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Patterns and Predictors of Mental Healthcare Utilization in Schools and other Service Sectors among Adolescents at Risk for Depression

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Abstract

This study examined racial/ethnic and socioeconomic differences in service utilization across sectors (specialty mental health, school, primary care) for youth at risk of depression. Our sample included 362 adolescents who were enrolled in a larger project examining the effects of an indicated school-based depression prevention program. Service use across sectors mirrored national trends and previous research findings in which the education sector was most frequently utilized for mental health services. Race/ethnicity was significantly associated with parent-reported specialty mental health service utilization, even when controlling for other predictors of use. The study also suggests that racial disparities in service access generally appear to be reduced through the availability of education sector mental health services. Socioeconomic status was not associated with service use in any sector when controlling for other predictors. Parent-child agreement was moderate for report of specialty mental health service use and low for report of use of services within the education and primary care sectors.

Introduction

Large gaps have been identified between youth in need of mental health interventions and those who actually receive services (Stephenson, 2000). Despite advances in identification of mental health problems and the development of interventions with demonstrated effectiveness for addressing common mental health diagnoses in adolescents, an estimated 80% of youth who need mental health services do not receive them (Kataoka, Zhang, & Wells, 2002). Furthermore, gaps between need and utilization disproportionately impact ethnic minority and low income groups, who have been found to have high levels of unmet mental health needs (U.S. Department of Health and Human Services, 2001; Yeh, McCabe, Hough, Dupuis, & Hazen, 2003). Race/ethnicity continues to be a significant predictor of service utilization rates among high-risk youth (Garland et al., 2005; Leslie et al., 2000; Garland et al., 2003; Zimmerman, 2005), even after controlling for other potentially confounding variables (i.e. maltreatment history, income, gender, age, diagnosis, problem severity). For instance, a recent study showed that among youth reporting suicidal thoughts, Caucasian youth were more likely than Black, Asian/Pacific Islander, or Hispanic youth to receive clinical care (Kataoka, Stein, Nadeem, & Wong, 2007). Importantly, disparities in utilization of services for youth with similar levels of symptoms were not found within the school setting. Aside from the work by Kataoka and colleagues, such investigations are rare. To inform strategies to reduce barriers to care, greater understanding of factors associated with utilization of mental health services in different service settings by youth with

particular mental health conditions is needed. This research should attend to all three of the most common sectors for youth mental health service delivery – specialty mental health, education, and primary care (Farmer, Burns, Phillips, Angold, & Costello, 2003) – to provide the most accurate picture of use.

Understanding help-seeking behavior among adolescents at risk for depression is particularly salient because of the high prevalence of depressive symptoms and disorders, the helpfulness of early intervention, and the potentially adverse and even lethal consequences of inadequate treatment (Merikangas et al., 2011). It is estimated that 20 percent of adolescents have at least one episode of clinical depression by age 18 and that 65 percent experience less severe depressive symptoms (Lewinsohn, Hops, Roberts, Seeley, & Andrews, 1993). Depression negatively affects functioning in school and other life domains; it is associated with poor academic performance and school engagement, substance use/abuse, and suicide risk in adolescence and adverse mental health and economic outcomes in adulthood (Fergusson, Boden, & Horwood, 2007; Fergusson & Woodward, 2002; Hammen, 1997; Hussong, Jones, Stein, Baucom, & Boeding, 2011). Relative to externalizing disorders, the problems encountered by children at risk for depression are typically less overt and more difficult to detect. Consequently, depressed youth may be less likely to be encouraged by their parents or other adults (e.g., teachers) to seek treatment (Logan & King, 2001). Furthermore, evidence exists to suggest that depressed youth from some ethnic minority groups are particularly unlikely to receive care in the specialty mental health sector, even when controlling for symptom severity (Zimmerman, 2005).

More youth receive mental health services in schools than in any other service setting (Farmer et al., 2003). In contrast to the specialty mental health sector, the accessibility and confidentiality provided to adolescents by school-based mental health services are factors that support help-seeking among adolescents for symptom presentations that their parents may not immediately recognize. These factors not only render schools critical to reducing service gaps for depressed adolescents in general, but may also be essential in reducing racial and economic disparities in mental health service utilization (Cummings, Ponce, & Mays, 2010; Kataoka et al., 2007). Although access to specialty mental health or primary care mental health services more routinely requires parent recognition of an adolescent's depression, school mental health services may be well positioned to increase service accessibility and reduce disparities even in the absence of close parental involvement. Despite substantial variation across states, students are often able to access care in the education sector following passive parental consent procedures, active parental consent for school-based health services in general, or by providing consent themselves (Evans, 1999).

