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Mental Health Service Use Among Adolescents Experiencing Emotional/Behavioral Problems and School Impairment

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Abstract

Mental health service utilization research is needed for students who are likely to receive school mental health services, yet little research exists for adolescents experiencing emotional/behavioral problems and school impairment. This study addressed this gap using secondary data analyses conducted on baseline data from a large trial testing school-based interventions for high school students (*n* = 647) experiencing emotional/behavioral problems and school impairment. Analyses examined the number and type (community-based or school-based psychosocial, inpatient, pharmacological treatment) of services used, and sociodemographics associated with services. Sixty-nine percent had received at least one service for their emotional/behavioral problems prior to the study, with nearly half of those having only received a single service. Community-based psychosocial and pharmacological treatments were most common. White adolescents and those in special education were more likely to have received services, particularly community-based and pharmacological treatment. On average, adolescents had not received any services until early adolescence. Findings add to increasing literature on the current status of service use among adolescents with emotional/behavioral problems and the potential for schools to increase access for those in need.

Keywords

school mental health, adolescence, emotional/behavioral problems, intervention, school impairment

Although many variables may affect the prevalence of mental health disorders (e.g., assessment tool), approximately 20% of adolescents in the United States have a diagnosable emotional or behavioral health concern impairing functioning at home, at school, or in social settings (Ghandour, Kogan, Blumberg, Jones, & Perrin, 2012; Merikangas et al., 2010). Despite the availability of evidence-based programs and practices addressing emotional/behavioral health concerns (Weisz, Jensen-Doss, & Hawley, 2006; Weisz, Weiss, Han, Granger, & Morton, 1995), less than one third of youth in need of treatment receive services (Leaf et al., 1996; Merikangas et al., 2011). The gap between those in need and those who receive services is unfortunate; unmet mental health needs place youth at risk for experiencing impairment in successful school functioning, like poor attendance, disciplinary referrals, and suspensions and poor grades which decrease the likelihood of educational attainment (Brooks, Harris, Thrall, & Woods, 2002). Moreover, these unmet needs increase the likelihood of poor outcomes across the life span (e.g., chronic health and mental health challenges, substance abuse) and ultimately premature mortality (Brooks et al., 2002; Halfon & Newacheck, 1999).

In addition to the individual consequences, unmet mental health needs place unnecessary and substantial socioemotional and financial burdens on families and communities. The President's New Freedom Commission on Mental Health (2003), the U.S. Department of Health and Human Services (1999), the U.S. Department of Education (S. 1177—114th Congress: Every Student Succeeds Act, 2015), and National Research Council and the Institute of Medicine (2009) have all called for schools to increase their early intervention and treatment efforts for preventing the trajectory of poor outcomes (Shonkoff et al., 2012). This may be related to schools being the most likely context for identifying and providing

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supports or connecting youth to other mental health sectors (Farmer, Burns, Phillips, Angold, & Costello, 2003).

Underutilization of mental health services among adolescents is posited to have declined due to increases in schools as the key sector for mental health service provision. However, existing epidemiological studies of service use patterns may not reflect increases in school-based service delivery. Thus, less is known about service use for the students for whom school mental health services may reach, namely, those with emotional/behavioral problems and school impairment. First, many community studies include youth in the general population meeting criteria for a specific mental health diagnosis, often relying on solely on *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV*; American Psychiatric Association, 1994) diagnostic criteria (Farmer et al., 2003; Merikangas et al., 2011; Wu et al., 1999) which neglect characteristics that schools often use to identify adolescents for school mental health services, such as socioemotional behavioral screening tools and indicators of school functioning (e.g., attendance, referrals, failing grades) which may signal school impairment (Langer et al., 2015). Second, few studies have primarily focused on schools as the context for sampling adolescents with emotional/behavioral problems in spite of schools being an important setting for identifying impairment. A study conducted by Green and colleagues (2013) is an exception as a school-based sample of students with mental health disorders was utilized to examine service use. They found that nearly half the students in the sample received mental health services; factors such as having received early intervention predicted service use but factors related to resources in school, such as ratio of mental health professionals to students, was not significantly associated with service use. However this study relied on *DSM-IV* diagnosis and data from more than a decade ago to examine school-level factors that are associated with service use within a 12-month period, which limits the scope of understanding service use to those with a clinical diagnosis. Because school-based identification and services for child and adolescent mental health problems have grown in the last two decades and previous literature is limited in key areas (e.g., considering a sample of only *DSM-IV*-diagnosed students), further examination of service use among adolescents with emotional/behavioral problems and school impairment is warranted.

