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Services for adolescent psychiatric disorders: 12-month data from the National Comorbidity Survey-Adolescent

E. Jane Costello,

Duke University, Psychiatry, Suite 22 905 West Main St., Durham, North Carolina, 27701, elizabeth.costello@duke.edu

Jian-ping He,

National Institute of Mental Health - Division of Intramural Research Programs, Bethesda, Maryland

Nancy A Sampson,

Harvard Medical School - Department of Health Care Policy, Boston, Massachusetts

Ronald C. Kessler, Ph.D., and

Department of Health Care Policy - Harvard Medical School, 180 Longwood Avenue, Boston, Massachusetts 02115-5899

Kathleen Ries Merikangas, Ph.D.

National Institute of Mental Health - Mood and Anxiety Disorders Program, Section on Developmental Genetic Epidemiology 35 Convent Drive, 1A-201, MSC, #3720, Bethesda, Maryland 20892-3720

Abstract

Objective—This report examined data on 12-month rates of service use for adolescent mental, emotional, and behavioral disorders.

Methods—The National Comorbidity Survey Adolescent Supplement (NCS-A) is a national survey of DSM-IV mental, emotional, and behavioral disorders and service use among U.S. adolescents.

Results—In the 12 months up to the interview, 45% of adolescents with psychiatric disorders received some form of professional help. Youth with mood disorders were most likely to receive

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Disclosure

One author has been a consultant for AstraZeneca, Analysis Group, Bristol-Myers Squibb, Cerner-Galt Associates, Eli Lilly & Company, GlaxoSmithKline Inc., HealthCore Inc., Health Dialog, Integrated Benefits Institute, John Snow Inc., Kaiser Permanente, Matria Inc., Mensante, Merck & Co, Inc., Ortho-McNeil Janssen Scientific Affairs, Pfizer Inc., Primary Care Network, Research Triangle Institute, Sanofi-Aventis Groupe, Shire U.S., Inc., SRA International, Inc., Takeda Global Research & Development, Transcept Pharmaceuticals Inc., and Wyeth-Ayerst; has served on advisory boards for Appliance Computing II, Eli Lilly & Company, Mindsite, Ortho-McNeil Janssen Scientific Affairs, and Wyeth-Ayerst; and has had research support for epidemiological studies from Analysis Group Inc., Bristol-Myers Squibb, Eli Lilly & Company, EPI-Q, GlaxoSmithKline, Johnson & Johnson Pharmaceuticals, Ortho-McNeil Janssen Scientific Affairs., Pfizer Inc., Sanofi-Aventis Groupe, and Shire U.S., Inc.

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services (60.1%), and those with anxiety disorders least likely (41.4%). Services were more likely to be provided in a school setting (23.6% of those with disorders) or by specialty mental health providers (22.8%) than by general medical practitioners (10.1%). Juvenile justice (4.5%), complementary and alternative medicine (CAM) (5.3%), and human services (7.9%) also provided mental health care. Although pediatricians treated a higher proportion of youth with mood disorders than of those with behavior disorders, they were more likely to treat youth with behavior disorders because of the larger number of the latter (11.5% of 1,465 vs. 13.9% of 820). Black youth were significantly less likely than white youth to receive specialty mental health or pediatric services for mental disorders.

Conclusions—The 12-month findings from the NCS-A confirm those of earlier, smaller studies, that only a minority of youth with psychiatric disorders received recent treatment of any sort. Much of this treatment was provided in service settings in which few of the providers were likely to have specialist mental health training.