Such differences between sectors in the degree to which parents take an active role in service seeking may also result in differences between parent and adolescent *reports of* mental health service use. Indeed, moderate to good agreement of child and parent reports has been documented for overall utilization, but some studies have found lower agreement surrounding reports of education sector service use (Stiffman et al., 2000). Other research has documented that parents and youth are both able to report accurately on some aspects of service use, that accuracy is typically best for more intensive services (i.e., hospitalization or residential care), and that some parental reports may be more consistent with record reviews than youth reports (Canino et al., 2002). Despite the value of the research described above for understanding general patterns of service utilization and informant agreement, no studies have focused specifically on depressed youth and compared parent and youth report of service use across the specialty mental health, primary care, and education sectors.

The current study drew on a sample of youth showing signs of depression to explore differences in mental health service utilization across sectors by race/ethnicity and

socioeconomic status (SES) and investigated concordance between adolescent and parent reports of service use. SES was examined specifically due to its strong associations with race/ethnicity, the possibility of confounding effects, and inconsistent findings in the literature surrounding its connection to indicated service use (e.g., Flisher et al., 1997; Zimmerman, 2005). We hypothesized that, for youth showing signs of depression, (1) Caucasian youth would utilize specialty mental health services at higher rates than youth in other ethnic groups, (2) racial/ethnic differences in utilization would be lower for school-based services, compared to services across other sectors; (3) a higher proportion of lower-SES service utilizers, compared to higher-SES service utilizers, would use school services; and (4) parent and adolescent reports of mental health service utilization would differ, with the greatest discrepancy observed surrounding school-based services.

Methods

The sample used in this study included youth enrolled in a larger randomized controlled trial of a school-based depression prevention program. The program was designed to reduce the risks for depression associated with the transition to high school by implementing an indicated preventive intervention with 8th grade students, who reported symptoms of depression, as they transition into high school.

Sample

Participating youth were identified via a universal (grade-wide) emotional health screening to assess for depression, carried out during the second half of the 8th grade year at six middle schools in a Pacific Northwest urban area. From an initial screening sample of 2664 youth who were representative of the district population, a sample of 497 youth (18.7%) was identified as being at risk for depression based on elevated depression scores on a modified version of the Moods and Feelings Questionnaire (MFQ; Angold & Costello, 1987). In the current study, three suicide items were eliminated due to the sensitive nature of these questions, the impersonal setting in which the questionnaire was administered, and the research team's inability to adequately and practically follow up with the anticipated large number of positive endorsements. Students were identified as eligible for the randomized controlled trial if their MFQ score was 15 or above; however, at each additional time point a shortened version of the MFQ (the Short Mood and Feelings Questionnaire; SMFQ – see *Measures*) was administered. Eligibility also required that students score below the clinical cutoff for conduct problems on the Youth Self Report (YSR; Achenbach, 2001), Aggressive Behaviors subscale.

The sample for the current analyses consisted of 362 youth with complete parent- and youth-reported service utilization data. Youth from racial/ethnic minority backgrounds were significantly more likely to be missing these data ($\chi^2 = 27.987, p < .001$), as were youth of lower SES ($t = 3.615, p < .001$). The remaining sample was 62% Caucasian, 14% Asian American, 11% Latino, 10% African American, and 2% Native American. Due to low representation, Native American youth ($n = 8$) were also omitted from the analyses. In addition, nine youth were missing SES data for a final effective sample of $n = 345$. Participating youth were 62% female and had an average Hollingshead SES level of 48, signifying a moderate SES level overall (Hollingshead, 1975). Ranging from highest to lowest, specific Hollingshead category percentages were 42.4% I, 35.6% II, 7.1% III, 7.3% IV, and 5.1% V, indicating greater representation from higher SES groups.