In addition to the existing studies perhaps not generalizing to the school context, these large-scale studies examining a broad range of emotional/behavioral problems and disorders have relied on data collected 10 to 20 years ago even though published in recent years (Farmer et al., 2003; Langer et al., 2015; Merikangas et al., 2010). These studies also often rely on young adolescent populations rather than those in high school (Farmer et al., 2003). In addition, studies have failed to examine history of service use among adolescents and neglect to report the age at which youth first received mental health services, which may skew our understanding of the number of services adolescents with emotional/behavioral problems and school impairment may have received. Developmental age at which services are received is important not only for improving early intervention efforts but also to understand when youth are likely to receive services; for example, recent research has shown service use may decline around age of 14 or 15 years (Ringeisen et al., 2016). Thus, much remains to be known about service utilization among youth most likely to receive school mental health services (Green et al., 2013; Langer et al., 2015), particularly high school–aged youth experiencing emotional/behavioral problems and school impairment.

To improve service delivery to ensure access and service receipt of adolescents in need, it is important to understand the characteristics of adolescents that have been most associated with not receiving care (Greenberg, Domitrovich, & Bumbarger, 2001; Soni, 2009). Indeed, existing epidemiological studies suggests service use varies widely based on characteristics of youth and families (Ghandour et al., 2012; Kataoka, Zhang, & Wells, 2002; Leaf et al., 1996; Merikangas et al., 2011). Sociodemographic and symptom characteristics have been shown to correlate with service utilization, including gender (Zwaanswijk, Van der Ende, Verhaak, Bensing, & Verhulst, 2003), age (Cohen & Hesselbart, 1993), race/ethnicity (Alegria et al., 2002; Ghandour et al., 2012), parent educational level (Farmer et al., 2003), community rurality (Ghandour et al., 2012) and diagnosis (Essau, 2005; Farmer et al., 2003; Merikangas et al., 2011). Specifically, this body of research has found that students who are older (17 or older) and female, low-income, of minority background (particularly Latino/a or African American) and living in rural/urban areas have decreased access and underutilization of services (Cohen & Hesselbart, 1993; Ghandour et al., 2012; Zwaanswijk et al., 2003). Although we suspect similar risks for youth identified by schools and without diagnoses (*DSM-IV*), these findings cannot be generalized to broader school categories of students' experience of emotional/behavioral problems. Understanding the extent to which these sociodemographic characteristics influence service use among adolescents recommended for school mental health services due to their emotional/behavioral problems and school impairment is critically important for understanding the reach of schools in providing services to those who would have otherwise not received care.

The purpose of the current study was to document service utilization among high school students identified by schools as experiencing emotional/behavioral problems and school impairment warranting services provide by a federally funded trial. The first aim was to provide a descriptive overview of service use including number, and type (community-based psychosocial, school-based psychosocial, pharmacological, inpatient) of mental health services received. We also examined the nature of service use by user sociodemographic characteristics that have been shown to be relevant to service use in nonschool-based samples, including gender, race, special education classification, school community, family income, and level of maternal education (Cohen & Hesselbart, 1993; Ghandour et al., 2012; Zwaanswijk et al., 2003). The second aim was to determine the age at which participants first received services and whether this varied as a function of sociodemographic variables. Previous literature on age has shown that youth over the age of 17 years are far less likely to receive services but age of onset of service and interactions with sociodemographics remain unexamined (Cohen & Hesselbart, 1993).

