

Barriers to Detection, Help-Seeking, and Service Use for Children with ADHD Symptoms

Regina Bussing, MD, MSHS

Bonnie T. Zima, MD, MPH

Faye A. Gary, EdD, RN

Cynthia Wilson Garvan, PhD

Abstract

This study describes 4 help-seeking steps among children at high risk for attention deficit hyperactivity disorder (ADHD), and identifies barriers to ADHD symptom detection and treatment. Using a district-wide stratified random sample of 1615 elementary school students screened for ADHD risk, predictors of 4 help-seeking steps among a high-risk group (n = 389) and parent-identified barriers to care among children with unmet need for ADHD care (n = 91) were assessed. Study findings indicate that although 88% of children were recognized as having a problem, only 39% had been evaluated, 32% received an ADHD diagnosis, and 23% received current treatment. Older children and those with more severe behavior problems were more likely to be perceived by their parents as having a problem. Additionally, gender and ethnic disparities in the subsequent help-seeking process emerged. Boys had over 5 times the odds than girls of receiving an evaluation, an ADHD diagnosis, and treatment. Compared to African American youth, Caucasian children had twice the odds of taking these help-seeking steps. For those children with unmet need for ADHD care, poverty predicted lower treatment rates and was associated with the most pervasive barriers. The gap between parental problem recognition and seeking services suggests that thresholds for parental recognition of a child behavior problem and for seeking ADHD services may be different. Future research examining the help-seeking process for ADHD should include a qualitative component to explore the potential mechanisms for gender and ethnic differences.

Address correspondence and request for reprints to Dr Regina Bussing, MD, MSHS, Associate Professor, Chief, Division of Child and Adolescent Psychiatry, Departments of Psychiatry, Pediatrics and of Health Policy and Epidemiology, University of Florida, Box 100157 UFHC, Gainesville FL 32610-0157. Telephone (352) 392-8315, fax (352) 392-2538, e-mail: regina@hpe.ufl.edu.

Bonnie T. Zima, MD, MPH, is Associate Professor in the Department of Psychiatry and Biobehavioral Sciences at University of California at Los Angeles.

Faye A. Gary, EdD, RN, is Distinguished Service Professor in the College of Nursing at University of Florida, Gainesville, Florida.

Cynthia Wilson Garvan, PhD, is Assistant Scientist in the Department of Statistics in the College of Medicine at University of Florida, Gainesville, Florida.

Journal of Behavioral Health Services & Research, 2003, 30(2), 176–189. © 2003 National Council for Community Behavioral Healthcare.

Introduction

Attention deficit hyperactivity disorder (ADHD) is a common child psychiatric disorder for which efficacious pharmacological and psychosocial treatments have been established.¹⁻⁵ Nevertheless, ADHD treatment use has been reported to vary by child and system characteristics,⁶⁻¹² and little is known about how barriers in the help-seeking process may underlie these differences. Several studies indicate that girls and children from minority backgrounds are significantly less likely to receive ADHD treatment, including psychotropic medications, than are boys and Caucasian children respectively.^{6,8-11,13-15} Previous studies have not addressed whether variations in parental problem recognition contribute to these well-established gender and race differences in ADHD treatment utilization.

Help-seeking pathway models propose a series of links between the initial recognition of a child mental health problem and the eventual use of mental health services. Such pathways are defined as “a sequence of contacts with individuals and organizations prompted by the distressed person’s efforts, and those of his/her significant others, to seek help as well as the help that is supplied in response to such efforts.”¹⁶ For young children, parent or teacher recognition of a mental health problem usually serves as the first step of this process, which may be followed by steps to obtain an assessment, diagnosis, and treatment. Throughout this process, predisposing, enabling, and need factors are theorized to be influential.^{17,18} Adapting the help-seeking pathway model of Srebnik et al to elementary school-aged children with ADHD symptoms, predisposing characteristics in this study include gender,^{8,10,11,19,20} race,^{10,11,21,22} age,¹⁹ and socioeconomic status (SES).²³⁻²⁶ Three service factors that are anticipated to potentially enable detection and help-seeking for ADHD symptoms include health insurance coverage,²⁶⁻²⁹ having a regular source for routine pediatric care,^{22,30,31} and receiving special education services for specific learning disabilities or emotional handicap.^{32,33} In addition, several studies have explored the potential effect of disorder characteristics on help-seeking and service use^{19,24,29,34,35}; thus, this study’s model adjusts for need by including behavior problem severity as measured by standardized parent and teacher ADHD ratings.

A more detailed understanding of the relevant barriers and facilitators in the help-seeking process for ADHD symptoms is essential to promote equitable access to care for this treatable condition. This study therefore has 3 objectives. Using a district-wide sample of elementary school students at high risk for ADHD, the study’s first goal is to describe the rates of 4 help-seeking steps; namely, recognizing a child problem, seeking an evaluation, obtaining a professional diagnosis, and securing ADHD treatment. The second objective is to examine whether these help-seeking steps vary by child gender or ethnicity, after controlling for socio-economic status (SES) and enabling and need variables. Third, this study seeks to describe barriers to service use from the perspective of parents whose children meet DSM-IV criteria for ADHD and have not utilized any mental health services in the prior 12 months.

Methods

Procedures

Following study and informed consent procedures approved by the Institutional Review Board of the University of Florida and the school district research director, a 2-phase study was conducted. To screen for parental problem recognition and high-risk ADHD status, parent telephone interviews were performed between October through December of 1998. Follow-up home interviews were then conducted with respondents who screened positive between May of 1999 through July of 2000.