Procedures

Data were collected over a three-year period with multiple cohorts of students. Students participating in intervention and control conditions completed a comprehensive

questionnaire at five time points over a period of 18 months (January of 8th grade through June of 9th grade) and parents completed questionnaires at three time points over this same period.

The intervention condition included three components: (1) Group sessions during the final semester of eighth grade focused on domains empirically found to buffer against the development of psychopathology in adolescence (e.g., self-esteem building, decision making, enhancing personal control, increasing social support, and preventing recurrence of problems); (2) Booster sessions in the fall of ninth grade reviewed strategies and provided guidance and support for students transitioning to high school; and (3) Parent sessions were conducted in home visits following a structured curriculum focused on supporting the adolescent in transition to high school, self-esteem enhancement, and stress and mood management.

The control condition included a brief intervention comprised of in-home assessments and data collection occurring on the same schedule as the experimental condition. Following the initial in-home assessment, each youth participated in a one-on-one standardized interview and clinical follow-up with a trained clinician reviewing areas of potential concerns. A feedback call was then made to each parent reviewing concerns and providing recommendations for additional services as needed. Following each subsequent assessment, participants indicating high risk of clinical depression or self-harm were assessed by a clinical specialist who worked with parents and the school counseling department to develop a plan (e.g., connecting student with a tutor, meeting with school counselor, providing mental health referrals).

Except for demographic information, data presented in the current paper were collected from student and parent questionnaires in both conditions completed at the final data collection time point (June of 9th grade). After description of the study to the participants, written informed consent and assent were obtained. Institutional review board approval was obtained for all procedures.

Measures

The measures described in this section were used in the current analyses and were part of the larger assessment battery. As stated previously, a modified full version of the MFQ and the YSR were also used for initial sample screening, but are not described here.

Service utilization—The measure, adapted from the “Getting Help” interview is a parent- and self-report measure that asks about service use across multiple sectors during adolescents’ 8th and 9th grade years (Cohen & Brooks, 1985) (e.g., “Have you received outpatient services from counselors, therapists, psychologists, psychiatrists, social workers or an in-home family preservation worker OUTSIDE of the school setting?”, “Have you met with a school counselor, teen health center counselor, drug and alcohol counselor or psychologist at your school for behavioral, emotional, or other mental health issue?”, “Have you received outpatient services from a pediatrician or family doctor for reasons related to your behavior, attention, or mood?”). To avoid capturing participation in the preventive intervention as a school-based service, parents and youth responding to the interview were instructed to report only on services received outside of the context of the larger randomized trial.

Depression—The Short Mood and Feelings Questionnaire (SMFQ; Angold et al., 1995) is a 13-item scale, available in both self-report and parent-report versions, that is designed to measure depression in children and adolescents age 8–17 years. The SMFQ is a shortened version of the MFQ, the measure which was used for the initial screening. The SMFQ and

MFQ have previously been found to correlate highly at $r = 0.95$ (Kuo, Vander Stoep, & Stewart, 2005). SMFQ items are derived from the Diagnostic and Statistical Manual of Mental Disorders (DSM) criteria for major depression and dysthymia (Angold et al., 1995). Items are rated on a three-point scale (true, sometimes, not true) for the period of the past 2 weeks. The SMFQ has been shown to have high internal reliability (Cronbach's $\alpha = 0.90$), and results of exploratory factor analysis suggest that it is a unifactorial scale (Angold et al., 1995). Sharp and colleagues (2006) applied item response theory and categorical data factor analysis in further investigation of SMFQ psychometric properties. Their results supported the internal construct validity of a single underlying continuum of severity of depressive symptoms, confirming its scaling properties as a dimensional measure of symptom severity of childhood depression in community samples. Although SMFQ clinical cut-off scores were not used for sample selection or analyses, a cut-off of 11 and above on the SMFQ has been shown to represent the 94th percentile in a community-based sample, which reflects the 1-year prevalence of clinical depression in the US population of children and adolescents (Angold, Erkanli, Silberg, Daves, & Costello, 2002). No studies have specifically evaluated the SMFQ with ethnic or racial minority youth. However, the highly-correlated MFQ has been applied with ethnically diverse youth in schools (Bisaga et al., 2005) and found to be a valid measure across different racial/ethnic groups (Bahn et al., 2012).

