	87 685 222	100	2 653 963	3.0	2 112 403	2.4	1 874 092	2.1
1997	88 848 181	100	2 939 457	3.3	2 002 791	2.3	1 299 963	1.5
1998	100 614 120	100	3 234 180	3.2	2 302 636	2.3	1 533 934	1.5

a ADHD is defined as *International Classification of Diseases, 9th revision, Clinical Modification* code 314.00 or 314.01.

b National Drug Code category 0631, anorexiant/CNS stimulant medication.

years: 9.4 to 11.1 years); and white (range across years: 75.8 to 97.4%).

Paediatric specialists treated 39.6% of all ADHD patients over the 9-year time frame; psychiatric specialists treated 28.1% of patients. Among children with a diagnosis of ADHD, the proportion prescribed stimulant pharmacotherapy increased from 59.3% in 1990 to 71.2% in 1998. The proportion of children diagnosed with ADHD and prescribed methylphenidate increased from 54.8% in 1990, to a peak of 70.6% in 1996, before declining in the last 2 years of the survey (44.2% in 1997, 47.4% in 1998). As the overall use of stimulant pharmacotherapy remained high during these latter 2 years, it appears that other stimulants were being prescribed in lieu of methylphenidate. Between 1990 and 1996, methylphenidate accounted for 87.8% of all stimulant medications (NDC category 0631) prescribed to children with a diagnosis of ADHD. From 1997 to 1998, methylphenidate accounted for only 65.8% of all stimulant medications prescribed to such children.

The percentage of office-based visits among children aged 5 to 18 years resulting in a diagnosis of ADHD increased significantly between 1990 and 1998 ($p < 0.05$; from 1.1% in 1990 to 3.2% in 1998) [table II]. A 3.3-fold increase was detected in the

percentage of children diagnosed with ADHD and prescribed stimulant pharmacotherapy ($p < 0.05$) [from 0.7% in 1990 to 2.3% in 1998; table II]; whereas a 2.5-fold increase was documented in the percentage of children diagnosed with ADHD and prescribed methylphenidate ($p < 0.05$) [from 0.6% in 1990 to 1.5% in 1998; table II].

Table III presents the rate per year of office-based visits per 1000 of the US population aged 5 to 18 years resulting in a diagnosis of ADHD, a diagnosis of ADHD and the prescribing of stimulant pharmacotherapy, or a diagnosis of ADHD and the prescribing of methylphenidate. The rates of all three parameters increased significantly between 1990 and 1998. The increase in the rate of a diagnosis of ADHD and the prescribing of methylphenidate (2.6-fold) was not as large as the increase in the rate of a diagnosis of ADHD and the prescribing of stimulant pharmacotherapy (3.7-fold). This reflects the shift away from methylphenidate to other stimulants in 1997 and 1998.

To discern trends among girls, figure 1 presents the annualised mean rate of office-based visits per 1000 of the US population aged 5 to 18 years resulting in a diagnosis of ADHD, a diagnosis of ADHD and the prescribing of stimulant pharmacotherapy, or a diagnosis of ADHD and the prescribing of

Table III. Rate of office-based visits per 1000 of the US population aged 5 to 18 years for children diagnosed (Dx) with attention deficit hyperactivity disorder^a (ADHD), for children diagnosed with ADHD and prescribed (Rx) a stimulant,^b and for children diagnosed with ADHD and prescribed methylphenidate: 1990 to 1998

Year	Dx ADHD	Dx ADHD and Rx stimulant	Dx ADHD and Rx methylphenidate
1990	19.4	11.5	10.6
1991	22.9	18.0	15.7
1992	29.5	15.5	14.5
1993	57.3	42.3	39.6
1994	47.1	35.9	29.0
1995	44.9	33.5	27.8
1996	49.7	39.6	35.1
1997	54.2	37.0	24.0
1998	59.0	42.0	28.0

a ADHD is defined as *International Classification of Diseases, 9th revision, Clinical Modification* code 314.00 or 314.01.

b National Drug Code category 0631, anorexiant/CNS stimulant medication.