Sampling

Using school district registration records, 12 009 elementary school students enrolled in kindergarten through fifth grade during the 1998–99 academic year in a North Central Florida public school

district were identified as eligible from a student population of 13 180. Children were eligible for the study if they lived in a household with a telephone, were not receiving special education services for mental retardation or autism, and were from Caucasian or African American backgrounds. Children from other ethnic backgrounds were excluded because they comprised less than 5% of the total student population. Selection was restricted to 1 child per household. From this pool of 12 009 eligible children, 3158 were chosen using a gender-stratified random design that oversampled girls by a margin of 2 to 1 to ensure adequate representation. Telephone contact was made with 78% of the selected sample ($n = 2035$) and of these, 79% ($n = 1615$) agreed to participate. Parent permission for teacher behavior questionnaires was obtained for 96% ($n = 1549$) of the respondents, and 77% ($n = 1187$) of the mailed teacher questionnaires were completed and returned. Of 1615 children screened, 24% ($n = 381$) were identified as being diagnosed or treated for ADHD, suspected of having ADHD, or there was parental concern about behavior problems in children with parent scores of the Swanson-Nolan-and-Pelham-IV (SNAP-IV), a standardized parent or teacher symptom screening measure,³⁶ elevated 1.5 standard deviations above the norm. From this pool of 381 children, 70% ($n = 266$) participated in follow-up home interviews that included diagnostic and service use assessments. Thirty-four percent ($n = 91$) of these children met DSM-IV criteria for ADHD and had not received ADHD treatment in the past 12 months.

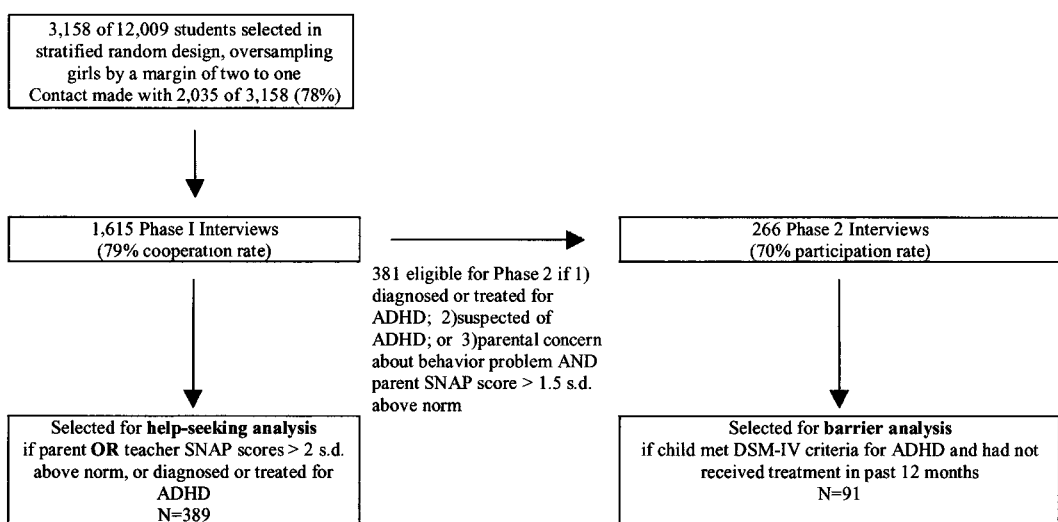
Two separate samples were used for this study. For the help-seeking analysis, 389 children were selected who were deemed at high risk for ADHD because they scored greater than 2 standard deviations above the norm on the parent or the teacher SNAP-IV screening measure, or they had received a previous diagnosis of ADHD or were currently under treatment for ADHD. For the barriers to care analysis, the sample was the 91 children meeting DSM-IV criteria for ADHD identified as having unmet service needs for ADHD care in the past year. See Figure 1 for a flow diagram of the design.

Measures

Help-seeking steps and service use

Recognizing a problem. Parents were asked whether they had any general concerns that their child may have an emotional or behavioral problem (ie, overactivity, impulsivity, inattention, or poor

Figure 1
Flow diagram of sampling design



concentration), whether they suspected that their child had ADHD, attention deficit disorder (ADD), attention deficit, or hyperactivity, whether school staff had voiced general concerns or suspicions of ADHD, or whether their child ever had a professional evaluation for ADHD. If the child had received an ADHD diagnosis by a professional, he or she was identified as having “diagnosed ADHD.” A child was categorized as having “suspected ADHD” if either the parents and/or school staff had a suspicion of ADHD, but no diagnostic assessment had been sought. Children whose parents and/or school staff had concerns about the child’s emotions or behavior (ie, activity level, impulsivity, inattention, or poor concentration), but no suspicion or diagnosis of ADHD were classified as “general behavioral concerns.” High-risk children in the “no concern” category were coded as not recognized. High-risk children were coded as recognized if their parents endorsed any level of concern or if the child was diagnosed with ADHD.

Seeking a professional evaluation. A child was classified as having received a professional evaluation if the parents indicated that they had sought an assessment from a primary care physician (ie pediatricians or family practitioners) or from a mental health specialist (ie general or child psychiatrist, psychologist, or social worker) in response to the question, “Has (child’s name) ever been professionally evaluated for ADHD or attention deficit/hyperactivity?”

Obtaining a professional ADHD diagnosis. Parents further answered the open-ended question “What did the professional say was the matter with (child’s name)?” and the closed-ended question, “Did the professional make a diagnosis of ADHD, ADD or attention deficit disorder or hyperactivity?” These answers were examined for consistency between the 2 question types, and found to be congruent. Thus, if the closed-ended question was answered as “Yes” the child was classified as having been assigned an ADHD diagnosis.

Receiving ADHD treatment. Children were classified as receiving treatment if parents answered yes to the question, “Is (child’s name) currently under treatment for ADHD, ADD, attention deficit disorder or hyperactivity?”

Moderators of help-seeking steps and service use

Sociodemographic characteristics, including gender, age, race, and lunch subsidy status, were obtained from school district administrative records. Based on federal government guidelines involving family income, lunch status was identified as subsidized or unsubsidized, with subsidized lunch corresponding to lower SES. SES scores also were calculated using the Hollingshead 4-factor index, which could range from 8 (lowest social strata), to 66 (highest strata), with scores from 8 to 32 classified as “low” and scores from 33 to 66 classified as “high” SES. The factors used to calculate this score included parental education and occupation.³⁷

Enabling variables

Detailed health insurance information was obtained during the telephone survey. For this study, a distinction was made between children with and without any type of health insurance. Parents indicated during the telephone survey whether their child had a regular source of routine pediatric care or not, and where such care was received. Sources of routine care were coded as “none,” “private source” if received in a private doctor’s office, or “other,” which could include hospital clinics and public health departments. Information about receipt of special education services was obtained from school district administrative records.