Demographic characteristics—Student gender and race/ethnicity were obtained from parents and students as part of the initial evaluation. Family SES was assessed using the Four-Factor Index of Social Status (Hollingshead, 1975). The Index is based on both parent and student report of parents' education level (highest grade/degree completed) and occupation. The Index yields a continuous score, from 0–100, which allows a family to be placed into one of five categories, ranging from highest (category I) to lowest (category V).

Data Analysis

A series of hierarchical logistic regression models were run using the Statistical Package for the Social Sciences (SPSS 19.0, 2010) software to evaluate multivariate predictors of service use across sectors and respondents, controlling for student gender and depression symptom severity (SMFQ). Chi-square (χ^2) tests of model fit and change in model fit were used because of the dichotomous nature of the dependent variables and the nested nature of the models in question. Because it is a categorical variable, race/ethnicity was dummy coded into a series of dichotomous variables for all of the regression analyses, using Caucasian as the referent group. Cohen's kappa (κ) statistics were calculated to determine chance-corrected parent-child agreement on child service utilization within each service sector. Analyses indicated that youth in the intervention and control conditions did not differ on any of the variables used in the current analyses. Therefore, the two groups were combined for the analyses described below. Furthermore, to correct for the possibility of Type I error due to multiple comparisons when testing service utilization across sectors and informants, a Bonferroni adjustment was performed, which incorporated the mean correlation among the six dependent variables ($r = 0.24$). Using this procedure, an adjusted value of $p < 0.0128$ was identified as the cutoff for a "significant" finding in the analyses. Although normality of predictor variables is not an assumption of logistic regression, all study models were also run non-parametrically using categorical values to account for the possible influence of high-leverage outlier data points in the SES variable. These models produced comparable results, so the original models were retained and are presented below.

Results

Table 1 presents descriptive statistics for variables used in the study. Results indicated that, for youth showing signs of depression, 56.2% of youth and 51.8% of parents reported that adolescents utilized mental health services in at least one of the three sectors tracked. Across all racial/ethnic and socioeconomic groups and via parent or adolescent report, the education sector was the most highly utilized (see Table 2). Furthermore, utilization rates did not vary significantly in any sector or for any informant by participant membership in the intervention or control conditions used in the larger randomized trial. Figures 1 through 4 display the rates of utilization for different ethnic and socioeconomic subgroups, using all available data, and reflect the high rates at which education sector services were used. Below, the results of analyses evaluating different predictors of service utilization are discussed.

Hierarchical logistic regression analyses were used to evaluate the associations between the variables of interest and service utilization in each sector and for each informant, controlling for gender and depression severity. In all, six hierarchical models were run, one for each of the service utilization dependent variables. In each model, participant gender and depression severity (SMFQ) were entered into the first block as covariates and the independent variables of interest, SES and race/ethnicity, were entered into the second block. Results from these analyses allowed for an evaluation of initial model, adjusted model, change in fit, as well as the specific contributions of SES and race/ethnicity by sector (see Table 3).

Unadjusted and Adjusted Models

Two hierarchical models were examined for each dependent variable. As can be seen in the table, the initial model involving only symptoms of depression and gender significantly predicted youth report of service utilization, but not parent report, in all three sectors (although the model for parent-reported school service use would have reached significance at $p = 0.015$, had an unadjusted significance value been used). In each of these initial models, depression severity was the stronger predictor of service use. The adjusted models, in which SES and race/ethnicity were added into the second block, were also significant in predicting the same youth-reported dependent variables. In these models, the inclusion of SES and race/ethnicity resulted in a significant increase from the initial model in the ability of the adjusted model to predict parent-reported school service utilization. No other models experienced a significant overall change with the inclusion of these variables.

SES and Race/Ethnicity

Examination of the odds ratios of the independent variables of interest (SES and race/ethnicity) indicated that, across service sectors and informants, SES was not a significant predictor of service utilization when the effects of gender, depression symptom severity, and race/ethnicity were taken into account (although it approached significance in predicting youth-reported school service use; $p = .063$). Furthermore, using the adjusted p-value, specific effects of race/ethnicity were only apparent in the adjusted model that examined parent-reported specialty mental health service utilization. Resulting odds ratios of 0.151 and 0.308 (see Table 3) indicated that, after controlling for other predictors, Caucasian youths' parents were 6.62 times more likely than African American and 3.25 times more likely than Latino youths' parents to report specialty MH service use. Although resulting odds ratios also suggested that Caucasian youth were 2.45 times more likely to receive specialty mental health services than Asian youth (by parent report), this was not significant when using the Bonferroni-corrected p-value.