Method

Participants

The current study used data collected from the Center for Adolescent Research in Schools (CARS)—grant funded by the Institute for Education Sciences, U.S. Department of Education, to develop and test interventions for youth with severe social, emotional and behavioral problems experiencing school impairment (Kern, Evans, & Lewis, 2011; Kern, George, & Weist, 2016). Participants include 647 students who met CARS eligibility criteria and provided consent for participation (66.50% male, *n* = 430; 33.50% female, *n* = 217. Twenty-one students (3.25%) were in eighth grade, 295 (45.60%) were in ninth grade, 236 (36.48%) in 10th grade, 90 (13.91%) in 11th grade, and the grade for five students (.77%) was missing. Approximately half (48.50%; *n* = 314) were identified as having a special education label and 50.20% (*n* = 325) did not (data were missing for 8 students or 1.2%). Among the 314 students with special education labels, the most frequent primary disability category, as indicated on the students' Individualized Education Plan was learning disability[1] for which half of the students in special education were identified (*n* = 156, 49.68%), followed by emotional disturbance (*n* = 80, 25.48%), other health impairment (*n* = 60, 19.11%), and other (*n* = 15, 4.78%); data for 3 students (.96%) were missing. Among those who had received any previous service for their emotional/behavioral problems, the mean age of first received service was 11.60 to 13.40 years, depending on the type of service used (we describe this later in study results). The majority were White/Caucasian (52.10%; *n* = 337), followed by Black/African American (38.60%; *n* = 250), Hispanic/Latino (5.30%; *n* = 34), bi-racial (2.78%, *n* = 18), Asian (0.50%, *n* = 3), Native American/Alaskan (0.30%; *n* = 2), and Middle Eastern (.20%, *n* = 1); ethnicity was missing for two students. Family income was reported as US$0 to US$20,000 annually for approximately one third of the sample (35.10%; *n* = 227), US$20,000 to US$40,000 for slightly less than one-third (30.90%; *n* = 200), and income exceeded US$40,000 for the remaining portion (29.4%; *n* = 190); income data were missing for 4.6% of families (*n* = 30). Participant demographic characteristics were representative of the areas in which the study collected data.

Measures

Sociodemographic characteristics. Demographic information was collected from the parent through a form developed for the study requesting participant age, ethnicity, gender, and special education status, as well as income, number of individuals living in the home, and maternal caregiver's educational level.

Lifetime mental health service use. Service use information was collected from two parent-report measures to identify community-based psychosocial, school-based psychosocial, pharmacological, and inpatient services that students had received in their lifetime.

Three sections of the *Services Assessment for Children and Adolescents* (Hoagwood et al., 2000) were administered to parents capturing inpatient, outpatient and school-based services, type of service the child had received (e.g., ever stayed overnight in a residential treatment center/detention center or jail/emergency shelter; ever received outpatient help or treatment from a community mental health center/psychiatrist/probation officer), when the service started, and when it ended. Validity has indicated high concordance (kappas = 0.50–1.0) among reporters and medical records (Hoagwood et al., 2004) and adequate test–retest reliability for parent report (kappas = 0.82–0.94) are established (Hoagwood et al., 2004).

Two categories of the *Services for Children and Adolescents–Parent Interview* (SCAPI; Hoagwood et al., 2004) were administered to parents and captured pharmacological treatment and other services students received during out of school time. Adequate test–retest reliability (kappas = 0.49–1.0), overall kappa value for all services of 0.97 exists; seven of 10 service types had values of 0.75 or higher, indicating excellent reliability (Hoagwood et al., 2004).

Mental health service use data were summed resulting in an overall number of services used by each student and each of the four types of services used (community-based psychosocial, school-based psychosocial, pharmacological, and inpatient).

Procedures

One staff member from each school (e.g., counselor, administrator, or special education teacher) acted as a liaison to facilitate the identification of no more than 25 students who (a) would be attending ninth to 11th grade and (b) exhibited serious emotional, and/or behavioral problems. After students were identified, the school liaison contacted parents, requested permission for CARS staff to contact them, and interested parent(s) and his or her adolescent met with CARS staff to secure consent and assent for screening and participation. Students had to demonstrate significant impairment in social, emotional, or behavioral functioning and school functioning based on screening measures. A parent/guardian, a school staff member most familiar with the student, or the student himself or herself reported on functioning on three standardized assessments. Students met symptom severity criteria if they had a score at or above the at risk cutoff score: (a) a *T*-score of 60 or higher on either internalizing or externalizing composites of the *Behavior Assessment System for Children Second Edition*, Teacher or Parent Version (BASC-2; C. R. Reynolds & Kamphaus, 2004), (b) a *T*-score of 60 or higher self-reported on the *Multidimensional Anxiety Scale for Children Second Edition* (MASC-2; March, 1998), or (c) a *T*-score of 60 or higher self-reported on the *Reynolds Adolescent Depression Scale 2* (RADS-2; W. M. Reynolds, 2002).