Keywords

Epidemiology; psychiatric; adolescents; service use; 12-month; NCS-A

Starting in the 1980s, studies of representative samples of children and adolescents in various parts of the United States demonstrated that whereas a large proportion had mental disorders, few received mental health care.(1-25) Most studies reported that only around 1 child in 3 with demonstrated need for mental health care actually received any. They also showed that the time between the first appearance of symptoms and first service use could extend to several years.(26)

The availability of services is highly sensitive to changes in both supply and demand. On the supply side, the availability of evidence-based treatments (27, 28) increases the cost-effectiveness of care. On the demand side, federal policies such as the State Children's Health Insurance Program (SCHIP) which began in 1997, may increase demand, (29) whereas the recent increase in the number of uninsured Americans may reduce demand. Thus, studies measuring supply of and demand for mental health services need to have a fairly short time line to capture the current service environment.

Unlike adults, children may receive mental health services from many agencies whose primary responsibilities do not include mental health care. In addition to specialty mental health providers and primary care providers who may or may not have mental health training, schools, juvenile justice agencies and human service agencies are frequently mandated to provide such services. A recent paper (30) from the National Comorbidity Survey Adolescent Supplement (NCS-A) presented lifetime rates of disorder-specific service use in a representative national sample of adolescents. The current paper uses the same dataset to derive information on how different service sectors provided services for different types of disorder within a 12-months period. The goal is to increase comparability with the earlier literature, where lifetime data are scarce.(31-34)

Methods

Sample and Procedure

The NCS-A is a nationally-representative face-to-face survey of 10,148 adolescents ages 13-17 years in the continental U.S.(35, 36) The survey was administered by the professional interview staff of the Institute for Social Research at the University of Michigan. The background, measures, design, and clinical validity of the NCS-A are described elsewhere. (35, 36) Briefly, the NCS-A sample was based on a nationally representative household sample (n=904 adolescents) and a school sample (n=9,244 adolescents), with a response rate of 86.8%/ 82.6% (household/school sample). One adult who was knowledgeable about the adolescent's health, usually the mother, (henceforth referred to as a parent) was mailed a self-administered questionnaire asking for information on the adolescent's developmental background, mental and physical health, service use, and other family- and community-level factors. The conditional response rate of the parent self-administered questionnaire was 82.5%/83.7%.

Socio-demographic variables assessed in the NCS-A include age, sex, race/ethnicity, parental marital status, parent education, urbanicity, region and number of siblings. The 2000 census definitions were used to code urbanicity by distinguishing large metropolitan areas from smaller metropolitan areas and rural areas. About half of the sample was male (51.3%) and the mean age was 15.9 years. Non-Hispanic whites comprised 65.5% of the sample, non-Hispanic blacks 15.1%, and Hispanic adolescents 14.4%.

Measures

Diagnostic assessment—Details of the diagnostic measures are described elsewhere. (37) Briefly, information contributing to criteria for DSM-IV disorders was collected using the World Mental Health Composite International Diagnostic Interview (WMH-CIDI version 3.0), a fully structured lay-administered diagnostic interview that generates diagnoses according to the definitions and criteria of both the ICD-10(38) and DSM-IV (39) diagnostic systems. Information on the diagnostic criteria for the full range of DSM-IV mental disorders was collected for lifetime, 12-month, and 30 day prevalence periods. Clinical validity of the diagnostic interview using the Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS) as the gold standard was found to be adequate.(40)

A parent-administered questionnaire collected information on the five adolescent disorders (attention-deficit/hyperactivity disorder, conduct disorder, oppositional-defiant disorder, major depressive episode, and dysthymic disorder) for which parental information enhances diagnostic validity.(40) Information obtained from the adolescent and/or parent was used to determine diagnostic classification of these disorders.

Service Use

Immediately following each disorder interview module, respondents were asked whether they had received disorder-specific treatment in the past 12 months. In a separate interview module focusing on services, all respondents were asked whether they had received services

for emotional or behavioral problems and the settings in which they had received these services. Reports of service use were classified into the following categories: 1) *mental health specialty*: a psychiatrist or psychologist in settings such as a mental health clinic, community mental health center, drug or alcohol clinic, emergency room service, or admission to psychiatric hospitals and other facilities; 2) *general medical*: service provided by a general practitioner, family physician, pediatrician, any other physician; 3) *human services*: a social worker, a counselor, a religious/spiritual advisor, or mental health crisis hotline; 4) *complementary and alternative medicine (CAM)*: support group, self-help group, or any other healer; 5) *juvenile justice*: probation officer or juvenile correction officer; 6) *school services*: special school or special class for children with emotional or behavioral problems, mental health nurse, school counselor, and medication delivered at school.

