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Racial/Ethnic Differences in the Use of Psychotropic Medication in High-Risk Children and Adolescents

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Abstract

Objectives—To investigate rates of psychotropic medication use by youths served in public service sectors as a function of race/ethnicity.

Method—Logistic regression models were used to examine racial/ethnic differences in caregiver report of psychotropic medication use for a random stratified sample of 1,342 children who were served in public service sectors during the second half of fiscal year 1996–97.

Results—Race/ethnicity predicted caregiver report of past-year and lifetime psychotropic medication use when all other factors were held constant. Specifically, caregivers of African-American and Latino children were less likely to report past-year use compared to white children; caregivers of Latino children and “others” were less likely to report lifetime use. Additional factors predictive of medication use in regression models included younger age, male gender, higher household income, insurance type, active to mental health sector at time of enumeration into the study, impairment and diagnosis of mood, and anxiety or attentional disorder.

Conclusions—Racial/ethnic differences in use of psychotropic medication occur in children served in public service sectors and need to be considered in clinical diagnosis and treatment.

Keywords

psychotropics; pediatrics; race; ethnicity

The 2001 Surgeon's General Report on Mental Health and its supplement, *Mental Health: Culture, Race, and Ethnicity* (U.S. Department of Health and Human Services, 2001) documented serious disparities in mental health services for minorities. Despite similar prevalence rates of mental health disorders among racial/ethnic groups and overrepresentation of minorities in public service sector systems, mental health services for minorities are characterized by lower utilization rates and poorer quality of care (U.S. Department of Health and Human Services, 1999, 2001). These reports focused primarily on adults with mental illness; the knowledge base regarding mental health services for children and adolescents of color is much smaller. In general, a limited number of studies have shown that Latinos and

Asian-Pacific Islanders are underrepresented in public mental health services compared to their numbers in the service-eligible population (Bui and Takeuchi, 1992; Cheung and Snowden, 1990; McCabe et al., 1999). Findings for African-American children have been mixed, with some finding overrepresentation (Bui and Takeuchi, 1992; Cheung and Snowden, 1990; McCabe et al., 1999; Yeh et al., 2002) and others finding underrepresentation (Bussing et al., 1998b; Cuffe et al., 1995; Pumariega et al., 1993).

The findings of psychotropic medication utilization in children show a similar pattern when race/ethnic disparity is examined. Zito et al. (1998) examined state Medicaid prescription drug reimbursement claims for youth aged 5 through 14 years. They found that compared with whites, African-American children with Medicaid insurance showed a distinctly lower rate of treatment with psychopharmacological agents (39% versus 52%).

Stimulant medications represent an important class of psychotropic medication for children and adolescents, given the relatively high prevalence rate (4–12%) of attention-deficit/hyperactivity disorder (ADHD) in school-aged children (Jensen et al., 1999; Szatmari et al., 1989; Wasserman et al., 1998). Several recent studies have reported racial/ethnic differences in rates of stimulant medication prescription patterns and/or care-giver report of use among children with, or at risk for, ADHD (Bussing et al., 1998c; Hoagwood et al., 2000; Safer and Malever, 2000). In a study of special education students in a Florida school district, Bussing et al. (1998c) found that minorities at risk for ADHD were nearly twice as likely to have unmet service needs, including medication treatment. In another study, a statewide school survey of Maryland public school students documented that African-American and Latino students received methylphenidate at approximately half the rate of their white counterparts (Safer and Malever, 2000). A recent report by Rowland et al. (2002) on elementary school children in North Carolina found that compared to white children, the care-givers of African-American (70%) and Hispanic children (30%) were less likely to report use of ADHD medication, even after adjusting for gender, grade, and past diagnosis of ADHD. Hoagwood et al. (2000) found similar discrepancies in medication use in a study on practice patterns using the 1995 National Ambulatory Medical Care Survey (NAMCS). Analyses showed that whites assigned a psychiatric diagnosis were nearly nine times as likely to receive a prescription for stimulant medication compared to others, even when age, gender, length of visit, and insurance coverage were controlled.