Students meeting criteria on at least one of the standardized assessments were then evaluated to determine whether they met criteria for impairment in school functioning, met on two of the following: (a) 4+ office referrals/behavioral infractions across the semester prior to enrollment or five or more in any month of the current semester, (b) 5+ absences (other than illness) or tardiness to class during any month of the current or previous semester, (c) 2+ in- or out-of-school suspensions in the current academic year, or (d) 1+ Fs or two or more Ds in a core academic subject in one of two most recent grading periods. Performance during previous semesters was considered because some students were screened during the summer. Students were not eligible to participate if they were diagnosed with autism spectrum disorder or had an IQ below 70 because they were unlikely to benefit from the treatments being evaluated in CARS. Finally, students had to have at least one parent/guardian who could complete assessments in English.

Assessment data collected during baseline were used for the current study. All assessments were administered by trained research assistants, usually in person in the child's home or school, or occasionally a neutral location (e.g., library) but in some cases by mailing the assessment packet to parents who were unable to meet. Study procedures were approved by participating university Institutional Review Boards in all five states.

Data Analysis

Descriptive analyses (frequencies and percentages) for lifetime mental health service use are reported for number of services received, duration of services, and types of services received (i.e., community-based psychosocial, school-based psychosocial, pharmacological treatment, inpatient) based on sociodemographic characteristics. Logistic regression analyses were conducted to determine whether there were statistically significant differences in lifetime service use based on sociodemographic characteristics. Specifically, they examined both the likelihood of having received any services based on the set of sociodemographic characteristics and likelihood of having received particular types of mental health services based on sociodemographic characteristics. Age of first service use was also described using frequencies and percentages based on type and duration of service and sociodemographic characteristics.

Results

Mental Health Service Use

Data regarding frequency of mental health service use indicated that 68.78% (*n* = 445) of the students in the current study received at least one service for their emotional/behavioral problems prior to being identified for the study. Among those students who had received services for their emotional/behavioral needs, 44.04% (*n* = 196) reported having only received a single service, 26.97% (*n* = 120) received two services, 15.73% (*n* = 70) had received three services, 8.99% (*n* = 40) received four services, and 4.27% (*n* = 19) had received more than four services.

Among the students who had received mental health services for their emotional/behavioral problems at some point in their lifetime prior to the study, the majority received a community-based psychosocial service (*n* = 331; 74.38%) or pharmacological treatment (*n* = 315; 70.79%), and about one-fourth of students had received a school-based psychosocial service (*n* = 127; 28.54%) or inpatient care (*n* = 100; 22.47%). Note that percentages exceed 100 because some students received more than one type of service.

Regarding duration of service use, among those reporting having used a community-based service, 29.00% of students (*n* = 96) received services for less than a year, 22.05% (*n* = 73) received services for about 1 year, 23.26% (*n* = 77) received services for 2 to 3 years, and 25.08% (*n* = 83) reported 4 or more years of services (range: 1 month to 14 years). Duration of school-based services was reported for only one third of youth. During baseline data collection, we found that parents were uncertain of the type of school-based services their child had previously received or was currently receiving. Those parents who were able to describe school-based services (37 of 127; 29%) indicated that 24.32% of students (*n* = 9) received services for less than 1 year, 43.24% (*n* = 16) received about 1 year, 18.92% (*n* = 7) received services for 2 to 3 years, and 13.51% (*n* = 5) reported 4 or more years of school-based services (maximum: 9 years). Among students who had received inpatient services, the majority had only used inpatient services once in their lifetime (72.00%; $n = 72$), 22.00% ($n = 22$) reported having used inpatient services twice in their lifetime, and 8% of students ($n = 8$) reported using three or four inpatient services. About half of students who received pharmacological treatments reported using only one medication ($n = 152$; 48.25%), 22.22% ($n = 70$) reported two medications, 13.96% ($n = 44$) used three medications, and 15.56% ($n = 49$) used four or more medications for their emotional/behavioral problems in their lifetime.