Parents also reported about treatment for their child's emotional and behavior problems using questions similar to those administered to the adolescent sample. The analysis of service use in this paper was based on endorsement by the parent or child (sample size $n=6,483$). Levels of agreement between parent and adolescent report for any mental health treatment ($k=.58$ (SE .0001)) and for any service use ($k=.54$ (SE .0001)) were both statistically significant.

Analytic Procedures

The data were weighted to adjust for differential probabilities of selection of respondents within school and household samples, differential non-response, and to adjust for residual differences between the sample and the United States population on the cross-classification of socio-demographic variables.(35, 36)

Rates of service use were calculated as proportions of youth with one or more DSM-IV psychiatric disorders. Multivariate logistic regression models were performed to examine demographic correlates of service use. Correlates included age, sex, race/ethnicity, number of biological parent the youth live with, birth order, number of siblings, region, urban residency, parent education, and household poverty index ratio. In addition, models also adjusted for number of disorders (2, 3+) simultaneously. For the model of any service, the sample was restricted to youth with a DSM-IV disorder ($n=2,757$) to examine predictors of getting treatment from any service sector. When modeling each specific service sector, correlates of service use were calculated for all those who both had a DSM-IV disorder and received services from one or more providers ($n=1,725$). The logistic regression coefficients could be interpreted as predictors of where treatment has obtained among youth who received some sort of treatment for emotional and behavior problems. The coefficients were transformed to odds ratios (ORs) for ease of interpretation. Ninety-five percent confidence intervals (CIs) were estimated using the Taylor series linearization method implemented in the SUDAAN software version 10. Multivariate significance tests were calculated using Wald chi-square tests based on coefficient variance-covariance matrices that were adjusted for design effects using the Taylor series method. Statistical significance was based on 2-sided design-based tests evaluated at the .05 level of significance.

Results

Table 1 shows the proportion of youth who received any services for psychiatric disorders in the past 12 months, by service setting and diagnosis. Of those with any diagnosis, 45.0% (SE 1.5%) reported receiving any treatment from any source. The probability of treatment was associated with number of disorders: 68.7% of those with 3 or more disorders received treatment compared with 44.0% of those with 2 disorders, 31.9% of those with 1, and 14.4% of those with no diagnosis.

Among individuals with mental disorders, those with attention-deficit/hyperactivity disorder (ADHD) (73.8%), conduct disorder (73.4%) or oppositional defiant disorder (71.0%) were the most likely to have received any treatment in the past 12 months. Specific phobias (40.7%), and anxiety disorders in general (41.4%) were the conditions least likely to have received treatment.

Sources of services

Adolescents with any psychiatric disorder were most likely to receive services in school (23.6%) and specialty mental health service settings (22.8%). Youth with ADHD were somewhat more likely to get treatment from schools (54.5%) than from mental health (37.3%), while the opposite was true of those with eating disorders (mental health, 43.0%, schools 20.9%) and drug use disorders (mental health, 44.4%, schools, 32.9%).

Smaller proportions of youth with recent psychiatric disorders received services from primary care pediatricians and other primary care providers (10.1%). As Table 1 shows, the highest proportion of adolescents who used pediatric services for psychiatric disorders had depressive disorders (17.6%) or ADHD (17.3%). However, taking into account the numbers with different disorders, pediatricians were almost twice as likely to see adolescents with an impulse control disorder (11.5% of 1,465=165) as with a depressive disorder (17.6% of 544=95) or ADHD (17.3% of 408=71).