Parent-Child Agreement

Utilization was somewhat higher across sectors when reported by youth than by parents, but both parent and youth report indicated that the education sector was most frequently utilized (Table 2). Kappa statistics were calculated to investigate inter-rater agreement. According to Landis and Koch (1977) kappa values between .41 and .60 are considered moderate, between .61 and .80 substantial, and above .81 almost perfect. In the current data, variable rates of agreement were found across service sectors with moderate agreement for specialty mental health services ($\kappa = .59$), and poor agreement for school and primary care services ($\kappa = .32$ and $.22$, respectively). Evaluation of patterns of disagreement revealed comparable rates of discordant endorsements of service use among parents and youth across all service sectors (i.e., times when one respondent reported service use and the other did not; see Table 4). Controlling for other demographic variables using the same methods described previously, the only predictor of disagreement among parent-child dyads was African American race/ethnicity. Compared to Caucasian participants, African American youth and their parents were 4.03 times less likely to agree on their reports of education sector service use ($OR = 0.248$, $CI = 0.114 - 0.541$, $p < .001$). Interestingly, despite this disagreement within dyads, as aggregate groups, African American parents and adolescents still reported comparable mean levels of school service utilization.

Discussion

This study revealed that just over half of the youth who screened high for depression risk utilized mental health services, and that utilization across all sectors was somewhat higher via youth report than via parent report. These levels are also higher than has been documented in some previous studies of indicated use, many of which have been population-based and used single indicators of utilization rather than asking separately about use across different service sectors (e.g., Kataoka et al., 2002; Zimmerman, 2005). When looking at lifetime use by mental health disorder, Merikangas and colleagues (2011) found that over 39% of youth with a diagnosable depressive disorder had received services specifically for that problem. In contrast, the current study asked about use in any of the three service sectors evaluated, regardless of the reason, which may have contributed to the higher rates reported. According to both youth and parent report, school-based mental health services were most highly utilized across all ethnic and socioeconomic groups. Education sector service use documented in the current study also revealed higher rates of indicated utilization than has been found in more general studies of youth mental health service use (e.g., Kataoka et al., 2002), underscoring that school-based services appear to facilitate entry into care among youth reporting depression.

Initial models, in which depression severity and gender were used to predict utilization across sectors and informants, were significant in their ability to predict youth-reported service utilization in all sectors, but not parent report. The addition of SES and race/ethnicity variables to the model resulted in a significant change in ability to predict parent-reported specialty mental health utilization, but did not change model fit for any other dependent variable. As discussed below, this finding suggests that students' ethnic and racial backgrounds are particularly relevant to their use of mental health services in the specialty sector, but may be less meaningful to service use in other sectors. Furthermore, depression severity was a significant predictor of youth report of specialty mental health services and both youth and parent report of school services. Given the generally low rates with which youth experiencing mental health problems receive intervention (Kataoka et al., 2002), a consistent, significant relationship between severity and education sector utilization may again reflect the relative accessibility of that sector for youth experiencing symptoms of depression.

SES

When controlling for the other variables, SES was not found to be a significant predictor of service utilization in any sector. Although this finding may have been influenced to some extent by the non-normal distribution of the SES variable, our analyses suggest this was unlikely. Furthermore, this result is consistent with earlier findings from a large-scale, nationally-representative study in which found that, when controlling for other influences, economic variables and insurance status had little effect on specialty mental health service use, potentially due to the availability of Medicaid coverage for low-SES families (Zimmerman, 2005). Nevertheless, it is possible that this trend could shift as public healthcare systems face increased pressures to control service use in response to economic conditions. Future research should continue to monitor these associations longitudinally as well as their relationship with race and ethnicity.