Service Use and Sociodemographic Characteristics

Descriptive statistics for parent report of their adolescent's lifetime mental health service use by sociodemographic variables, including gender, race/ethnicity, general versus special education and specific special education classification, school community rurality, family income, and maternal education level can be seen in Table 1.

Logistic regression analyses were conducted to examine which sociodemographic characteristics were associated with receiving mental health services. The logistic regression model was statistically significant, indicating that the sociodemographic predictors as a set reliably distinguished between students receiving services versus those who had not ($\chi^2 = 44.45$, $df = 4$, $p < .001$). The model correctly classified 76.3% of the sample overall, with the Wald statistic indicating a significant contribution of child ethnicity ($\chi^2 = 18.09$) and education classification ($\chi^2 = 22.85$) predicting receipt of mental health services (both at $p < .001$). The predicted odds values indicated that White students were 2.5 times more likely to have received services in their lifetime than students who were not White, and that students with a Special Education classification were 3 times more likely to have received services in their lifetime than students in General Education.

Logistic regression analyses were also conducted to examine the likelihood of having received specific types of services based on sociodemographic characteristics. For community-based psychosocial services, the logistic regression model was statistically significant, indicating that the set of sociodemographic predictors reliably distinguished between students receiving community services versus those who had not ($\chi^2 = 32.25$, $df = 4$, $p < .001$). The model correctly classified 62.4% of the sample overall, with the Wald statistic indicating a significant contribution of child ethnicity ($\chi^2 = 13.48$) and education classification ($\chi^2 = 14.11$) on the prediction of having received community services (both at $p < .001$). The predicted odds values indicated that White students were 2 times more likely to have received community-based psychosocial services in their lifetime than students who were not White, and that students with a Special Education classification were 2 times more likely to have received community-based psychosocial services in their lifetime than students in General Education.

For school-based psychosocial services, the logistic regression model was not statistically significant, indicating that the sociodemographic predictors as a set did not reliably distinguish between students who received school psychosocial services versus those who had not ($\chi^2 = 2.77$, $df = 4$, $p > .05$).

For having received pharmacological treatment, the logistic regression model was statistically significant, and indicated that the sociodemographic predictors as a set reliably distinguished between students who had received pharmacological treatment versus those who had not ($\chi^2 = 91.01$, $df = 4$, $p < .001$). The percentage of correctly classified cases was 67.1% of the sample overall, with the Wald statistic indicating a significant contribution of child ethnicity ($\chi^2 = 21.4$) and education classification ($\chi^2 = 55.26$) on prediction of having received services (both at $p < .001$). The predicted odds values indicated that students who were White were 2.5 times more likely to have received pharmacological treatment for their psychosocial needs than students who were not White, and that students with a Special Education classification were more than 4 times more likely to have received pharmacological treatment for their psychosocial needs than students in General Education.

The logistic regression model predicting the likelihood of having received inpatient services from the sociodemographic characteristics was not statistically significant, indicating that the set of predictors did not reliably distinguish between students who had received inpatient treatment versus those who had not ($\chi^2 = 7.10$, $df = 4$, $p > .05$).

Age of First Mental Health Service

Descriptive statistics for age of first service used for emotional/behavioral problems can be seen in Table 2. Data indicated the average age of first service use was 11.6 years for community psychosocial, 13.4 years for school-based psychosocial, 11.6 years for pharmacological, and 12.7 years for inpatient services. Multivariate analyses of variance were conducted to examine differences in age of first service use for types of services and differences were not significant. Multivariate analyses of variance were also conducted to examine differences in age of first service use for types of services based on sociodemographic characteristics. Results indicated no significant difference in age of first service based on any sociodemographic characteristic (see Table 2).

Discussion and Conclusion

Findings from the current study examining mental health service use among high school age adolescents with emotional/behavioral problems and significant school impairment suggest important information about use of services for adolescents likely to access school mental health services. The sample in the current study differs from previous research on service use, which primarily focused on

Table 1. Lifetime Mental Health Services Used by Sociodemographic Characteristics.