Correlates of service use

Table 2 presents the sociodemographic correlates of receiving services in one or more of the service sectors, in adolescents with a diagnosis.

Males with a diagnosis were more likely to have received any services in the past 12 months than were females, but the difference was significant only for juvenile justice and school services. The only other factor associated with increased use of any services was living in a family with other than 2 biological parents. Specialty mental health services, as well as juvenile justice and school services, were used more by these youth. Services that might entail cost to families, such as specialty mental health, primary medical care, and CAM, were more sensitive to sociodemographic markers; for example, highly educated parents were more likely to seek specialty mental health care for their children. On the other hand youth from poorer families were more likely than those in the wealthiest segment to be in the juvenile justice system. In pediatric settings, non-Hispanic black adolescents were less likely than white youth to receive care for psychiatric disorders. Primary care use for

psychiatric disorders was highest in the western states of the USA, and significantly lower if adolescents lived in the South.

Discussion

This paper on service use for adolescent psychiatric disorders in the past 12 months in a nationally representative sample confirms earlier findings that only a subset of youth with psychiatric disorders received treatment of any sort. Moreover, much of this treatment was provided in service settings in which few of the providers were likely to have specialist mental health training. Fewer than half of youth with any disorder in the past 12 months received any help at all, and fewer than 1 in 4 received specialty mental health treatment. Even among those with 3 or more disorders, fewer than half had recently received any specialty mental health care.

This rate is slightly but not dramatically higher than was found 10 years earlier in the Great Smoky Mountains Study, (41) where 21.6% of youth with serious and impairing mental illness received specialty mental health care. The 2001-2004 National Health and Nutrition Examination Study (42) found a much higher rate of 12-month “mental health service use” (52.8%), but the NHANES did not clarify which service sector was used.

The findings are consistent with those of earlier and more geographically constrained studies (6, 7, 10), suggesting that nothing much has changed in the decades since the first studies of service use for psychiatric disorders in the USA, despite the spread of evidence-based treatments and the increase in the number of youth eligible for public health insurance through SCHIP. For example, Burns et al. (10) found that 21.6% of a slightly younger sample (9-13) with serious diagnoses had received specialty mental health care in the past 3 months, while in Canada Offord (43) reported that 18.1% of boys and 13.5% of girls with a psychiatric diagnosis had received care from specialty mental health or social services in the past 6 months.

The findings reported here, which have a twelve-month time-frame, provide a more appropriate comparison with this literature than does our previous report on lifetime service use. (30) There are two reasons for this. First, there are no comparable studies of lifetime service use in this age-range. Second, the lifetime prevalence of mental health specialty service use for any psychiatric disorder was 46.5%, which when compared with the 22.8% rate reported here suggests that there was a considerable degree of forgetting or under-reporting.

We noted some interesting distinctions among race, income, and parental education as correlates of service use. Youth with a disorder from white, more highly educated families were more likely to find their way into specialty mental health or CAM services, while poverty was associated with services from schools and the juvenile justice system. Living with other than 2 biological parents, on the other hand, was associated with both juvenile justice and specialty mental health service use.

Of all the adolescents with a psychiatric disorder, primary care practitioners saw about 1 in ten. Primary care practitioners may well be competent to care for youth with some

psychiatric disorders for which there are evidence-based treatments. However, more than half of the study youth with a diagnosis had two or even three, and it is disturbing that so many of these complex cases may lack access to specialty mental health care.