methylphenidate by gender between 1991 and 1992, and 1997 and 1998. Rate increases were dramatic for both girls and boys, but the magnitude of the rate changes was more pronounced among girls. The annualised mean rate of office-based visits documenting a diagnosis of ADHD among girls increased 2.7-fold ($p < 0.05$) between 1991 to 1992 and 1997 to 1998 (from 12.3 per 1000 girls to 33.4 per 1000), whereas the rate among boys doubled ($p < 0.05$; from 39.5 per 1000 boys to 78.7 per 1000). The annualised mean rate of office-based visits documenting a diagnosis of ADHD and the prescribing of stimulant pharmacotherapy increased 2.8-fold for girls ($p < 0.05$), from 7.5 per 1000 in 1991 to 1992 to 21.1 per 1000 in 1997 to 1998. This compares with a 2.2-fold increase among boys ($p < 0.05$; from 25.5 per 1000 to 57.0 per 1000 over the same time frames). The increase in the annualised mean rate of office-based visits documenting a diagnosis of ADHD and the prescribing of methylphenidate was similar for girls and boys [girls = 1.8-fold; from 6.9 per 1000 in the 1991 to 1992 period to 12.6 per 1000 in 1997 to 1998 ($p < 0.05$); boys = 1.7-fold; from 23.0 per 1000 in 1991 to 1992, to 38.7 per 1000 in 1997 to 1998 ($p < 0.05$)].

Discussion

Our findings revealed an increasing trend in the diagnosis of ADHD and the prescribing of stimulant pharmacotherapy for its treatment among US children aged 5 to 18 years. The percentage of office-based visits among children aged 5 to 18 years resulting in a diagnosis of ADHD increased from 1.1% of all visits in this age group in 1990 to 3.2% by 1998. Over this time frame we discerned a 3-fold increase in the population-adjusted rate of office-based visits documenting a diagnosis of ADHD; a 3.7-fold increase in the rate of office-based visits documenting a diagnosis of ADHD and the prescribing of stimulant pharmacotherapy; and a 2.6-fold increase in the rate of office-based visits documenting a diagnosis of ADHD and the prescribing of methylphenidate. These upward trends appear partially related to the fact that girls were increasingly diagnosed with ADHD and treated with stimulant medications. Although the number of office-based visits among boys documenting a diagnosis of ADHD still far exceeds that of girls, the male : female ratio narrowed from 5.4 : 1 in 1990 to 2.3 : 1 in 1998. Furthermore, gender-specific analysis revealed that between 1991 and 1992, and 1997 and 1998, the magnitude of the increase in the rate of office-based visits

documenting a diagnosis of ADHD, or a diagnosis of ADHD and the prescribing of stimulant pharmacotherapy was greater among girls than among boys (270 vs 200% and 280 vs 220%, respectively).

ADHD is the most common and most intensely researched childhood mental disorder,^[43] however, its aetiology remains unknown,^[6] or speculative at best.^[44] Moreover, because ADHD has been diagnosed relatively infrequent in females^[45] clinical studies have been dominated by males.^[46] Consequently, gender differences have been largely neglected in the research and treatment of ADHD.^[3,44,45] Although comparisons are limited, studies generally have not supported clear gender differences in children with ADHD,^[10,47-50] or confirmed gender differences in response to stimulant medication.^[51] A meta-analysis by Gaub and Carlson,^[52] which included 18 studies, revealed that gender differences were not found in impulsivity, academic performance, social functioning, fine motor skills, parental education or parental depression. However, girls displayed greater intellectual impairment, lower

levels of hyperactivity, and lower rates of other externalising behaviours compared with boys.