These studies identified racial/ethnic disparities in four different samples: children enrolled in Medicaid, special education students, public school students, and participants in the NAMCS. Past research has demonstrated that children served in public sector systems such as child welfare, juvenile justice, and mental health are at increased risk for mental health problems and are more commonly from minority backgrounds (Garland and Besinger, 1997; Garland et al., 1998; Leslie et al., 2000). Research on psychotropic medication use among children with high rates of demonstrated need who are served by public service systems offers an important adjunct to prevalence rates of medication use reported in traditional epidemiological studies and allows further focus on possible disparities.

This report focuses on race/ethnicity as a factor in the reported use of psychotropic medications among high-risk children participating in the Patterns of Youth Mental Health Care in Public Service Systems (POC) study, a longitudinal study of the mental health needs of children served in public service sectors (Garland et al., 2001). The prevalence of psychiatric diagnoses in general in the POC sample was high (54%). Our objectives were to describe rates of past-year and lifetime psychotropic medication use in these high-risk children as a function of demographic, clinical, and system-level factors, with a specific focus on race/ethnicity.

METHOD

Participants

The POC study obtained data on a sample of youths ages 6 through 17 years who were selected from an unduplicated enumeration of children and adolescents served by five publicly funded sectors of care in San Diego County, California (i.e., mental health, alcohol/drug services, child welfare, juvenile justice, and special education services for youths classified as seriously emotionally disturbed) during the second half of fiscal year 1996–97. The sampling frame was stratified based on patterns of single or multiple sector service use, the highest level of restrictiveness of services received, and race/ethnicity. After unduplicating records across agencies, 12,662 eligible youths were identified and a stratified random sample of 3,417 youths was chosen. Of these, 2,626 were located by recruiters. Participants ($N = 1,715$) did not differ significantly from non-participants in age, gender, sector affiliation, or racial/ethnic distribution, except that slightly fewer Asians participated relative to the eligible participants. Analyses were weighted to account for this difference.

Procedures

Procedures for the POC study are discussed elsewhere (Garland et al., 2001). Briefly, administrative data on service use in each of the five sectors were collected on all children. In addition, baseline and 24-month follow-up interviews with caregivers and children were completed between October 1997 and January 1999. Interviews were conducted in the participant's home (87%) after informed written consent/assent was obtained.

Measures

The Andersen-Aday health care access model (Andersen, 1995) was used as a framework for this research. Briefly, the model categorizes independent variables into three categories—predisposing, enabling, and need-related—that potentially influence the dependent variables of interest. Predisposing variables included child sociodemographics (age, race/ethnicity, gender) as reported by the child's caregiver. Enabling variables included household income and child insurance type from the baseline interview. Child involvement in the public mental health sector within 6 months prior to enumeration was culled from county mental health administrative data tapes. Need-related characteristics included child functional impairment and presence of one or more *DSM-IV* diagnoses for which psychotropic medications have been shown to be efficacious, specifically mood, anxiety, and ADHD diagnoses. Impairment was measured by the Columbia Impairment Scale (CIS) (Bird et al., 1993), a 13-item parent-report scale that assesses the extent to which a child experiences impairment across four areas of functioning: interpersonal relations, psychopathology, functioning in work or school, and use of leisure time. Factor analysis has supported the use of the scale as a unidimensional measure of impairment, with a score of 15 or greater indicative of serious impairment and comparable to a Children's Global Assessment Scale (CGAS) clinician score of less than 61. The scale has demonstrated adequate reliability and validity (Bird et al., 1993). Alpha for the current sample was .90.

Diagnoses were evaluated by the use of the Diagnostic Interview Schedule for Children (DISC-IV) (Shaffer et al., 2000), a structured diagnostic instrument with demonstrated reliability (Jensen et al., 1995; Piacentini et al., 1993; Schwab-Stone et al., 1996). Diagnoses were considered present for the child if either caregiver report or child report met full diagnostic criteria on the DISC-IV scoring algorithms and at least one moderate level of diagnostic specific functional impairment was endorsed (except for hypomania, which does not require functional impairment).