In the National Comorbidity Study-Replication (NCS-R) of a representative sample of persons aged 18 and older “the proportion of cases in treatment ranged from a high for dysthymia to a low for intermittent explosive disorder” (44) (p.631). In contrast, the proportion of cases in treatment in the adolescent sample ranged from a high for conduct disorders and ADHD to a low for specific phobia and social phobia. It appears that young people are more likely to have treatment imposed upon them by parents and others in authority for “externalizing”, trouble-making disorders, while adults are most likely to seek treatment themselves for “internalizing” conditions like depression. This underlines the importance, when evaluating patterns of health care utilization, of considering not just available treatments but also how individuals get into care.(45)

Another difference between adults and adolescents is that 85.5% of adults in treatment were seen in the health care sector, the majority in general medical settings (52.0% of those in treatment).(44) In contrast, among the 45.0% of those with any disorder receiving care in this study, 10% obtained care in the general medical sector compared with 23.6% in the schools. Many of those listed by participants as providing help with emotional or behavioral problems were identified as pediatricians, school counselors, or probation officers. It is difficult to avoid the conclusion that, 20 years after the early studies,(1-25) many adolescents with disorders amenable to psychiatric treatments still do not have access to specialist care.

Table 2 shows sociodemographic correlates of service use, among youth with a DSM-IV disorder. Males, and youth closer to the poverty line, were more likely to get treatment from juvenile justice or school providers. White youth, and those with the most educated parents, were more likely to receive services from mental health or CAM providers. The fact that there was no significant difference in utilization of specialty mental health and general medical care services as a function of income suggests that, as found in other studies, private health insurance gives little benefit when it comes to children’s access to needed mental health care; only public insurance significantly increases access.(13, 46, 47)

Limitations

Although the present study has by far the most representative and largest sample of adolescents, comparisons with previous publications are difficult because of the restricted age-range of the present sample (13-17). The overall prevalence of disorders in the past 12 months in the NCS-A (25.5%) is just within the inter-quartile range of the studies reported in a recent review (14.8% to 25.5%) (26). The other recent, nationally-representative study, the National Health and Nutrition Examination Survey of 2001-2004, using a slightly more limited range of diagnoses, found lower rates of reported service use for each category.(37) However, the question asked: “In the past year, have you been to see someone at a hospital or a clinic or at their office [for specific symptoms of disorders]?” implicitly excludes systems, such as CAM, juvenile justice, and human services, that provide a lot of adolescent mental health care.

It is possible that some of the participants had received services in the year before the study period, but that it had not resolved the problem, or alternatively that many of those with a disorder had not yet found their way to a service provider.(26) However, other analyses of the same data set found that lifetime use of services, even for severe cases, was less than 50%.(30)

As noted, it is hard to interpret access to care in services sectors rationed by health insurance without information about insurance status, including SCHIP, which this study lacks. The NCS-A contains extensive measures of intensity and appropriateness of treatment that will be examined in other papers.

This was a cross-sectional study, and it was not possible to track adolescents' service use over time, or to test whether some services served as "gateways" to others.(22)

Conclusions

Despite efforts such as SCHIP to increase access to needed care, more than half of adolescents with a psychiatric disorder in the past 12 months did not receive any mental health care from any source within that time. Minority youth are significantly less likely than white youth to find their way to specialty mental health and general medical care providers. One of the encouraging changes in the past decade has been the appearance of effective evidence-based treatments, both pharmacological and behavioral, for a range of child and adolescent mental disorders. However, these need to be supervised by trained professionals, and the number of child psychiatrists has scarcely increased in recent years, while their distribution is inversely proportional to the percent of children in the community living in poverty.(48) This study, with its large and representative sample, only serves to confirm the seriousness of the problems that need to be solved in order for young people to have access to needed mental health care.

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Abbreviations

NCS-A	National Comorbidity Survey Replication Adolescent Supplement
SCHIP	State Children's Health Insurance Program
ICD-10	International Classification of Diseases, 10 th Edition
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders, 4 th Edition
WMH-CIDI	World Mental Health Composite International Diagnostic Interview
K-SADS	Schedule for Affective Disorders and Schizophrenia for School-Age Children
CAM	complementary and alternative medicine

What's known, What's new**What's known on this subject**

Services for youth with mental, emotional, and behavioral disorders are scarce and often provided by non-specialists. Programs such as the State Children's Health Insurance Program (SCHIP) were introduced in 1997 to increase access to needed care.