	Gender		Ethnicity				Education placement		Specific disability			
	Female	Male	White	African American	Hispanic	Other	Special education	General education	LD	OHI	ED	Other
	(*n* = 201)	(*n* = 386)	(*n* = 305)	(*n* = 225)	(*n* = 30)	(*n* = 22)	(*n* = 277)	(*n* = 311)	(*n* = 119)	(*n* = 48)	(*n* = 59)	(*n* = 15)
Service type	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)
Community-based	109 (54.2)	222 (57.5)	197 (64.6)	104 (46.2)	14 (46.7)	13 (59.1)	177 (63.9)	154 (49.5)	61 (51.3)	37 (77.1)	48 (81.4)	8 (53.3)
School-based	54 (26.9)	73 (18.9)	62 (20.3)	49 (21.8)	11 (36.7)	4 (18.2)	66 (23.8)	61 (19.6)	25 (21)	8 (16.7)	20 (33.90	3 (20)
Pharmacological	91 (45.3)	224 (58)	195 (63.9)	89 (39.6)	14 (46.7)	14 (63.6)	196 (70.8)	119 (38.3)	74 (62.2)	43 (89.6)	46 (78)	9 (60)
Inpatient	47 (23.4)	93 (24.1)	85 (27.9)	47 (20.9)	3 (10)	2 (9.1)	74 (26.7)	66 (21.2)	19 (16)	15 (31.3)	26 (44.1)	3 (20)
	School community			Family income					Maternal education			
	Rural	Suburban	Urban	0–20,000	20,001–40,000	40,001–60,000	60,001–0,000	80,001+	Without HS diploma	HS graduate	Some college education	College graduate
	(*n* = 202)	(*n* = 214)	(*n* = 138)	(*n* = 211)	(*n* = 184)	(*n* = 87)	(*n* = 44)	(*n* = 45)	(*n* = 107)	(*n* = 198)	(*n* = 202)	(*n* = 86)
Service type	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)
Community-based	122 (60.4)	117 (54.7)	76 (55.1)	107 (50.7)	107 (58.2)	54 (62.1)	30 (68.2)	22 (48.9)	50 (49)	100 (54.9)	108 (56.3)	73 (65.2)
School-based	53 (26.2)	42 (19.6)	25 (18.1)	49 (23.2)	39 (21.2)	13 (14.9)	10 (22.7)	13 (28.9)	19 (18.6)	42 (23.1)	45 (23.4)	21 (18.8)
Pharmacological	122 (60.4)	116 (54.2)	59 (42.8)	104 (49.3)	99 (53.8)	50 (57.5)	32 (72.7)	23 (51.1)	44 (43.1)	104 (57.1)	102 (53.1)	65 (58)
Inpatient	46 (22.8)	42 (19.6)	40 (29)	53 (25.1)	46 (25)	21 (24.1)	10 (22.7)	5 (11.1)	23 (22.5)	47 (25.8)	45 (23.4)	25 (22.3)

Note. LD = learning disability; OHI = other health impairment; ED = emotional disturbance; HS = high school.

Table 2. Age of First Mental Health Service Used for Four Types of Services.

	Average first age of services			
	Community-based psychosocial	School-based psychosocial	Pharmacological	Inpatient
Treatment categories	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
All students	11.6 (3.5)	13.4 (2.9)	11.6 (3.5)	12.7 (3.6)
Gender				
Girls	12.0 (3.2)	12.9 (2.8)	12.0 (3.3)	12.7 (3.4)
Boys	11.4 (3.5)	13.8 (3.0)	11.4 (3.6)	12.5 (3.8)
Ethnicity				
White	16.6 (3.5)	13.8 (2.4)	11.7 (3.4)	12.7 (3.7)
African American	11.4 (3.4)	12.7 (3.8)	11.4 (3.6)	12.9 (2.8)
Hispanic	12.1 (2.8)	14.7 (1.5)	12.1 (2.4)	10.0 (3.5)
Other	11.8 (3.7)	13.3 (1.3)	10.7 (4.6)	14.0 (4.2)
Income				
0 to 20,000	11.7 (3.4)	13 (2.9)	11.1 (3.6)	12.1 (4.1)
20,001 to 40,000	11.5 (3.3)	14.8 (2.4)	12.3 (3.4)	12.4 (3.6)
40,001 to 60,000	11.9 (3.5)	12.9 (4.0)	11.7 (3.5)	13.5 (2.1)
60,001 to 80,000	11.1 (3.9)	11.5 (2.1)	10.0 (3.4)	11.8 (2.8)
80,001+	11.1 (3.9)	13 (3.2)	12.0 (3.2)	14.4 (1.1)
Maternal education				
Without HS diploma	12.4 (3.0)	12.6 (3.2)	16.0 (3.4)	11.3 (4.4)
HS graduate	11.6 (3.7)	13.8 (2.5)	12.2 (3.4)	12.6 (3.6)
Some college	11.4 (3.3)	13.6 (3.4)	11.3 (3.8)	13.1 (3.2)
College graduate	11.1 (4.0)	13.4 (3.3)	10.7 (3.2)	13.4 (2.3)
Educational placement				
Special education	11.1 (3.6)	12.8 (3.3)	11.5 (3.5)	12.6 (3.5)
General education	12.2 (3.3)	14.3 (2.2)	11.6 (3.6)	12.9 (3.3)
Special education label				
Learning disability	11.7 (3.4)	13.0 (3.0)	11.9 (3.8)	10.9 (4.6)
Other health impairment	11.4 (3.5)	11.2 (2.8)	10.9 (2.5)	12.3 (3.4)
Emotional disturbance	10.8 (3.3)	13.4 (3.0)	11.8 (3.4)	13.8 (2.3)
Other	10.3 (3.9)	16.0 (0)	11.0 (3.4)	11.7 (4.0)