The dependent variables, lifetime and past-year psychotropic medication use, were assessed with a battery of questions related to medication use modified from the Services Use and Risk Factors (SURF) Questionnaire developed by the Services Use Committee of the Utilization, Needs, Outcomes and Costs in Child and Adolescent Populations (UNOCCAP) study (P.J. Leaf, Chair, personal communication, Nov. 11, 1996). The UNOCCAP study was to be a national cooperative epidemiological study of the prevalence of mental health disorders and service use for which a great deal of preparatory work was funded in the late 1980s and early 1990s (UNOCCAP Oversight Board, 1998). Parents/care-givers were asked about past-year and lifetime psychotropic medication use for emotional and/or behavioral problems; up to five medications could be given in response. If the respondent answered affirmatively, the interviewer asked for the name of the medication(s), dosage, frequency, cost, and any noted benefits. The interviewer was instructed to view prescription bottles where possible. All answers were reviewed by a behavioral and developmental pediatrician in concert with the project data manager. Thus, responses to the medication questions could include report from the parent or current caregiver and/or information from a prescription bottle.

Analyses

Analyses were conducted using STATA (StataCorp, 2001). Comparisons of means were carried out with one-way analysis of variance (ANOVA), with Bonferroni-corrected follow-up contrasts. Comparisons of proportions used χ^2 tests. In analyzing medication use, variables were simultaneously entered into two logistic regression analyses predicting past-year and lifetime psychotropic medication use, respectively. These regression analyses allowed for calculation of odds ratios for each of the independent variables in the two models, adjusting for the other variables in the models. Prevalence estimates of psychiatric diagnoses and medication use are reported with sampling weights assigned to represent the original population of service users.

Missing Data

Of the 1,715 participants in the POC study, approximately 134 youths were missing medication data and 372 youths were missing DISC-IV data, leaving a total of 1,342 participants for whom medication use, administrative data, diagnostic data, and CIS scores were available. Many youths with missing DISC-IV data ($n = 200$) had Spanish-speaking caregivers, and at the time of the interview a Spanish-language translation of the DISC-IV was not available. To ensure that the results presented in this report were not affected by the exclusion of youths missing DISC-IV data, two additional sets of analyses were run: identical analyses on the entire sample of youths with and without DISC-IV data and on the entire sample excluding the DISC-IV variable in the model. β coefficients and odds ratios in each case were stable, with no values more or less than 15% of the coefficients reported below.

RESULTS

Table 1 displays predisposing and enabling characteristics of children by race/ethnicity. The majority of the children were male, with a mean age of 13.67 years ($SD = 3.3$). Mean household income (reported in thousands per year) was relatively low for the entire sample (\$31,663/year). Sixty percent of caregivers reported that the index child had access to public health insurance, and 7.5% reported no insurance coverage. Over half the sample had been active to the mental health sector for the 6 months prior to the enumeration.

The racial/ethnic distribution of children was as follows: white (48.6%), African American (22.7%), Latino (19.4%), and Other (13.3%). Gender distribution did not vary by race/ethnicity; however, both Latino and Other children were slightly older than white children ($p < .001$). Mean household income differed by race/ethnicity, with caregivers of African-

American and Latino children reporting lower household income compared to whites ($p < .001$). A higher proportion of African-American children (75.9%) had public insurance ($p < .001$). Rates of involvement in public mental health were similar across racial/ethnic groups.

Table 2 presents the need-related characteristics of children by race/ethnicity. Fifty percent of children in the total sample had a caregiver rating of greater than 15 on the CIS. Mean scores on the CIS differed across racial/ethnic groups, with the scores of African-American children lower than those of white and Other children ($p < .001$). Similarly, a large proportion (39.8%) of the total sample met *DSM-IV* criteria for mood/anxiety/ADHD. A higher proportion of white children met *DSM-IV* criteria for mood/anxiety/ADHD diagnoses ($p < .001$).

Table 3 presents the prevalence estimates of medication use as a function of each of the variables examined. Despite the relatively high prevalence of these diagnoses, the overall rate of psychotropic medication use in the past year was low (27.9%), with rates of lifetime use across the sample at 40.8%. For those children who met *DSM-IV* criteria for mood and/or anxiety disorders or ADHD as measured by the DISC-IV, less than half (47.9%) had received medication in the past year and only 61.4% reported lifetime psychotropic medication use.

Table 4 presents the logistic regression results for past-year and lifetime use of psychotropic medication.

With respect to predisposing factors, females were significantly less likely than males to report past-year or lifetime psychotropic medication use. Older age was associated with decreased psychotropic medication use, with the likelihood of medication use in the past year decreasing by a factor of 0.62 for every 3-year increase in age and lifetime use decreasing by a factor of 0.86. Concerning race/ethnicity, African-American and Latino children were 0.59 and 0.46 times as likely to report past-year medication use compared to whites; Latino and Other children were 0.41 and 0.55 times as likely to report lifetime medication use compared to whites.