Race/Ethnicity

According to parent report, Latino or African American youth utilized specialty mental health services at significantly lower rates than Caucasian youth, a finding consistent with earlier studies (e.g., Yeh et al., 2003). Indeed, in a sample of over 2,200 youth, Zimmerman (2005) reported odds ratios highly similar to those found in the present study for African American and Latino youth (0.14 – 0.28 and 0.28 – 0.30, respectively). These findings underscore the importance of understanding and facilitating service linkage for adolescents from these groups, as their likelihood of accessing indicated care in traditional settings remains suboptimal. It is possible that race/ethnicity serves as a proxy for unmeasured cultural variables and/or cultural biases and barriers that exist in service accessibility for ethnic minority youth in specialty mental health settings. These may include institutional trust and treatment receptiveness, culturally-distinct beliefs about mental health and mental health intervention, preferences for alternative interventions/pathways to intervention, racial discrimination, or sociocultural norms around help seeking (Boyd-Franklin, 2003; Cauce et al., 2002; Snowden & Yamanda, 2005).

Interestingly, and in contrast to parent report, youth report indicated no differences in utilization of specialty mental health services by race/ethnicity when controlling for other variables. This finding suggests that parents and adolescents may differ in their interpretations of the use – and perhaps usefulness – of specialty mental health care. In addition, generational or other differences may exist in the extent to which parent versus adolescent reporting is influenced by cultural biases or the frequently-cited stigma associated with specialty mental health care (Corrigan, 2004; Gary, 2005).

Parent-Child Agreement

The low correspondence between youth and parent reports of utilization found in the current study has implications for measurement approaches used in adolescent mental health services research, especially when work is conducted in schools. Although there was no “gold standard” available from service utilization records in our project, we assume there are generally more false negative than false positive reports for both adolescent and parent reports. Thus, we suspect that youth report – which was somewhat higher than parent report – could give a more accurate measure of education sector service use. This may be particularly true when considering care received by depressed adolescents, whose relatively covert symptoms and subsequent service utilization may be unknown to their parents. This finding is not surprising given the more confidential context for help seeking provided by the school setting, which could limit parents’ knowledge of care received. In the state where the current project was conducted, the age of consent for services is 13 years, which may have facilitated independent access to care.

Access to specialty mental health services is often more complicated than access to school services. As noted above, adolescents' need for parents to help them navigate the healthcare system has previously been identified as a barrier to use (Stiffman, Pescosolido, & Cabassa, 2004). Service use in the specialty sector frequently requires referral and/or authorization from primary care or another sector, thus increasing the likelihood that parents will be involved in help-seeking. In the current study, it is less clear why agreement about primary care services was so low, but it is possible that some youth or parents might not have realized (or remembered) that a trip to a primary care physician was, in fact, a mental health intervention if emotional health issues were at the forefront. Aarons and colleagues (2010) have documented that parents and children commonly attend to and value different aspects of mental health services when receiving care, but it is unclear if those perceptions are related to actual reports of use. Nevertheless, our findings suggest that parents and youth both provide unique information when evaluating service utilization for depression, regardless of the sector. For this reason, gathering reports from each seems justified in the context of research or clinical care.

In addition, African American parents and adolescents demonstrated significantly lower agreement in reported specialty and school-based service utilization than Caucasian parent-child dyads. Interestingly, African American parents and adolescents still reported equivalent *amounts* of use overall, with parents just as likely to report school service use when their adolescent reported no use as adolescents were to report use when their parents reported no use. Therefore, the low levels of agreement within African American parent-child dyads may be due more to communication or knowledge gaps between parents and their children (or their children's schools) surrounding mental health than to any response bias. Nevertheless, the reasons for this are unclear; for instance, although some studies have found that African American parents may be less likely to be directly involved in their children's schools than their white counterparts, other research suggests equal, greater, or different types of involvement (Smetana, 2011). Regardless, efforts to include multiple informants of service utilization may be useful in assessing actual patterns of utilization and understanding the low agreement between parents and youth.

Limitations

In the current study, important limitations included the greater likelihood of missing parent-report data among lower-SES and ethnic/racial minority youth. Lower representation of these groups due to differential attrition reduced the sample size and may also have increased the possibility of a Type II error, something particularly relevant to the analyses where no differences by SES and ethnicity were found (e.g., school-based service use). Furthermore, SES in the sample tended to cluster within higher status strata, which has the potential to downwardly bias its relationship with other variables. In addition, because the sample was drawn from adolescents enrolled in a larger intervention trial, it may represent youth who were predisposed to mental health service seeking – perhaps due to previous treatment experience – and who self-selected for participation, potentially reducing the generalizability of the findings. Conversely, parents who could not be contacted for study follow-ups, and were therefore excluded, may be less likely to be in a position to seek or encourage service use in their children. In particular, these young people may be less likely to engage in services requiring parent-mediated access, resulting in particularly low utilization for both specialty mental health and primary care. School-based utilization is also likely to be negatively affected by parental involvement, but the impact may be less than in the other service sectors. Although the broader project within which the current study is nested (a controlled trial of a school-based depression prevention program) was not designed to address these specific questions, future research is planned.