Need and high ADHD risk determination

Severity of behavior problems was assessed using parent and teacher report forms of the Swanson-Nolan-and-Pelham-IV (SNAP-IV) checklist, a rating scale consisting of operationalized DSM-IV criteria for ADHD.³⁶ Internal consistency and 2-week test-retest reliability are high, and gender and

age norms for average ratings per item (ARI) are established.³⁶ Children were identified as being high-risk if any of the parent- or teacher-ADHD ARI scores fell 2 standard deviations above the norm. Additionally, children were included in the risk group if they had been previously diagnosed with ADHD or were currently receiving ADHD treatment.

Barriers to care

Using a 20-item measure developed for the Methods for the Epidemiology of Child and Adolescent Mental Disorders study,^{26,38} barriers to care were assessed among children who had met DSM-IV criteria for ADHD and who had not received any treatment in the previous 12 months. Parents indicated whether they experienced any of the specific barriers, and individual barrier items were assigned to 1 of 5 barrier categories. Five items were assigned to system barriers (eg could not get an appointment), 4 items to barriers indicating stigma (eg concerned what others were thinking), 3 items to barriers indicating no perceived need (eg problem got better by itself), 3 items to financial barriers (eg it was too expensive), and 4 items to barriers indicating negative expectations (eg thought treatment could not help). The overall summary barrier score could range from 0 to 20. Although the reliability and validity of this barrier inquiry have not been formally tested, internal consistency was good (Cronbach $\alpha = .60$), consistent with previous estimates among a similar study population ($\alpha = .64$).³⁹

ADHD diagnosis

Diagnoses of ADHD were made using the Diagnostic Interview Schedule for Children, Version 4.0 (DISC-4) based on DSM-IV criteria.⁴⁰ Diagnoses were generated from parent interviews, because previous studies aggregating data from parents and children found that parents alone were effective informants for disruptive disorders.⁴¹ Consistent with DSM-IV diagnostic criteria, the DISC-Version 4.0 inquires about symptoms and impairment across school and home settings. In its earlier versions, the DISC has been shown to have moderate to high test-retest reliability and internal consistency.⁴²⁻⁴⁵

Data analysis

Estimates were adjusted for sample design and differential response using analytic weights computed in a procedure outlined by Aday.⁴⁶ This process was made possible by the availability of administrative data (gender, race, lunch subsidy status, special education category) for all eligible students. In the first stage of weight development, an expansion weight (the inverse of the selection probability) that depended on child gender and the number of eligible children in a household was computed for each subject. In the second stage of weight development, 12 weighting classes were formed based on factors where significant differential response was noted, which included race, lunch subsidy status, and special education service status.^{47(chap7, pp190-211)} To adjust for differential response rates, the expansion weight was divided by the response rate within each weighting class to form a response-adjusted weight. In the third stage of weight development, a relative weight was constructed by dividing each response-adjusted weight by the mean response-adjusted weight. This scaling step effectively downweighted the number of subjects to equal the actual sample size. The final weight was obtained after trimming the extreme (lower 1% and upper 99%) values of the relative weights and uniformly redistributing the values so that the actual sample size was preserved. Participants in the follow-up interviews differed from those who declined to participate only by the SNAP-IV scores of oppositional defiant behavior, with participants showing higher scores than nonparticipants. The analytic weights used for the barrier analyses were calculated by a poststratification adjustment of the initial screening sample weights based on the observed distribution of the oppositional defiant behavior scores for initial and follow-up interview participants. Parameter estimates and subgroup totals reported in this article are weighted to more appropriately represent the target population.

Bivariate analysis was conducted using a chi-square test of proportions for discrete variables. To examine the independent contribution of hypothesized predictor variables on the likelihood of help-seeking steps for ADHD symptoms, 4 multivariate logistic regression analyses were performed. The variables included predisposing sociodemographic factors, enabling variables, and need. Logistic regression models were also used to identify predictors, namely, gender, ethnicity, SES, and lunch status, of particular barrier categories. Collinearity of these predictors was examined using kappa analysis and found not to be a problem, with kappa estimates in the slight to moderate range (.05–.42).⁴⁸ The statistical analyses were performed using SAS, version 6, and STATA.⁴⁹

Results

High-risk sample characteristics

The high-risk sample was composed of equal proportions of boys ($N=202$, 52%) and girls ($N=187$, 48%), and of Caucasian ($N=188$, 48%) and African American ($N=201$, 52%) children. The average child age was 7.8 years ($SD=1.8$) and the mean SES score was 32.7 ($SD=13.8$). Nearly three quarters of the children ($N=288$; 74%) qualified for subsidized school lunches, an indicator of poverty. Most youth ($N=342$, 88%) had some type of health insurance and almost all children ($N=368$, 95%) had a source of routine pediatric care. Routine care was most commonly provided in private office settings ($N=226$, 58%) followed by clinics or public health departments ($N=142$, 37%). Slightly more than one quarter of the children received special education services for specific learning disabilities or emotional handicaps ($N=66$, 17%) or other conditions ($N=34$, 9%).