With respect to enabling characteristics, children from higher-income households were more likely than peers from lower-income households to report past-year and lifetime psychotropic medication use, with the odds of medication use increasing approximately 1.2-fold per \$20,000 difference in reported household income. Those with public insurance were no more likely to report past-year and lifetime psychotropic medication use compared to those with no insurance, while those with private insurance were over twice as likely to report both past-year (odds ratio [OR] = 2.10) and lifetime use (OR = 2.19) compared to those without insurance. Children with involvement in public mental health were nearly three times as likely to report past-year use (OR = 2.78) and lifetime use (OR = 2.59) compared to those without involvement.

In terms of need-related characteristics, impairment as measured by the CIS was associated with a nearly 1.5-fold increase in likelihood of medication use for every 5-point increase on the CIS. Presence of a mood/anxiety/ADHD diagnosis as measured by the DISC increased the likelihood of past-year psychotropic medication use nearly threefold (OR = 2.80) and over twofold (OR = 2.38) for lifetime use.

DISCUSSION

This research focused on race/ethnicity differences in psychotropic medication use in children served in public sector service systems. The primary finding is that African-American and Latino youths had a reduced likelihood of using psychotropic medications compared with white children in regression analyses that controlled for age, gender, income, insurance status, involvement in the public mental health system at enumeration, need, and impairment. While several of these variables showed some interrelatedness with the race/ethnicity variables, the regression analyses indicated that race/ethnicity as a unique variable still demonstrated a

significant impact on use of medication, over and above any shared variance with the other variables included in the model.

The analyses presented here could not address the appropriate use of medication by children of different racial/ethnic backgrounds. The issue of medication overuse versus underuse among children and adolescents has been deliberated in the research literature, with a particular focus on the use of stimulant medications for ADHD (Angold et al., 2000; Jensen et al., 1999). While the research presented here did not focus on the use of stimulants, the question of appropriate use of medication is important in any discussion of differential use by racial/ethnic groups. Both regression models included two independent variables as proxies for appropriateness of medication use (specifically, functional impairment as measured by the CIS, and the presence of a diagnosis for which there is an evidence base for the use of medications). Even when these two factors were controlled for, the analyses generated findings of differential use of medications by race/ethnicity.

In addition, each of the independent variables controlled for in the model was found to predict psychotropic medication use. Older age has been found to correlate with use of mental health services in high-risk children (Garland et al., 1996; Halfon et al., 1992; Leslie et al., 2000), yet older age was associated with less psychotropic medication use in this study. Our findings are consistent with those of Zito et al. (1998), who found decreased use of methylphenidate with increasing age in a Medicaid-eligible sample. Decreased psychotropic medication use in females in the present study is consistent with rates reported in Medicaid samples (Zito et al., 1996, 1997).

With respect to enabling factors, private insurance independently predicted psychotropic medication use. Studies on psychotropic medication use to date have been mixed, with one study finding lower prescription rates (Zito et al., 1998) under managed care plans and another finding higher rates (Hoagwood et al., 2000). An interaction between private insurance and high socioeconomic status may account for the private insurance effect in this subpopulation of children. Not surprisingly, involvement with mental health at enumeration, impairment as measured by the CIS, and the presence of a mood, anxiety, or attentional disorder on the DISC also predicted medication use, indicating that medication use in these children was based on perceived need.

Of primary concern is the cause or causes of the observed lower rates of psychotropic medication use among minority groups. One explanation for discrepant rates could be due to differences in the prevalence of psychiatric conditions. However, studies examining the prevalence of diagnoses among children and adolescents have found comparable (Costello et al., 1996) or in some cases higher (Bird, 1996; Glover et al., 1999; Shaffer et al., 1996; Yeh et al., 2002) rates of psychiatric conditions among African Americans and/or Latinos. Although white children appeared to show higher rates of diagnoses in this sample, this likely does not account for the pattern of findings, as diagnostic status as measured by the DISC was controlled for in analyses.

