

# Differential Access to Care for Children With ADHD in Special Education Programs

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**Access to treatment for children with attention-deficit hyperactivity disorder (ADHD) was examined in the general health, specialty mental health, and informal care sectors. Special education students in a Florida school district were screened for ADHD, and high-risk children and their parents completed diagnostic and services assessment interviews. Female gender, minority status, and rural residence lowered the probability of ADHD service use in the general health sector. Use of services in the mental health and informal sectors was predicted by a child's need for services. Further study is needed to identify barriers to service use at the parental or gatekeeper level for this common disorder among children. (*Psychiatric Services* 49: 1226–1229, 1998)**

Effective treatment for children with attention-deficit hyperactivity disorder (ADHD), one of the most common psychiatric disorders among children (1), often combines psycho-

pharmacologic, behavioral, and educational interventions. The majority of ADHD treatment for children is delivered in the general health care sector, and a smaller proportion is provided by mental health specialists and schools. Services provided in the informal care sector, such as family support groups and advocacy, have also played an increasingly important role.

Controversy surrounds the appropriate identification of affected children, with concerns about overidentification countered by indications that a sizable proportion of affected children may remain untreated (1,2). However, few studies investigating access to care have focused on children with ADHD.

This study examined treatment for ADHD in different health care sectors among students in special education programs, a population with a disproportionately high number of children with ADHD. Using Andersen's model of access to care (3), this study determined lifetime and past-year use of mental health services in general health, specialty mental health, and informal care sectors of the health services delivery system. In addition, we investigated how predisposing characteristics (the child's gender and ethnicity), enabling characteristics (place of residence, socioeconomic status, and type of health insurance type), and need characteristics (symptoms, impairment, and family burden) were related to a child's likelihood of receiving treatment for ADHD. We hypothesized that after we controlled for other predictors, children with greater needs

would be more likely to receive care from mental health specialists and more likely to use services in the informal care sector than children with less severe or complicated ADHD.

## Methods

In 1995, using a two-stage design, we first screened for ADHD an entire Florida school district population of second-through-fourth-grade special education students with learning disabilities or emotional handicaps. Children who scored in the clinical range on two questionnaires (a T score above 64 on the Abbreviated Symptom Questionnaire [4] and a ranking below the 11th percentile on the Attention Deficit Disorder Evaluation Scale [5]) or who had ever received treatment for ADHD were identified as being at high risk. A follow-up individual interview with the parent was conducted for high-risk children. Methods and instruments are described in detail elsewhere (2).

Of 722 eligible students, 499 (69 percent) were successfully screened, and 41 percent (N=207) of the screened participants met criteria for high risk of ADHD. Sixty-nine percent (N=143) of the parents of high-risk children completed personal interviews and were included in this analysis. Eighty-eight percent (N=126) of the children of these parents met diagnostic criteria for ADHD.

Socioeconomic status was divided into five levels using the Hollingshead four-factor index. Diagnoses for ADHD and comorbid oppositional disorder and conduct disorder were made using the Diagnostic Interview

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**Table 1**

Predictors of lifetime and past-year use of mental health services in different sectors in a school district population of special education students at high risk for ADHD<sup>1</sup>

Variable	Sectors of lifetime use						Sectors of past-year use					
	General health (N=91)		Mental health (N=81)		Informal (N=16)		General health (N=75)		Mental health (N=51)		Informal (N=16)	
	N	%	N	%	N	%	N	%	N	%	N	%
All children	91	64	81	57	16	11	75	52	51	36	16	11
Predisposing variables												
Gender <sup>2</sup>												
Male (N=116)	80	69	66	57	13	11	68	59***	44	38	13	11
Female (N=27)	11	41	15	56	3	11	7	26	7	26	3	11
Ethnicity <sup>3</sup>												
White (N=79)	59	75***	55	70****	10	13	47	60*	31	39	10	13
Minority (N=64)	32	50	26	41	6	10	28	44	20	32	6	9
Enabling variables												
Insurance through the health maintenance organization												
Yes (N=49)	30	61	25	51	6	13	25	52	13	27*	6	12
No (N=88)	60	68	55	62	10	11	50	56	38	43	10	11
Socioeconomic status												
High (N=51)	39	77	37	73	6	12	31	61	23	45*	6	12
Low (N=91)	52	57	44	48	10	11	44	49	28	31	10	11
Residence <sup>4</sup>												
City (N=104)	71	68*	63	61	11	13	60	58**	40	39	13	13
Rural (N=39)	20	51	18	46	3	8	15	39	11	28	3	8
Need variables												
Conduct disorder or oppositional disorder <sup>5</sup>												
Yes (N=62)	36	58	42	68**	5	8	30	49	30	49***	5	8
No (N=82)	55	67	39	48	11	13	45	55	21	25	11	13
Severity of ADHD												
Mean±SD number of symptoms	12±4.9		13±4.2		14±4.8		12±4.8		12±4.2		14±4.8	
Impairment												
Mean±SD score on the Columbia Impairment Scale <sup>6</sup>	19±9.2		22±9.7		24±9.9		19±9.2		23±10.1***		24±9.9	
Family Burden												
Mean±SD score on the Child and Adolescent Burden Assessment <sup>7</sup>	15±10.1		18±9.0		17±7.3		14±9.6		19±9.1****		17±7.3	

<sup>1</sup> Mental health services were provided by a pediatrician, family practitioner, or nurse practitioner in the general health sector and by a psychiatrist, psychologist, psychiatric nurse, or social worker in the mental health sector. Informal sector use was participation in self-help groups, community-based parenting classes, or summer programs. Odds ratios were derived using multiple logistic regression procedures; only statistically significant odds ratios are reported.