Note. HS = high school.

students who have already received psychiatric diagnoses (Farmer et al., 2003; Merikangas et al., 2011; Wu et al., 1999). Based on referral procedures, our sample consists of students with emotional and behavioral problems that school staff found most concerning and challenging. And given that half of the students in our sample were not identified by their school as having a disability, the sample may be more representative of the general population of adolescents with emotional/behavioral problems challenging our public high schools than samples studied in previous research. Understanding the rates and types of service use among the current sample may more directly assist us in arranging future services for students who are likely to be served by school mental health services.

Results indicated that 69% had received mental health services at some time during their lifetime for their emotional/behavioral problems. These data are higher than previous research examining service use rates among other populations of youth, which has generally indicated fewer than one third (Leaf et al., 1996; Merikangas et al., 2011) to as high as about half of youth with mental health problems having received services in their lifetime (Farmer et al., 2003). One variable that might account for these differences is the older age group of students in the current study. Because our sample consisted only of high school age students, they had a greater opportunity to access services than a sample including younger students. Still, data indicate that 31% of our sample never received mental health services for their emotional/behavioral problems, despite significant challenges that had contributed to impairment in their school functioning. Further, students in the current sample continued to experience significant difficulties at the time of referral, suggesting the services that these students had received may have been either inappropriate or insufficient. Another relevant variable might be the age at which students had first used mental health service(s). Our sample indicated students had first received services at a mean age of 11.60 to 13.40 years, depending on the service type. The relatively late age of first services may suggest the absence of preventive interventions and supports the premise that referral generally occurs after behaviors have become serious. Perhaps effective services are not getting to children and adolescents who need them and not getting to them early enough if these youth were experiencing emotional/behavioral problems at early ages.

Data on location of service received indicated the most frequent mental health service received by our population was through community-based services (74.5%). This was unexpected given data reporting poor attendance at community-based services and increased access of services through schools (Stephan, Weist, Kataoka, Adelsheim, & Mills, 2007). However, research indicates that 40% to 60% of families who begin community mental health services prematurely end those services, with most attending only one or two sessions (Hoagwood et al., 2010). Further, pharmacological treatment was the second most frequently accessed service, used by 70.9% of students. A much smaller percentage of the sample indicated having used school-based psychosocial service (28.6%), which was surprising given the sampling procedure relied on schools for referrals. As the movement toward school-based mental health service delivery models has grown in recent decades, it is possible they may not be as widespread in high schools or may be identifying youth through means other than emotional/behavioral assessments. Alternatively, it may be that building the capacity of high schools to identify and serve students with the significant mental health needs of this sample is challenging. Indeed, although few parents reported students having previously received school-based services, the current sample was recruited by school staff instructed to refer students exhibiting severe emotional, behavioral, and school problems and half of this sample was not receiving special education services for those needs. As this discrepancy may be due to limitations in the use of parent report of services, additional research is needed to both replicate this finding as well as to understand screening and referral procedures that high schools use to identify and serve students in need of mental health services.