Other explanatory factors have been postulated to explain the lower use of medication among minorities, such as unequal access to care (Zito et al., 1998). Fewer behavioral pediatricians and child psychiatrists practice in economically disadvantaged neighborhoods (Fossett et al., 1992; Yudkowsky et al., 1990), and poor access to physicians may limit access to psychopharmacological interventions for children. However, in the current study, the majority of children were likely to experience similar socioeconomic-related barriers to accessing treatment. Further, income and insurance status were included in the analyses, and race/ethnicity differences were observed even when these factors were controlled.

Explanations for the discrepant rates of medication use between minorities and whites, apart from access barriers, have also included unequal quality of care received. Disparities have been linked to uneven and/or poor-quality side effect management (Young and Sullivan, 1999), failure to provide psychoeducational information (Bussing et al., 1998a), and high rates of failure to meet minimum standards of treatment (Melfi et al., 1998). Provider biases regarding explanations for behavioral problems and viable treatment options in children from different racial/ethnic backgrounds would also hypothetically affect the quality of care received. This study did not include quality-of-care indicators, so quality of services as an explanatory factor could not be addressed.

Discrepant rates in medication use could be influenced by cultural factors. Different beliefs about the causes of illness and the acceptability of and expectation for treatment by patients of varied cultural backgrounds have been shown to alter diagnostic and treatment patterns for psychiatric disorders (Sussman et al., 1987; Westermeyer, 1987). Parent and/or care-giver beliefs and their impact on efforts to seek care and accept certain treatment plans have not been well studied for child and adolescent mental health disorders.

Cultural factors may also affect acceptance of and adherence to treatment plans proposed by providers (Adebimpe et al., 1982; Hu et al., 1991; Lopez, 1989). Recent studies in the physical health sector demonstrated poorer compliance among minority adults in the treatment of HIV (Mehta et al., 1997) and renal disease (Curtin et al., 1999) and among minority children in the treatment of asthma (Krishnan et al., 2001), even after adjusting for factors such as age, education, employment, access to insurance, and symptom frequency (Krishnan et al., 2001). Similarly, adherence may also relate to the ability of consumers and providers to communicate with one another. The role of language may be particularly crucial in the treatment of mental health conditions, because changes in thoughts and moods that accompany psychiatric disorders are primarily detected by a patient's ability to verbalize what is often nonobservable behavior.

Hypothetically, genetics might also differentially affect the efficacy of psychotropic medications, their side effect profiles, and treatment adherence among children and youths of varied ethnic backgrounds. While not studied in childhood mental health disorders, genetic differences in racial groups with respect to both the efficacy and side effects associated with medications for other medical disorders such as hypertension have been found (Jamerson, 2000). These genetic differences could potentially affect treatment response and adherence. Clearly, each of these factors—unequal access, uneven quality of care, cultural factors, and genetics—deserve further exploration to elucidate mechanisms for addressing differential medication use among children of different racial/ethnic backgrounds.

Limitations

There are five primary limitations of this study. First, this study could not address any of the access, quality, cultural, and genetic factors that may have affected treatments offered to children/families. Second, although involvement in the public mental health sector was an attempt to control for access to services, it is difficult to gauge the degree to which accessibility and appropriateness of services may have played a role in lower rates of medication use. Families may have had access to services through other sources (Burns et al., 1992), such as primary care, private behavioral health plans, community groups, and/or schools, and there is no information regarding the nature of mental health services received. Third, the racial/ethnic categories in this study did not allow for examination of the heterogeneity within each group. Fourth, due to a number of different factors, such as frequently outdated address information and the difficulty of locating potential participants, recruitment of children receiving services and their families was more challenging than anticipated. However, a number of follow-up analyses using administrative data that were available for all children in the sampling frame,

suggest that families participating in the study did not differ from those that were not located or those who refuse to participate. Lastly, this sample represents high-risk children in a single service system area, which may reduce the generalizability of the findings; therefore, estimates of unmet need as a function of race/ethnicity need to be interpreted with caution. However, this study has an important role in documenting disparities among racial/ethnic groups among youths served in public service sector systems.

Clinical Implications

This study examined psychotropic medication use among children served in public sector service systems. The findings indicate that psychotropic medication use is associated with multiple factors, specifically younger age, male gender, private insurance type, elevated household income, and white race/ethnicity. We were not able to separate out the unique aspects of clinician, child, and family factors that might result in these discrepancies. Clinicians who interact on a daily basis with children and families have a unique role to play in disentangling these factors. As clinicians, it behooves us to understand any biases we may bring into the clinician–patient encounter that may lead to selective decision-making regarding medication use and/or referrals to physicians prior to any discussions with a child and/or family member. We also need to initiate discussions with children and families regarding factors that may result in lack of interest in medication use or nonadherence to medication treatment regimens proposed. Findings gleaned from self-reflection and clinician–patient encounters need to be shared with policy makers, administrators, and researchers to identify mechanisms for addressing these differences in medication use.