Variations in help-seeking steps

Table 1 summarizes the distribution of the 4 help-seeking steps by sociodemographic characteristics, and enabling and need factors. Of the 389 high-risk children, 88% ($N=341$) had been recognized by their parents as having problems. The recognition rates varied by gender, race, behavior problem severity, and special education status. More pronounced variations and a larger number of potential predictors emerged for evaluation rates. Overall, only 39% of the high-risk children ($N=152$) had received a professional evaluation. The lowest evaluation rates (10%) were reported for children without a routine source of pediatric care, compared to 45% for children with a private source and 34% for those with other sources ($P < .01$). Evaluation rates were also significantly lower for girls compared to boys (20% versus 57%; $P < .001$). In addition, the evaluation rates varied by all other potential predictors except health insurance status and teacher-reported problem behavior severity. Almost one third ($N=123$, 32%) of the original high-risk sample had received an ADHD diagnosis. Diagnosis rates varied most strongly by gender, race, and the source of routine pediatric care, but all predictor variables except for teacher-reported behavior problem severity were significantly related. Less than one quarter ($N=89$, 23%) of the high-risk sample was currently receiving ADHD treatment. The lowest treatment rates were reported for children without a routine source of pediatric care (5%), compared to 27% for children with a private source and 18% for those with other sources ($P < .05$) and for girls (9%), compared to 35% among boys ($P < .001$).

Predictors of help-seeking steps

The independent relationships between help-seeking steps and sociodemographic characteristics, services received in primary care and special education, and behavior problem severity are summarized in Table 2. Problem recognition increased with child age and behavior problem severity. While gender and race did not independently affect recognition rates, both variables had consistent and large effects on subsequent help-seeking steps. Boys had over 5 times the odds of girls, and Caucasian

Table 1

Help-seeking steps among high-risk sample of 389 elementary school students by sociodemographic characteristics, child behavior problem severity, and services use

	Recognized (N = 341)			Evaluated (N = 152)			Diagnosis assigned (N = 123)			ADHD treatment (N = 89)		
	N	%	P*	N	%	P	N	%	P	N	%	P
<i>Sociodemographics</i>												
<i>Gender</i>												
Male	188	93	<.0001	114	57	<.001	95	47	<.001	71	35	<.001
Female	154	82		38	20		28	15		17	9	
<i>Race</i>												
Caucasian	171	91	<.05	96	51	<.001	82	44	<.001	58	31	<.001
African American	170	85		56	28		41	20		30	15	
<i>Age</i>												
5–8 yr	159	85		62	33	<.05	50	27	<.05	38	20	
9–11 yr	182	90		90	44		73	36		51	25	
<i>SES†</i>												
High	148	87		79	47	<.01	67	39	<.01	49	29	<.01
Low	192	89		72	33		56	26		38	18	
<i>Lunch status</i>												
Full pay	88	88		54	53	<.001	48	48	<.001	37	37	<.001
Reduced pay	40	94		21	50		15	36		11	26	
Free	213	87		77	31		60	24		40	16	
<i>Enabling</i>												
<i>Health insurance</i>												
Yes	297	87		135	40		114	33	<.05	81	24	
No	44	94		16	35		9	19		7	16	
<i>Routine pediatric care</i>												
None	20	100		2	10	<.01	2	10	<.05	1	5	<.05
Private office	195	86		101	45		85	38		62	27	
Other source	126	89		49	34		36	25		25	18	
<i>Special education</i>												
None or gifted	241	84	<.001	98	34	<.001	77	27	<.001	47	16	<.001
SLD or EH‡	66	100		38	58		34	51		30	46	
Other	34	100		16	47		12	36		11	33	
<i>Need</i>												
<i>Parent SNAP§</i>												
Low	232	83	<.001	100	36	<.05	77	28	<.01	58	21	
High	109	100		52	47		46	42		30	27	
<i>Teacher SNAP</i>												
Low	199	87		89	39		71	31		50	22	
High	60	83		20	28		15	21		14	20	

Note: Estimates were adjusted for sampling and nonparticipation effects.

*Analyses conducted using the chi-square test of proportions, only statistically significant results are shown in column.

†SES = socioeconomic status according to Hollingshead.

‡SLD = specific learning disability. EH = emotional handicap.

§SNAP = Swanson, Nolan, and Pelham Rating Scale.

children more than twice the odds of African American children to receive an evaluation, get an ADHD diagnosis, or be under current treatment. Having a regular source of routine care also increased the odds that a child would receive a professional ADHD evaluation, whereas greater problem severity increased the odds of obtaining a professional diagnosis. Further, the likelihood of current

Table 2
Predictors of four help-seeking steps for ADHD among a high-risk elementary school student sample

	Recognized		Evaluated		Diagnosis assigned		ADHD treatment	
	OR*	95% CI†	OR	95% CI	OR	95% CI	OR	95% CI
Sociodemographics								
Male	NS‡		5.8	3.4–10.0	5.4	3.0–9.6	5.5	2.8–10.7
Caucasian	NS		2.9	1.6–5.2	2.8	1.5–5.1	2.2	1.1–4.3
Age (years)	1.3	1.02–1.57	NS		NS		NS	
SES§	NS		NS		NS		NS	
Full pay lunch	NS		NS		NS		2.8	1.3–6.0
Enabling								
Has health insurance	NS		NS		NS		NS	
Has regular source of care	NI¶		6.9	1.4–33.7	NS		NS	
Receives any ESE services	NI¶		NS		NS		3.7	2.0–6.9
Need								
Parent SNAP# sum	1.09	1.06–1.13	NS		1.03	1.01–1.04	NS	

Note: Estimates were adjusted for sampling and nonparticipation effects.

*Odds ratios derived from logistic regression.

†Confidence interval.

‡NS = not statistically significant.

§SES = socioeconomic status according to Hollingshead.

||ESE = exceptional student education.

¶NI = not included in model because of convergence problems.

#SNAP = Swanson, Nolan, and Pelham Rating Scale.

ADHD treatment was higher for nonpoor children than for their impoverished peers as well as for children receiving special education services compared to students receiving regular or gifted education services.