What this study adds

This study presents the most comprehensive evaluation of service use for a wide range of mental disorders in a large nationally representative sample of adolescents in the USA. The results show that services were available to only half of those with mental disorders in the past year. General medicine provided care to only 10% of adolescents with a disorder.

Table 1

NCS-A 12-month service usage by 12-month DSM-IV disorder, among those with disorder

12-M DSM-IV Disorder	No. of cases	Mental Health Specialty		General Medical		Human Service		CAM		Juvenile Justice		School Service		Any	
		%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Anxiety															
Panic Disorder	120	26.1	5.5	14.2	3.7	14.0	4.0	13.1	4.7	2.2	.7	28.7	6.6	49.1	7.2
Agoraphobia w/o Panic	100	28.8	6.6	8.3	3.0	13.7	8.1	7.4	3.9	2.8	1.5	37.3	9.4	52.0	8.7
Specific Phobia	1,000	20.0	2.9	9.2	1.6	8.7	1.5	3.9	1.0	2.3	.5	20.7	2.0	40.7	2.6
Social Phobia	778	24.9	3.1	10.0	2.0	6.9	1.3	5.0	1.2	3.2	1.4	22.5	3.0	42.2	3.2
Generalized Anxiety Disorder	106	35.0	8.3	9.6	3.4	9.2	3.3	13.7	3.5	3.3	1.6	36.2	9.0	56.7	7.4
Separation Anxiety Disorder	92	27.0	8.0	12.6	4.7	12.0	4.8	13.6	5.0	4.2	2.3	21.1	7.9	47.3	7.8
Posttraumatic Stress Disorder	210	37.0	4.1	11.4	3.1	11.5	2.8	11.8	2.8	4.1	2.0	32.8	6.0	60.2	5.8
Any anxiety Disorders	1,506	22.3	2.4	9.3	.8	8.0	1.0	5.0	.8	2.7	.6	20.9	1.8	41.4	1.9
Mood															
Major Depressive Disorder or Dysthymia	544	36.9	3.6	17.6	2.8	14.8	2.3	8.6	1.7	3.7	1.3	29.5	3.1	62.1	3.7
Bipolar (I, II, Sub)	329	33.6	3.7	7.4	2.6	14.7	3.0	6.0	1.2	8.7	2.4	35.2	3.3	58.4	3.6
Any Mood Disorder	820	35.4	3.0	13.9	2.3	14.1	1.7	7.7	1.4	5.7	1.3	30.5	2.2	60.1	2.9
Impulse control															
Attention Deficit and Hyperactivity	408	37.3	3.6	17.3	3.7	11.7	2.3	6.5	1.4	9.1	2.5	54.5	3.9	73.8	3.2
Oppositional Defiant Disorder	519	42.6	3.1	15.0	2.3	11.5	2.0	8.4	1.7	12.6	2.8	42.4	2.7	71.0	2.8
Eating Disorder(Anorexia, Bulimia, Binge)	191	43.0	8.1	14.8	5.4	13.3	5.3	5.2	1.7	3.2	1.2	20.9	4.7	58.7	6.4
Intermittent Explosive Disorder	691	24.1	2.5	8.5	1.9	10.5	1.8	5.3	1.2	4.3	1.1	29.8	2.8	47.6	2.9
Conduct Disorder	305	45.9	4.0	14.9	3.2	14.3	2.8	11.4	2.0	20.3	4.8	44.0	3.5	73.4	5.9
Any Impulse Control Disorders	1,465	28.6	2.3	11.5	1.1	10.4	1.1	6.0	.9	6.7	1.3	32.3	1.8	55.1	2.2
Substance															
Alcohol abuse/dependence	289	31.4	5.0	7.7	2.9	5.9	1.5	13.8	3.3	15.1	4.1	31.3	3.7	52.8	5.4
Drug abuse/dependence	330	44.4	6.1	11.7	2.7	8.2	2.7	11.8	2.7	12.6	2.4	32.9	4.9	64.6	4.9
Alcohol or drug abuse/dependence	496	36.6	4.8	9.7	2.0	7.1	1.9	11.1	2.2	12.0	2.1	29.4	3.5	56.9	4.3
Composite															
Any disorder	2,757	22.8	1.5	10.1	.8	7.9	.8	5.3	.6	4.5	.8	23.6	1.4	45.0	1.5