Conclusions

This study examined psychotropic medication use among children with high rates of demonstrated need. The current findings complement those from community epidemiological studies, documenting a racial/ethnic disparity for the reported past-year and lifetime psychotropic medication use between white and minority children, even when the effects of potential confounds were taken into account. This study was not able to disentangle the potential contributors of the observed disparity. It is likely that the cumulative weight and interplay of a variety of barriers to care, and not any single factor, is responsible for mental health disparities. Further, barriers to care may differ among groups. Characteristics that may mediate the relationship between race/ethnicity and service use, such as access and quality of care issues, cultural factors, and genetics, need to be addressed in future studies to allow for the delivery of services most responsive to the needs of racial and ethnic minorities.

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TABLE 1

Predisposing and Enabling Characteristics by Ethnicity for Children Active to Public Service Sectors

	White <i>n</i> = 598 (48.6%)	African American <i>n</i> = 304 (22.7%)	Latino <i>n</i> = 262 (19.4%)	Others <i>n</i> = 178 (13.3%)	Total <i>n</i> = 1,342 (100%)
Predisposing characteristics					
Gender (% male)					
Age (years) ^a					
6–12	399 (66.7%)	181 (59.5%)	176 (67.4%)	119 (67.2%)	875 (65.3%)
13–15	13.11 [3.42]	13.68 [3.24]	14.39 [3.12] ^b	14.46 [2.87] ^b	13.67 [3.30]
16–18	265 (44.3%)	102 (33.4%)	71 (27.2%)	43 (24.2%)	481 (35.8%)
Enabling characteristics					
Income ^a					
<\$20,000	125 (20.9%)	74 (24.3%)	63 (24.1%)	48 (27.0%)	310 (23.1%)
\$20,000–\$39,999	208 (34.8%)	129 (42.3%)	127 (48.7%)	87 (48.9%)	551 (41.1%)
\$40,000–\$59,999	35,875 [30.94]	27,701 [28.07] ^b	27,252 [23.33] ^b	30,728 [28.57]	31,663 [28.57]
≥\$60,000	231 (38.6%)	141 (23.6%)	115 (19.2%)	111 (18.6%)	605 (45.1%)
Insurance type ^c					
No insurance	157 (51.6%)	79 (26.0%)	35 (11.5%)	33 (10.9%)	323 (24.1%)
Government program	142 (54.6%)	54 (20.8%)	28 (10.8%)	36 (13.8%)	206 (15.4%)
Private insurance	75 (42.1%)	49 (27.5%)	28 (15.7%)	26 (14.6%)	206 (15.4%)
Active to MH sector					
	38 (6.5%)	7 (2.4%)	35 (13.9%)	18 (10.7%)	98 (7.5%)
	308 (52.6%)	223 (75.9%)	162 (64.5%)	87 (51.8%)	780 (60.0%)
	240 (41.0%)	64 (21.8%)	54 (21.5%)	63 (37.5%)	421 (32.4%)
	335 (56.0%)	152 (49.8%)	138 (52.9%)	100 (56.5%)	725 (54.1%)

Note: Weighted percentages. Values in brackets represent standard deviation. MH = mental health.

^a *p* < .001, *t* test.

^b *p* < .001 vs. white, Bonferroni correction.

^c *p* < .001, χ^2 test.

TABLE 2
Need-Related Characteristics by Ethnicity for Children in Public Service Sectors

Need-Related Characteristics	White <i>n</i> = 598 (48.6%)	African American <i>n</i> = 304 (22.7%)	Latino <i>n</i> = 262 (19.4%)	Others <i>n</i> = 178 (13.3%)	Total <i>n</i> = 1,342 (100%)
Impairment: CIS ^a	16.52 [10.0]	13.11 [10.09] ^b	15.63 [10.92]	16.25 [10.77] ^c	15.53 [10.40]
Caregiver rating >15	327 (55.6%)	124 (40.9%)	124 (48.4%)	91 (51.7%)	666 (50.3%)
Mood/anxiety and/or ADHD diagnosis ^d	283 (47.3%)	101 (33.1%)	94 (36.0%)	56 (31.5%)	534 (39.8%)

Note: Weighted percentages. Values in brackets represent standard deviation. CIS = Columbia Impairment Scale; ADHD = attention-deficit/hyperactivity disorder.