Parental barrier perspectives

Fifty-six percent of the unserved children with ADHD ($N=91$) were boys, 50% were African American, and 70% received subsidized school lunch. Their average age was 7.6 years ($SD=1.9$) and the mean SES score was 33 ($SD=14.9$). The parents reported an average of 4.1 ($SD=2.5$) overall barriers to care. The total number of barriers did not vary by gender, race, or lunch status. The 3 most commonly endorsed items were being unsure where to go for help ($N=35$; 39%), the problem got better by itself ($N=33$; 36%), and the child got well enough that s/he did not need treatment anymore ($N=31$; 34%). The most common barrier category was no perceived need ($N=60$; 66%), followed by system barriers ($N=48$; 53%) and negative expectations ($N=41$; 45%). Similar proportions of parents reported stigma-related ($N=36$; 39%) or financial barriers ($N=34$; 38%). Table 3 summarizes the relationship between barrier types and sociodemographic characteristics. Parents of girls reported more stigma-related barriers than did those of boys, and African American parents expressed more negative expectations than did their Caucasian peers. Poverty affected all barrier categories except system ones, and low SES families were more likely than their more

Table 3

Parent-reported barriers to treatment among 91 children meeting DSM-IV criteria for ADHD without treatment in past 12 months

	No perceived need (3 items, N = 60)			System barriers (5 items, N = 48)			Negative expectation (4 items, N = 41)			Stigma-related (4 items, N = 36)			Financial barriers (3 items, N = 34)		
	N	%	P*	N	%	P	N	%	P	N	%	P	N	%	P
Gender															
Male	38	71		30	57		25	47		16	30	<.05	18	34	
Female	23	59		18	46		16	43		20	52		22	43	
Race															
Caucasian	35	73		21	45		16	34	<.05	15	32		15	32	
African American	25	58		27	61		25	58		21	47		19	44	
SES†															
High	32	76	.06	22	52		15	36	.08	13	31		11	27	<.05
Low	28	57		26	53		26	54		23	47		23	47	
Lunch status															
Full pay	23	84	<.05	11	38		5	18	<.01	8	30	<.05	5	18	<.05
Reduced pay	4	42		5	58		4	46		1	11		5	58	
Free lunch	33	61		32	59		32	59		27	49		24	44	

Note: Estimates were adjusted for sampling and nonparticipation effects. A category was scored as endorsed if one or more of the assigned items was reported present.

*Analyses conducted using the chi-square test of proportions.

†SES = socioeconomic status according to Hollingshead.

advantaged counterparts to report financial barriers. The sole multivariate logistic regression model to reach statistical significance was for the prediction of negative expectations ($\chi^2 = 12.6$, $DF=4$, $P < .01$), where lunch status emerged as an independent predictor such that poverty increased the odds of negative expectations (OR 6.7, 95% CI 1.7–27.8).

Discussion

Findings from this study suggest that parental recognition of a potential behavior problem among a group of elementary school students at high risk for ADHD was relatively high, and that regardless of gender or ethnicity, child age and clinical severity increased the likelihood of problem recognition. The former is not surprising, because the behaviors associated with ADHD are easily observable and tend to have disruptive effects on child and parent interaction. The latter findings have also been reported among clinical populations,^{24,50} and are consistent with the neurodevelopmental nature of ADHD. Activities listed as diagnostic target behaviors are often considered normal in younger children, and children of all ages may show isolated ADHD symptoms on some occasions.⁴⁰ Professionals therefore evaluate the age-appropriateness, frequency, and severity of ADHD symptoms when making a diagnosis,⁵¹ and our study findings suggest that parents form their concerns in a similar fashion.

A substantial gap was found between problem recognition and seeking an evaluation for ADHD symptoms. Controlling for enabling and need variables, boys or Caucasian children were much more likely to receive an ADHD evaluation than were girls or African American children, respectively. Further study examining the mechanisms underlying gender and ethnic disparities for ADHD care is

merited. Qualitative research methods in particular may be useful in eliciting reasons why concerned parents do not seek an evaluation and how this might vary for parents of girls and those from minority backgrounds.⁵²⁻⁵⁴ Of note, the predictors of recognition did not exert an influence on seeking an evaluation. Instead, having a regular source of routine pediatric care increased a child's odds of receiving an ADHD assessment 6-fold. Although the function of pediatricians as gatekeepers for mental health services has been clearly demonstrated,²⁴ their importance is magnified among children with ADHD, because primary care providers render the majority of ADHD assessments and treatments in the United States.^{12,55,56} These results also are consistent with those by Wilson et al, who reported that adolescents using the emergency room for usual care were found to have increased unmet mental health needs.³⁰ These findings therefore suggest that access to ADHD evaluations may be increased by improving access to routine pediatric care.

Unlike the first 2 help-seeking steps, assignment of a diagnosis is strongly dependent on the providers conducting the assessment, even though parents play a significant role in the diagnostic process by way of providing descriptions of the child's behaviors, concerns, and in some cases, offering a suspected diagnosis.^{51,52,56} The assignment of a professional ADHD diagnosis was strongly predicted by child gender, ethnicity, and parent-reported symptom severity. While the former 2 predictors raise questions about gender and race bias during the diagnostic process at the provider level, the latter one is consistent with recommended assessment guidelines.^{51,56} Previous studies of community, primary care, and Medicaid samples suggest a 3 to 1 ratio of boys to girls in assigning ADHD diagnoses,^{6,57,58} but do not show consistent ethnic differences. This is the only help-seeking step for which poverty status emerged as a predictor, with nonpoor children having nearly 3 times the odds of receiving treatment than their impoverished peers, even after adjusting for health insurance status. This finding is consistent with other studies reporting lower mental health treatment rates among youth from low-income backgrounds.^{23,26,59} Further, child receipt of special education services nearly tripled the odds that parents will secure ADHD treatment. In this cross-sectional study it is hard to draw conclusions from this finding. Parents may have sought an ADHD evaluation and diagnosis so that their child could qualify for certain special education services.⁶⁰ On the other hand, greater willingness to seek services among these parents may be prompted by factors such as the potentially greater functional impairment of ADHD children with comorbid learning problems, or by special education teacher advice to seek ADHD treatment.^{10,35,61}