12-M DSM-IV Disorder	No. of cases	Mental Health Specialty		General Medical		Human Service		CAM		Juvenile Justice		School Service		Any	
		%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
No Disorder	3,726	6.2	.7	1.7	.2	2.0	.4	1.9	.3	1.2	.4	6.3	.7	14.4	1.0
One Disorder	1,332	12.5	1.4	7.1	.9	4.8	1.1	3.4	.7	2.4	.8	14.0	1.4	31.9	1.9
Two Disorders	672	20.6	2.1	11.2	2.1	7.0	1.2	4.3	.9	2.3	.6	22.9	3.5	44.0	3.2
Three or More Disorders	753	42.7	3.4	14.5	2.2	14.2	2.2	9.6	1.7	10.2	2.1	40.9	2.5	68.7	2.9
Any Anxiety or Mood Disorder	1,873	23.4	2.0	10.1	1.0	8.8	1.0	5.1	.7	3.4	.7	22.8	1.7	44.3	1.8
Any Impulse or Substance Disorder	1,699	28.3	2.2	11.3	1.1	9.6	1.1	6.7	.9	7.0	1.3	30.4	1.8	53.6	2.2
Any Anxiety/Mood and Impulse/Substance Disorder	815	35.0	3.5	12.5	1.5	13.3	1.9	7.5	1.4	7.1	1.5	35.4	3.0	60.6	3.0
Total sample	6,483	13.5	.9	5.4	.4	4.6	.3	3.4	.3	2.6	.5	13.8	.8	27.8	1.1

Table 2

NCS-A Demographic correlates of receiving the type of services in youth

Demographic correlates	Type of service sector that youth received a treatment for a DSM-IV disorder (n=1,725)												Service from any sector among youth with a DSM-IV disorder (n=2,757)	
	Mental Health Specialty		General Medical		Human Service		CAM		Juvenile Justice		School Service		AOR ¹	95% CI
	AOR ¹	95% CI	AOR ¹	95% CI	AOR ¹	95% CI	AOR ¹	95% CI	AOR ¹	95% CI	AOR ¹	95% CI	AOR ¹	95% CI
Sex (Reference: male)														
Female	1.42	.95-2.11	.92	.50-1.67	1.88*	1.09-3.24	1.16	.68-1.96	0.39***	.24-.66	0.49**	.32-.74	0.73*	.57-0.94
Race/Ethnicity (Reference: Non-Hispanic White)														
Hispanic	1.04	.52-2.08	.81	.41-1.60	.66	.23-1.91	.43	.16-1.18	1.14	.49-2.61	.51	.25-1.03	.75	.51-1.12
Non-Hispanic Black	.39**	.22-.70	.64	.31-1.31	1.39	.75-2.59	.36*	.17-.74	.67	.25-1.84	.95	.51-1.75	.63*	.43-.93
Other	.40**	.20-.79	1.55	.70-3.45	.51	.17-1.48	.50	.18-1.33	.69	.21-2.27	.88	.36-2.20	1.17	.49-2.78
Region (Reference: West)														
Northeast	1.2	.62-2.33	.59	.30-1.15	.66	.29-1.53	1.38	.66-2.91	.98	.28-3.39	1.42	.74-2.76	1.01	.67-1.53
Midwest	1.12	.68-1.84	.65	.37-1.12	.89	.51-1.53	.78	.45-1.37	2.32	.88-6.13	1.34	.71-2.53	.86	.56-1.31
South	.74	.38-1.43	.57	.30-1.07	.90	.42-1.94	.40*	.19-.82	1.30	.45-3.78	2.68**	1.47-4.87	.85	.53-1.34
Urbanicity (Reference: Rural)														
Metro	1.08	.64-1.81	0.85	.50-1.43	1.52	.73-3.19	1.51	.52-4.35	.43	.16-1.17	2.50***	1.54-4.08	1.32	.81-2.14
Other	1.48	.89-2.46	0.79	.45-1.40	1.03	.58-1.81	1.57	.52-4.73	.91	.35-2.32	1.41	.82-2.45	1.4	.90-2.16
Parent education (Reference: College+)														
Less than high school	.44***	.24-.82	.91	.33-2.52	2.07	.91-4.70	.40*	.17-.93	1.57	.78-3.16	.74	.42-1.28	.95	.63-1.45
High school	.44***	.27-.71	1.05	.52-2.11	1.14	.65-1.97	.48*	.25-.90	.87	.33-2.29	.95	.57-1.57	.88	.63-1.23
Some college	.50***	.32-.80	1.22	.57-2.60	1.04	.59-1.85	.48*	.24-.95	1.13	.53-2.38	1.01	.66-1.54	1.02	.72-1.43
Live w/ Bio parents (Reference: 2)														
Live w/ no bio parents	2.27**	1.18-4.38	.80	.36-1.79	.63	.27-1.49	.66	.18-2.47	3.62***	1.61-8.14	.87	.50-1.50	2.77***	1.88-4.08
Live w/ 1 bio parents	1.61**	1.07-2.43	.83	.52-1.32	.88	.50-1.56	.85	.44-1.65	1.28	.86-1.92	1.14	.81-1.61	1.76***	1.28-2.43