^a *p* < .001, *t* test.
^b *p* < .001 vs. white, Bonferroni correction.
^c *p* < .05 vs. African American, Bonferroni correction.
^d *p* < .001, χ^2 test.

TABLE 3

Past-Year and Lifetime Use of Psychotropic Medication by Characteristics for Children Active to Public Service Sectors

	Past-Year Use		Lifetime Use	
	<i>n</i>	%	<i>n</i>	%
Total	363	27.9	522	40.8
Predisposing characteristics				
Gender				
Male	288 ^a	32.9	389 ^a	45.0
Female	86	18.5	153	33.5
Age (years)				
6–12	176 ^b	36.6	205 ^a	43.3
13–15	99	32.0	145	47.2
16–18	99	18.0	192	35.4
Ethnicity				
White	227 ^a	38.0	307 ^a	51.9
African American	59	19.3	96	32.1
Hispanic	49	18.8	72	28.5
Others	39	22.0	66	37.3
Enabling characteristics				
Income				
<\$20,000	140 ^a	23.2	212 ^a	25.0
\$20,000–\$39,999	85	26.3	125	38.7
\$40,000–\$59,999	70	34.5	94	45.4
≥\$60,000	79	38.3	110	53.4
Insurance type				
No insurance	14 ^a	14.3	25 ^a	25.8
Government program	205	26.3	276	36.0
Private insurance	145	34.4	276	51.4
Active to MH sector				
No activity	99 ^a	16.1	168 ^a	27.6
Activity	275	37.9	374	52.5
Need-related characteristics				
Impairment: CIS				
Adult rating ≤15	88 ^a	13.4	141 ^a	21.6
Adult rating >15	280	42.0	388	59.2
Mood/anxiety/ADHD diagnosis				
No diagnosis	119 ^a	14.7	221 ^a	27.7
Diagnosis present	255	47.9	320	61.4

Note: Weighted percentages. MH = mental health; CIS = Columbia Impairment Scale; ADHD = attention-deficit/hyperactivity disorder.

^a $p < .001$.

^b $p < .05$.

TABLE 4
Regression Analyses of Psychotropic Medication Use for Children Active to Public Service Sectors

	Past-Year Use		Lifetime Use	
	OR	(95% CI)	OR	(95% CI)
Demographic factors				
Age (per 3-yr increase)	0.62 ^c	(0.57, 0.67)	0.86 ^a	(0.79, 0.93)
Gender (1 = male)	0.40 ^c	(0.28, 0.58)	0.69 ^a	(0.49, 0.97)
Ethnicity (1 = white)				
African American	0.59 ^a	(0.36, 0.96)	0.69	(0.46, 1.04)
Latino	0.46 ^b	(0.27, 0.77)	0.41 ^c	(0.25, 0.68)
Others	0.58	(0.33, 1.01)	0.55 ^a	(0.32, 0.93)
Income (per \$20,000/yr increase)	1.20 ^b	(1.13, 1.28)	1.19 ^b	(1.13, 1.25)
Enabling factors				
Insurance (1 = no insurance)				
Government program	1.71	(0.65, 4.53)	1.48	(0.75, 2.91)
Private insurance	2.10 ^a	(0.75, 5.87)	2.19	(1.10, 4.37)
Active to MH sector (1 = no activity)	2.78 ^c	(1.92, 4.02)	2.59 ^c	(1.91, 3.52)
Clinical factors				
Mood, anxiety, ADHD (1 = diagnosis present)	2.80 ^c	(1.97, 4.00)	2.38 ^c	(1.70, 3.31)
CIS (per 5-point increase)	1.47 ^c	(1.40, 1.54)	1.45 ^c	(1.38, 1.52)

Note: OR = odds ratio; CI = confidence interval; MH = mental health; ADHD = attention-deficit/hyperactivity disorder; CIS = Columbia Impairment Scale.

^a $p < .05$.

^b $p < .01$.

^c $p < .001$.