The barriers to care analysis provided additional insight into why parents of children with ADHD may not pursue treatment for their child. Most noteworthy, over two thirds of parents indicated that they did not see a need for professional treatment even though these children had met full DSM-IV ADHD criteria at the time of the interview. This may reflect a threshold adjustment where abnormal child behavior is perceived as "normal" for the given child,⁶² or may represent a lack of understanding of the nature and course of ADHD. It also may indicate that the parents have an alternative "explanatory model" of their child's behavior and do not see it as a medical issue.⁵³ Such findings underscore the necessity to better understand parental perceptions of need for professional services for their children. System barriers were the next common reason for not seeking help, with being unsure where to go for help as the leading item. Even if the desire for mental health treatment is brought to the attention of pediatricians, significant barriers may remain according to a study by Hoagwood and colleagues, indicating that lack of specialists, difficulty getting appointments, and nonacceptance of Medicaid were major barriers to mental health services for pediatric patients with identified need.⁶³

African American parents had higher rates of negative treatment expectations than did Caucasians. This may be a reflection on the established racial disparities in quality of care, including mental health treatment.^{64,65} African American parents who have concerns about their child's behavior may not seek treatment because they do not perceive professionals as trustworthy allies. African American families embody certain beliefs and practices about behavioral and mental disorders that influence

their help-seeking behaviors, their responses to the available services, and methods of coping. These factors are not clearly understood. Previous studies have shown, however, that African American parents' interpretation and explanatory models of ADHD differ from those of Caucasians, such that while they may see the child as difficult to manage, they are less likely to view it as a medical problem.^{39,53} Limited income and the stressors of poverty are other major forces that negatively impact African American families' capacities to seek adequate treatment for their children. Against this backdrop, African American families are orientated toward learning to triumph over adversity, and "soldier onward" through increased striving and perseverance rather than through reliance on professional help.

Several additional study limitations should be taken into account when interpreting the study results. Since cross-sectional data were used to explore the help-seeking process, the time course between the help-seeking steps cannot be established. This design also precludes examining conceptually important malleable enabling factors, such as parental ADHD knowledge, because these may have been influenced by prior service use.³⁹ The treatment inquiry focused on current intervention and did not include care received in the past, thus representing more recently started treatment or children who had received persistent treatment. In addition, as the focus of this study was on parental help-seeking efforts for high-risk children, the validity of assigned professional ADHD diagnoses was not addressed. Parent reports of service use were not validated by provider or insurance records; however, good agreement between parent report and medical records for outpatient services has been reported in other studies.⁶⁶ Further, the study was conducted in 1 school district in a Southeastern state, potentially limiting the data's generalizability to other geographic areas.

Implications for Behavioral Health Services

Study findings suggest that ADHD undertreatment for girls and African American children may be linked to the gap between parental problem recognition and seeking an evaluation. Thus, it is hypothesized that 2 thresholds have to be crossed before children at high risk for ADHD receive professional help. The first one is labeling behavior as problematic^{62,67} and the second one is for seeking professional intervention. Weisz and colleagues^{62,67} have shown that the former varies in cross-cultural studies, but the latter concept, a threshold for seeking services, has not yet been explicated in the literature. If confirmed in other studies, such a threshold has important implications for interventions aimed at making access to ADHD treatment more equitable for affected girls and African American children. Since nearly all parents of high-risk children detected a concern, intervention efforts do not need to focus on improving parental problem recognition skills. Rather, research efforts should be directed toward unraveling the reason for the gender and race/ethnicity variations in the threshold that determines whether a parent seeks professional services. Such research should specifically examine whether parents see child behavior problems, such as hyperactivity or inattention, as something they think can be helped through medical intervention. Future studies should also explore whether the substitution of self-care or alternative care strategies plays a role in threshold variations.^{68,69} In querying parents about their experiences of treatment barriers, this study suggests higher rates of perceived stigma for treatment of daughters than of sons, and more negative treatment expectations among African American compared to Caucasian families. However, these findings were not of sufficient magnitude to explain the significantly lower rates of treatment for ADHD care among girls and African American children. No other barrier sources emerged that would explain the disparate help-seeking thresholds. Therefore, before specific interventions can be designed to increase the odds of parents seeking professional ADHD services for their affected daughters and African American children, qualitative studies examining the mechanisms for the dissimilar thresholds are merited.

Acknowledgments

This research was supported by grants RO1 MH57399 and R24 MH51846 from NIMH. The authors express their gratitude to Dana Mason and Karabi Sinha for research assistance and to school professionals and parents for their strong support that made this study possible.