Demographic correlates	Type of service sector that youth received a treatment for a DSM-IV disorder (n=1,725)												Service from any sector among youth with a DSM-IV disorder (n=2,757)		
	Mental Health Specialty		General Medical		Human Service		CAM		Juvenile Justice		School Service		AOR [†]	95% CI	
	AOR [†]	95% CI	AOR [†]	95% CI	AOR [†]	95% CI	AOR [†]	95% CI	AOR [†]	95% CI	AOR [†]	95% CI			
Birth order (Reference: Oldest)															
Youngest	1.12	.67-1.87	.57*	.34-.96	.92	.47-1.79	.80	.33-1.96	1.26	.51-3.09	1.04	.68-1.59	.97	.61-1.51	
Middle	.84	.47-1.50	.48*	.26-.90	1.06	.60-1.89	1.80	.90-3.59	1.16	.57-2.38	1.17	.79-1.72	.93	.63-1.37	
Poverty index ratio (Reference: >6)															
<=1.5 poor	1.3	.76-2.22	.68	.28-1.66	.55	.27-1.14	.63	.24-1.64	3.51*	1.28-9.61	1.07	.59-1.96	.78	.47-1.27	
<=3	.96	.56-1.66	1.40	.71-2.76	.88	.38-2.05	.97	.44-2.13	1.00	.39-2.54	1.76*	1.06-2.91	.96	.67-1.37	
<=6	1.04	.59-1.84	1.10	.58-2.10	1.08	.60-1.93	.75	.42-1.35	1.95	.99-3.84	.98	.54-1.79	.99	.67-1.45	
Age	.98	.86-1.12	1.00	.84-1.19	1.08	.88-1.32	1.02	.85-1.22	1.40***	1.21-1.61	.99	.87-1.13	.95	.87-1.03	
Number of siblings	1.03	.96-1.10	1.08	.98-1.18	1.09	.98-1.21	0.95	.71-1.27	1.00	.88-1.15	1.02	.95-1.08	1.00	.94-1.06	

[†] Adjusted for all demographic variables shown in the table and number of disorders;

*** p<.001,

** p<.01,

* p<.05