As stated previously, participation in the larger project also resulted in additional referrals for some higher-severity youth, which may have increased reports of utilization somewhat among a small subset of the sample. However, for ethical reasons, this is also a limitation of many other studies that collect identifying information about youth in order to evaluate mental health status and service utilization over time. Furthermore, considering the myriad barriers which prevent successful service linkages for youth in need and the relatively small number of youth identified for additional referral, it is unlikely that the safety procedures outlined have substantially influenced the results.

Implications and Conclusion

The current study explored patterns and predictors of service use for youth at risk for depression by assessing differences in utilization across sectors by race/ethnicity and SES, as well as discrepancies in adolescent and parental reports of use. Findings have valuable implications for school mental health research and service provision, as well as behavioral health more generally. First, unlike specialty mental health settings, which appear to be utilized most often by Caucasian youth, school based mental health services in our study were accessed more by all youth, regardless of SES, gender, and race/ethnicity. Given that the prevalence of depression and other mental health conditions is highest among children and adults who live in conditions of poverty, and that few youth receive indicated services, our finding suggests that school-based mental health care may provide a valuable opportunity for increasing access to interventions, specifically among historically-underserved adolescents with symptoms of depression. As stated previously, depression (unlike externalizing problems) is notoriously underidentified and untreated among youth, in part because of its covert nature (Kessler, Avenevoli, & Merikangas, 2001; Merikangas et al., 2011). Especially in high school, school-based interventions are less likely to be initiated by parents and more likely to involve adolescent self-referral. In our sample of young people with symptoms of depression, 43% reported use of school based services. In contrast, our findings surrounding specialty and primary care were similar to previous results indicating that up to 80% of youth who need services do not receive them (Kataoka et al., 2002). Furthermore, because they were drawn from a larger study of depression prevention, some of the young people in our study may not have met full criteria for a diagnosable disorder and may not have required intensive treatment. For this reason, our results also suggest the continued importance of school-based services for prevention and early intervention.

Second, our findings indicated that, regardless of SES, there were substantial racial/ethnic differences in parent-reported utilization of specialty mental health services, the accessibility of which is largely parent-mediated. The reluctance of parents of ethnic minority youth to utilize specialty mental health care may be influenced by beliefs about mental health stigma as well as perceptions of mental health providers and organizations as culturally insensitive and/or experiences of racial discrimination (Cauce et al., 2002; Boyd-Franklin, 2003). Indeed, sociocultural barriers to health care have been identified at the organizational, structural, and clinical levels (Betancourt, Green, Carrillo, & Ananeh-Firempong, 2003). Future research is needed, but the disparities of service utilization based on race/ethnicity within this study suggest the potential need for more culturally competent services that effectively address sociocultural barriers at one or more levels within specialty mental health care.

Third, differences in service utilization reported between parents and adolescents may reflect a combination of generational and/or cultural differences related to (1) perceptions of the nature of mental health services (i.e., what constitutes a mental health visit in various contexts), (2) the overall accessibility of services, or (3) key differences in awareness or interpretation of adolescent mental health needs. The results of this study highlight the need to consider informant and sector differences in accurately evaluating and understanding

service accessibility and utilization. Again, practitioners may be advised to collect service use information from multiple informants, possibly during individual meetings with parents and youth, in the course of initial intake evaluations of diverse youth with depression.

In sum, the current study helps to address the knowledge gap surrounding influences on mental health service utilization in schools and other sectors commonly accessed by adolescents. Although youth and parent reports of utilization were sometimes discrepant – and discrepancies were greater for reports of education sector use than for specialty mental health use – results support the important role of school mental health in the reduction of service disparities based on youth demographics. Future research should continue to address these issues in a variety of well-specified clinical populations (e.g., anxiety, trauma) drawn from ethnically- and culturally-diverse populations.