References

1. National Institutes of Health. NIH Consensus Development Conference: diagnosis and treatment of attention deficit hyperactivity disorder. Program and abstracts. Paper presented at: NIH Consensus Development Conference: Diagnosis and Treatment of Attention Deficit Hyperactivity Disorder; 1998; Bethesda, Maryland.
2. Swanson JM, McBurnett K, Wigal T, et al. Effect of stimulant medication on children with attention deficit disorder: a "review of reviews." Special Issue: Issues in the education of children with attention deficit disorder. *Exceptional Children*. 1993;60(2):154–161.
3. Pelham WE, Jr, Wheeler T, Chronis A. Empirically supported psychosocial treatments for attention deficit hyperactivity disorder. *Journal of Clinical Child Psychology*. 1998;27(2):190–205.
4. The MTA Cooperative Group. A 14-month randomized clinical trial of treatment strategies for attention-deficit/hyperactivity disorder. The MTA Cooperative Group Multimodal Treatment Study of Children with ADHD. *Archives of General Psychiatry*. 1999;56(12):1073–1086.
5. The MTA Cooperative Group. Moderators and mediators of treatment response for children with attention-deficit/hyperactivity disorder: the Multimodal Treatment Study of children with attention-deficit/hyperactivity disorder. *Archives of General Psychiatry*. 1999;56(12):1088–1096.
6. Zito JM, Safer DJ, dosReis S, et al. Methylphenidate patterns among Medicaid youths. *Psychopharmacology Bulletin*. 1997;33(1):143–147.
7. Zito JM, Safer DJ, dosReis S, et al. Trends in the prescribing of psychotropic medications to preschoolers [see comments]. *The Journal of the American Medical Association*. 2000;283(8):1025–1030.
8. Zarin DA, Suarez AP, Pincus HA, et al. Clinical and treatment characteristics of children with attention-deficit/hyperactivity disorder in psychiatric practice. *Journal of the American Academy of Child and Adolescent Psychiatry*. 1998;37(12):1262–1270.
9. Bussing R, Zima BT, Perwien AR, et al. Children in special education programs: attention deficit hyperactivity disorder, use of services, and unmet needs. *American Journal of Public Health*. 1998;88(6):880–886.
10. Bussing R, Zima BT, Belin TR. Variations in ADHD treatment among special education students. *Journal of the American Academy of Child and Adolescent Psychiatry*. 1998;37(9):968–976.
11. Bussing R, Zima BT, Belin TR. Differential access to care for children with ADHD in special education programs. *Psychiatric Services*. 1998;49(9):1226–1229.
12. Rappley MD, Gardiner JC, Jetton JR, et al. The use of methylphenidate in Michigan. *Archives of Pediatrics and Adolescent Medicine*. 1995;149(6):675–679.
13. Zito JM, Safer DJ, dosReis S, et al. Psychotherapeutic medication patterns for youths with attention-deficit/hyperactivity disorder. *Archives of Pediatrics and Adolescent Medicine*. 1999;153(12):1257–1263.
14. Zito JM, Safer DJ, dosReis S, et al. Racial disparity in psychotropic medications prescribed for youths with Medicaid insurance in Maryland. *Journal of the American Academy of Child and Adolescent Psychiatry*. 1998;37(2):179–184.
15. Zito JM, Safer DJ, Riddle MA, et al. Prevalence variations in psychotropic treatment of children. *Journal of Child and Adolescent Psychopharmacology*. 1998;8(2):99–105.
16. Rogler LH, Cortes DE. Help-seeking pathways: a unifying concept in mental health care. *The American Journal of Psychiatry*. 1993;150(4):554–561.
17. Andersen RM. Revisiting the behavioral model and access to medical care: does it matter? *Journal of Health and Social Behavior*. 1995;36(1):1–10.
18. Srebnik D, Cauce AM, Baydar N. Help-seeking pathways for children and adolescents. *Journal of Emotional and Behavioral Disorders*. 1996;4(4):210–220.
19. Zima BT, Bussing R, Yang X, et al. Help-seeking steps and service use for children in foster care. *Journal of Behavioral Health Services Research*. 2000;27(3):271–285.
20. Poduska JM. Parent's perceptions of their first graders' need for mental health and educational services. *Journal of the American Academy of Child and Adolescent Psychiatry*. 2000;39(5):584–591.
21. Cuffe SP, Waller JL, Cuccaro ML, et al. Race and gender differences in the treatment of psychiatric disorders in young adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*. 1995;34(11):1536–1543.
22. Weinick RM, Krauss NA. Racial/ethnic differences in children's access to care. *American Journal of Public Health*. 2000;90(11):1771–1774.
23. Cunningham PJ, Freiman MP. Determinants of ambulatory mental health services use for school-age children and adolescents. *Health Services Research*. 1996;31(4):409–427.
24. Dulcan MK, Costello EJ, Costello AJ, et al. The pediatrician as gatekeeper to mental health care for children: do parents' concerns open the gate? *Journal of the American Academy of Child and Adolescent Psychiatry*. 1990;29(3):453–458.
25. Cohen P, Hesselbart CS. Demographic factors in the use of children's mental health services. *American Journal of Public Health*. 1993;83(1):49–52.
26. Flisher AJ, Kramer RA, Grosser RC, et al. Correlates of unmet need for mental health services by children and adolescents. *Psychological Medicine*. 1997;27(5):1145–1154.