Differences in access to mental health services based on sociodemographic characteristics were found only for community-based and pharmacologic interventions. White youth and those with a special education status were more likely to have received community-based and pharmacologic interventions, supporting previous sociodemographic disparities found in accessing services (Ghandour et al., 2012). Although results from the current study indicate child ethnicity and special education status differentiate likelihood of receipt of both community-based psychosocial and pharmacologic interventions, there were no significant differences in the likelihood of having received school-based or inpatient services. These are important findings for several reasons. First, minority students are disproportionately identified for special education and specifically as "emotionally disabled" (Kern & Hetrick, 2015). Second, the relationship between special education status and service use may be attributable to having parents who pursue services for their children. Such parents are more likely to obtain services at school and in the community than those who do not advocate and pursue services for their child. Furthermore, a recent study of this sample found no significant differences on several standardized measures of behavior (i.e., BASC-2, MASC-2, RADS-2) or academics (*Woodcock–Johnson III*) among this sample when comparing those with and without special education labels, except for lower academic skills among students with a label of specific learning disability (Kern & Hetrick, 2015). Our data suggest that there may be more equitable access to school-based services, arguing strongly for enhanced applications of school-based mental health services. Further research is warranted, however, particularly given the reported low use of school-based services in this sample.

Another important finding pertains to inpatient services. Our data indicate the average age at which students reported first receiving inpatient services was 12.7 years and outpatient services was 11.2 years. On average outpatient services started 1 year earlier than inpatient. The late age of the start of outpatient services might partially explain the small difference between average age of outpatient and inpatient services. Had effective outpatient services been provided earlier, it may have been possible to prevent or delay the need for inpatient services.

Findings in the current study should be interpreted within the context of several study limitations. First, data were collected at a single time point. Periodic data collection might render different data with respect to service use. The sample is specific to high school students identified by schools as exhibiting severe emotional/behavioral problems and school impairment; however, it is unknown the extent to which this is how schools identify and refer in practice and thus generalizability to broader populations is limited. Data were also obtained via parent report, which required retrospective recall of their child's lifetime service use; however, high correspondence between parent report of services and documentation in medical records somewhat mitigates these concerns (Hoagwood et al., 2004). Future research is needed to further examine the accuracy of parent report of service use, particularly for older children.

Another limitation is the difficulty parents had describing school-based services. Parent unfamiliarity with school-based services has significant implications for practice, particularly given the movement toward providing mental health services in schools. First, communication between parents and school staff should be enhanced so parents understand the type of services their child receives to make informed decisions about effectiveness and advocate for alternative services when needed. In addition, parents are often responsible for coordinating services across care providing agencies. Knowledge of service type is particularly important to determine effectiveness and reduce duplication. Future research should examine ways to effectively communicate to parents not only the type of school-based service their child receives but also the effectiveness of the service. However, the lack of awareness of children's school services may be due to recall difficulties given they are retrospectively reporting since the child was in kindergarten or across the last 10 years. It may be that interview methods with parents about history of services like the SCAPI are not sufficient for gathering school service utilization data. Additional data collected from school records or adolescent report of their recollection of services provided as a supplement to parent report may better capture the school services the child received. Moreover, using school personnel interview methods about school services may provide advantages to parent report, although consideration of new methods for collecting school services data for high school youth with emotional and behavioral problems also warrants attention. Further research is needed to understand how multiple methods or informants' reports of school services are substantiated.

Despite limitations the current study notably adds to the growing research on understanding the prevalence rates of service use among adolescents experiencing emotional/behavioral problems and school impairment. The primary clinical implications of this study are the need to enhance early identification and prevention services and increase access to care especially for minority youth and those not identified for special education. It is particularly important to obtain data on service use among students who have been assessed as having clinical levels of emotional/behavioral problems and significant concurrent impairment in school functioning.

Authors' Note

Opinions expressed are those of the authors and do not represent views of the Institute or the U.S. Department of Education.
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Note

1. A large portion of students classified as having a Learning Disability also have serious emotional and behavioral problems. Sometimes schools use the Learning Disability category as the primary classification to reduce stigma for these students. There is research that suggests that Learning Disability and Attention-Deficit Hyperactivity Disorder (ADHD) overlap; that is, a large portion of students classified as having a Learning Disability meet diagnostic criteria for ADHD.

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