<sup>2</sup> For lifetime use of the general health sector, OR=3.4, 95% CI=1.2 to 9.6; for past-year use of the general health sector, OR=5, CI=1.7 to 14.3. For the odds ratios, the reference group is male gender.

<sup>3</sup> For lifetime use of the general health sector, OR=4, CI=1.6 to 9.7; for lifetime use of the mental health sector, OR=3.8, CI=1.5 to 9.6; for past-year use of the general health sector, OR=2.7, CI=1.2 to 6.3. For the odds ratios, the reference group is white ethnicity.

<sup>4</sup> For lifetime use of the general health sector, OR=2.8, CI=1.1 to 7.2; for lifetime use of the mental health sector, OR=2.8, CI=1 to 8.3; for past-year use of the general health sector, OR=2.8, CI=1.1 to 7.1. For the odds ratios, the reference group is city residence.

<sup>5</sup> For lifetime use of the informal sector, OR=.2, CI=.4 to .8; for past-year use of the mental health sector, OR=3.6, CI=1.3 to 9.9. For past-year use of the informal sector, OR=.2, CI=.4 to .8. For the odds ratios, the reference group is children with the disorder.

<sup>6</sup> For lifetime use of the informal sector, OR=3, CI=1.2 to 7.8; for past-year use of the informal sector, OR=3, CI=1.2 to 7.7. The odds ratio is reported for a score increase of 10 units.

<sup>7</sup> For lifetime use of the mental health sector, OR=2.5, CI=1.3 to 4.7; for past-year use of the mental health sector, OR=2, CI=1.1 to 3.6. The odds ratio is reported for a score increase of 10 units.

\*p<.10

\*\*p<.05

\*\*\*p<.01

\*\*\*\*p<.001

Schedule for Children, version 3.0. Child impairment was measured using the Columbia Impairment Scale, and family burden was assessed using the Child and Adolescent Burden Assessment. Reliability and validity of these instruments have been found acceptable (6–8).

Use of mental health services was evaluated with the Service Use for Children and Adolescents Parent Interview (SCA-PI), which was developed by the National Institute of Mental Health. The SCA-PI was modified to include inquiry into lifetime and past-year service use.

Mental health services delivered by a pediatrician, family practitioner, or general nurse practitioner were defined as those received in the general care sector. Specialty mental health services were defined as services delivered by a psychiatrist, psychologist, psychiatric nurse, or social worker. Use of parent support and education groups or the child's participation in a summer camp program for children with ADHD were classified as services in the informal care sector.

Bivariate analysis was conducted using a chi square test of proportions for discrete variables and analysis of variance procedures for continuous variables. Multiple logistic regression analyses were used to determine the independent contribution of predictors of use of services in the respective sectors. Two alternative procedures were used to select predictors: a full model containing all variables identified as potential predictors and a stepwise regression procedure that retained predictors with logistic regression *p* values of less than .10. The odds ratios and statistical significance associated with predictor variables from these two procedures were very similar; hence, results for the full model are presented. The statistical analyses were performed using SAS.

## Results

More than half of the 143 children with ADHD had received mental health services in the general health care sector—91 children (64 percent) in their lifetime and 75 children (52 percent) in the past year, as Table 1 shows. In the specialty mental health

care sector, 81 children (57 percent) had received treatment in their lifetime and 51 children (36 percent) in the past year.

Sixteen of the 143 families (11 percent) had either lifetime or past-year use of services in the informal care sector. Higher rates of mental health service use in the general health sector were observed for boys, white children, and urban residents. Both lifetime and past-year use of the specialty mental health sector was associated with need variables, and lifetime use was associated with ethnicity and with residence. Higher use of informal services was related to the absence of oppositional disorder or conduct disorder and to the child's higher impairment. Further details about service use by sector and its independent predictors are described in Table 1.

## Discussion and conclusions

As hypothesized, past-year use of the specialty mental health care sector and use of informal care was predicted by a child's need. However, lifetime use of mental health specialists also differed by ethnicity, a finding that merits further study to explore variation in detection of need and referral patterns by primary care providers for minority children. Previous reports suggest that girls and minorities with ADHD are more likely to remain untreated, and in this sample, both of these groups had greater rates of unmet need for ADHD treatment (2).

Service use in the general health care sector, the most common provider of mental health services for this study population, varied by gender, ethnicity, and residence. Even after the analysis controlled for other access predictors, girls and minority children were less likely to receive mental health services from a primary care provider. This finding raises special concerns because generalists increasingly function as gatekeepers for specialty mental health services, yet they may not detect service needs of girls and minority children with ADHD. Further, rural residence was associated with less use of primary care providers and mental health specialists, findings that may indicate

that rural families represented in this study have difficulty getting ADHD treatment for their children.

The main limitations of this study are the relatively high nonparticipation rate in the initial screening and use of a special education sample, rendering the results preliminary and not representative of children in the general population. Rates of use of specialty mental health services were higher than those in community samples (9), which may reflect parents' greater awareness of their children's problems due to the special education qualification process. Furthermore, parental reports of treatment were not compared with information from providers or in medical records. However, previous studies indicate that parents can provide valid treatment histories if reasonable time frames are selected (10). Finally, the study could not address how parents' help-seeking and providers' failure to detect ADHD or refer children to specialty care specifically contributed to the differential access to care. To ensure equitable access to care, further studies are needed to improve our understanding of the mechanisms that underlie children's access to ADHD treatment. ♦

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