27. Glied S, Hoven CW, Moore RE, et al. Children's access to mental health care: does insurance matter? *Health Affairs*. 1997;16(1):167-174.
28. McInerney TK, Szilagyi PG, Childs GE, et al. Uninsured children with psychosocial problems: primary care management. *Pediatrics*. 2000;106(4, suppl):930-936.
29. Wu P, Hoven CW, Cohen P, et al. Factors associated with use of mental health services for depression by children and adolescents. *Psychiatric Services*. 2001;52(2):189-195.
30. Wilson KM, Klein JD. Adolescents who use the emergency department as their usual source of care. *Archives of Pediatrics and Adolescent Medicine*. 2000;154(4):361-365.
31. Newacheck PW, McManus M, Fox HB, et al. Access to health care for children with special health care needs. *Pediatrics*. 2000;105(4, pt 1):760-766.
32. Halfon N, Newacheck PW. Prevalence and impact of parent-reported disabling mental health conditions among U.S. children. *Journal of the American Academy of Child and Adolescent Psychiatry*. 1999;38(5):600-609; discussion 10-13.
33. Palfrey JS, Singer JD, Walker DK, et al. Health and special education: a study of new developments for handicapped children in five metropolitan communities. *Public Health Reports*. 1986;101(4):379-388.
34. Zahner GE, Daskalakis C. Factors associated with mental health, general health, and school-based service use for child psychopathology. *American Journal of Public Health*. 1997;87(9):1440-1448.
35. Verhulst FC, van der Ende J. Factors associated with child mental health service use in the community. *Journal of the American Academy of Child and Adolescent Psychiatry*. 1997;36(7):901-909.
36. Swanson JM. *School-Based Assessments and Interventions for ADD Students*. Irvine, Calif: K.C. Publishing; 1992.
37. Hollingshead. Four Factor Index of social class. Yale University, Department of Sociology; 1975.
38. Hoven CW, Wu P, Moore RE, et al. Perceived barriers to children's mental health services. Paper presented at: A System of Care for Children's Mental Health: Expanding the Research Base; 1995; Tampa, Fla.
39. Bussing R, Schoenberg NE, Perwien AR. Knowledge and information about ADHD: evidence of cultural differences among African-American and white parents. *Social Science and Medicine*. 1998;46(7):919-928.
40. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV)*. Washington, DC: American Psychiatric Association; 1994.
41. Bird HR, Gould MS, Staghezza B. Aggregating data from multiple informants in child psychiatry epidemiological research. *Journal of the American Academy of Child and Adolescent Psychiatry*. 1992;31(1):78-85.
42. Fisher PW, Shaffer D, Piacentini J, et al. Sensitivity of the Diagnostic Interview Schedule for Children, 2nd edition (DISC-2.1) for specific diagnoses of children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*. 1993;32(3):666-673.
43. Jensen P, Roper M, Fisher P, et al. Test-retest reliability of the Diagnostic Interview Schedule for Children (DISC 2.1). Parent, child, and combined algorithms. *Archives of General Psychiatry*. 1995;52(1):61-71.
44. Piacentini J, Shaffer D, Fisher PW, et al. The Diagnostic Interview Schedule for Children—Revised Version (DISC-R), III: Concurrent criterion validity. *Journal of the American Academy of Child and Adolescent Psychiatry*. 1993;32(3):658-665.
45. Schwab-Stone M, Fallon T, Briggs M, et al. Reliability of diagnostic reporting for children aged 6-11 years: a test-retest study of the Diagnostic Interview Schedule for Children—Revised. *American Journal of Psychiatry*. 1994;151(7):1048-1054.
46. Aday LA. *Designing and Conducting Health Surveys*. San Francisco: Jossey-Bass Publishers; 1996.
47. Cox BG, Cohen SB. *Methodological Issues For Health Care Surveys*. New York, NY: Marcel Dekker Inc; 1985.
48. Landis J, Koch G. The measurement of Observer Agreement for Categorical Data. *Biometrics*. 1977;33:159-174.
49. StataCorp. *Stata Statistical Software: Release 5*. College Station, Tex: Stata Corporation; 1997.
50. Mulhern S, Dworkin PH, Bernstein B. Do parental concerns predict a diagnosis of attention-deficit hyperactivity disorder? *Journal of Developmental and Behavioral Pediatrics*. 1994;15(5):348-352.
51. Dulcan M, Work Group on Quality Issues. Practice parameters for the assessment and treatment of children, adolescents, and adults with attention-deficit/hyperactivity disorder. *Journal of the American Academy of Child and Adolescent Psychiatry*. 1997;36(10, suppl):85S-121S.
52. Bussing R, Gary FA. Practice guidelines and parental ADHD treatment evaluations: friends or foes? *Harvard Review of Psychiatry*. 2001;9(5):223-233.
53. Bussing R, Schoenberg NE, Rogers KM, et al. Explanatory models of ADHD: do they differ by ethnicity, child gender, or treatment status? *Journal of Emotional and Behavioral Disorders*. 1998;6(4):233-242.
54. Kласen H. A name, what's in a name? The medicalization of hyperactivity, revisited. *Harvard Review of Psychiatry*. 2000;7(6):334-344.
55. Kelleher KJ, McInerney TK, Gardner WP, et al. Increasing identification of psychosocial problems: 1979-1996. *Pediatrics*. 2000;105(6):1313-1321.
56. American Academy of Pediatrics. Clinical practice guideline: diagnosis and evaluation of the child with attention-deficit/hyperactivity disorder. *Pediatrics*. 2000;105(5):1158-1170.
57. Angold A, Erkanli A, Egger HL, et al. Stimulant treatment for children: a community perspective [see comments]. *Journal of the American Academy of Child and Adolescent Psychiatry*. 2000;39(8):975-984; discussion 84-94.
58. Wasserman RC, Kelleher KJ, Bocian A, et al. Identification of attentional and hyperactivity problems in primary care: a report from pediatric research in office settings and the ambulatory sentinel practice network. *Pediatrics*. 1999;103(3):E38.
59. Pavuluri MN, Luk SL, McGee R. Help-seeking for behavior problems by parents of preschool children: a community study. *Journal of the American Academy of Child and Adolescent Psychiatry*. 1996;35(2):215-222.
60. Office of Special Education. A clarification of state and local responsibilities under federal Law to address the needs of children with attention deficit disorders. *OSERS News in Print*, 1992;4(3): 27-29.
61. Szatmari P, Offord DR, Boyle MH. Correlates, associated impairments and patterns of service utilization of children with attention deficit disorder: findings from the Ontario Child Health Study. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*. 1989;30(2):205-217.
62. Weisz JR, Suwanlert S, Chaiyasit W, et al. Thai and American perspectives on over- and undercontrolled child behavior problems:

- exploring the threshold model among parents, teachers, and psychologists. *The Journal of Nervous and Mental Disease*. 1988;181(7):401–408.
63. Hoagwood K, Kelleher KJ, Feil M, et al. Treatment services for children with ADHD: a national perspective. *Journal of the American Academy of Child and Adolescent Psychiatry*. 2000;39(2):198–206.
 64. Schneider EC, Zaslavsky AM, Epstein AM. Racial disparities in the quality of care for enrollees in medicare managed care. *The Journal of American Medical Association*. 2002;287(10):1288–1294.
 65. Poussaint AF, Alexander A. *Lay My Burden Down. Unraveling Suicide and the Mental Health Crisis among African-Americans*. Boston: Beacon Press; 2000.
 66. Ascher BH, Farmer EMZ, Burns BJ, et al. The Child and Adolescent Services Assessment (CASA): description and psychometrics. *Journal of Emotional and Behavioral Disorders*. 1996;4(1):12–20.
 67. Weisz JR, Suwanlert S, Chaiyasit W, et al. Adult attitude toward over-controlled and undercontrolled child problems: urban and rural parents and teachers from Thailand and the United States. *Journal of Child Psychology and Psychiatry*. 1991;32(4):645–654.
 68. Baumgaertel A. Alternative and controversial treatments for attention-deficit/hyperactivity disorder. *Pediatric Clinics of North America*. 1999;46(5):977–992.
 69. Bussing R, Zima BT, Gary FA, et al. Complimentary and alternative medicine use for attention deficit hyperactivity disorder symptoms. *Psychiatric Services*. 2002;53(9):1096–1102.