Our study clearly documents an upward trend in the prevalence of office-based visits with a recorded diagnosis of ADHD and stimulant utilisation overall, and particularly among girls. Unfortunately, the data used in this inquiry do not facilitate our answering the question of why this is happening. The diagnosis of ADHD and its increasing prevalence are controversial, despite the acceptance of specific diagnostic criteria.^[44] The controversy has involved clinicians, teachers, policy makers, parents and the media.^[53-57] The range of opinions regarding the validity of a diagnosis of ADHD varies from those who regard it as a myth, to those who believe there is genetic and physiological evidence supporting its existence. A recent article by Safer^[57] succinctly summarised the views of the critics of stimulant treatment. He reported they tend to view the underlying reasons for the increasing use of stimulant pharmacotherapy as 'societal, due to our modern pace of living, our competitive society, and our consumer emphasis'. On the other hand, much of the scientific literature refutes this view, and attributes the increasing use of stimulant pharmacotherapy to an expansion in the number of categorical descriptors of ADHD, and an emphasis on the attention deficit dimension of the disorder.^[2,57-59] This diagnostic expansion may explain the increasing rate of office-based visits resulting in a diagnosis of ADHD among girls. It has been report that inattentiveness and cognitive deficits have a more pronounced role in the diagnostic identification of girls, whereas behavioural disturbances increase the likelihood of identification among boys.^[4,6,7]

Our study also revealed that the mean age of patients being diagnosed with ADHD over the 9-year time frame examined increased by over 1 year; from 9.7 years in 1990 to 11.1 years in 1998. Although it was previously thought that ADHD remitted before or during adolescence, it has been estimated that more than 70% of children with ADHD continue to meet criteria as adolescents and up to one-third as adults.^[8,22] The continuation of medication for the treatment of ADHD into the

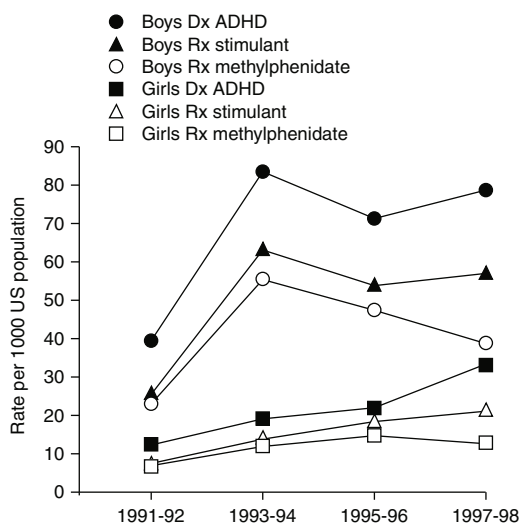


Fig. 1. Annualised mean rate of office-based visits per 1000 of the US population aged 5 to 18 years for children diagnosed (Dx) with attention deficit hyperactivity disorder (ADHD), for children diagnosed with ADHD and prescribed (Rx) a stimulant, and for children diagnosed with ADHD and prescribed methylphenidate by gender: 1991 to 1992 through to 1997 to 1998.

teenage years also appears to be contributing to the increasing prevalence rates as documented in this study, as well as in previous research.^[15,19,22]

The study herein is constrained by several limitations. The NAMCS documents the diagnostic codes as selected and recorded by individual physicians rather than results stemming from a uniform and independent clinical appraisal. Neither patient's symptomatology nor severity of illness are recorded, thereby negating the opportunity to investigate the mediating role these factors have on a physician's conclusion relative to a diagnosis of ADHD, and decisions related to the prescribing of stimulant pharmacotherapy. In addition, the cross-sectional nature of the NAMCS does not facilitate patient follow-up, nor information regarding interruptions in medication regimens, or the overall length of medication use. Despite these limitations, the NAMCS provides the only annual source of national information regarding the prevalence of ADHD and the use of stimulant pharmacotherapy for its treatment as observed during office-based visits.

Conclusion

Over the time frame of the beginning of 1990 to the end of 1998, the rate of a diagnosis of ADHD as well as the prescribing of stimulant medications for its treatment in our sample increased significantly among children aged 5 to 18 years. Between 1991 and 1992, and 1997 and 1998, the increased rate of diagnosis of ADHD among girls contributed to the overall upward trend. The rapidly increasing rate of ADHD among girls, and the prolonged nature of the disorder, represent significant public health problems. There exists a need for additional research examining both the aetiology and treatment of ADHD by gender.

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