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Figure 1.
Youth reported youth service utilization broken down by ethnicity and service sector (specialty, school, primary)

Figure 2. Parent reported youth service utilization by ethnicity and service sector (specialty, school, primary)

Figure 3.

Youth reported youth service utilization by SES based on both parent and student report of parents' education level (highest grade/degree completed) and occupation and service sector (specialty, school or primary). SES values range from I (highest) to V (lowest).

Figure 4.

Parent reported youth service utilization by SES based on both parent and student report of parents' education level (highest grade/degree completed) and occupation and service sector (specialty, school, primary). SES values range from I (highest) to V (lowest).

Table 1

Descriptive Statistics of Sample Variables

Demographic Variables	n	Percent/Mean	SD	Range
Female	225	62.2%		
Race/Ethnicity				
White	225	64.9%		
Asian	49	13.5%		
Latino	41	11.9%		
African American	39	10.8%		
American Indian	8	2.2%		
SES (Hollingshead)	353	48	13.27	9 – 61
Depression Symptoms (SMFQ)	362	6.63	5.69	0 – 24
Dependent Variables	n	Percent	SD	Range
Specialty mental health service use				
Youth reported	362	29.2%	46	0 – 100
Parent reported	362	27.5%	45	0 – 100
Primary care mental health service use				
Youth reported	362	11.8%	32	0 – 100
Parent reported	362	10.7%	31	0 – 100
School care mental health service use				
Youth reported	362	43.0%	50	0 – 100
Parent reported	362	40.5%	49	0 – 100

Table 2

Parent and Child Rating Agreement across Service Sectors

Service Sector	Parent <i>and</i> Youth Reported (% using)	Parent <i>or</i> Youth Reported (% using)	Kappa ()
Specialty Mental Health	20.1%	36.6%	.59
Education	25.1%	58.4%	.32
Primary Care	3.6%	19.0%	.23

n = 362

Table 3

Odds ratios and confidence intervals for predictors and covariates in each fully-adjusted model predicting service use by informant and service sector

	Depression Symptoms (SMFQ)	Female Gender	Hollingshead SES Total Score	Asian	African American	Latino	Initial Model ^a	Adjusted Model ^b (2 change)
Specialty Mental Health								
Youth Report	1.070 * (1.024 – 1.118)	1.595 (0.933 – 2.728)	1.005 (0.986 – 1.025)	0.940 (0.442 – 2.000)	1.335 (0.589 – 3.027)	0.785 (0.347 – 1.776)	15.101 *	16.484 * (1.383)
Parent Report	1.038 (0.992 – 1.087)	1.116 (0.656 – 1.900)	0.982 (0.963 – 1.002)	0.407 (0.180 – 0.920)	0.151 * (0.043 – 0.527)	0.308 * (0.124 – 0.762)	4.272	23.825 * (19.553 *)
Primary Care								
Youth Report	1.160 (1.094 – 1.230)	0.984 (0.448 – 2.160)	1.027 (0.997 0 1.059)	0.766 (0.234 – 2.511)	2.429 (0.825 – 7.149)	1.603 (0.552 – 4.655)	25.264 *	31.362 * (6.099)
Parent Report	1.047 (0.985 – 1.112)	0.929 (0.444 – 1.944)	1.004 (0.975 – 1.034)	0.637 (0.206 0 1.967)	0.445 (0.099 – 2.013)	0.538 (0.150 – 1.927)	2.032	5.004 (2.972)
School Mental Health								
Youth Report	1.096 * (1.049 – 1.146)	1.071 (0.663 – 1.730)	0.983 (0.965 – 1.001)	0.612 (0.297 – 1.260)	1.051 (0.485 – 2.279)	1.825 (0.885 – 3.763)	19.915 *	30.247 * (10.333)
Parent Report	1.063 * (1.019 – 1.108)	0.999 (0.621 – 1.607)	0.998 (0.981 – 1.016)	0.591 (0.286 – 1.220)	1.258 (0.587 – 2.693)	1.771 (0.876 – 3.580)	8.340	14.638 (6.299)

^aUnadjusted model included only depression symptoms and gender

^bAdjusted model included depression symptoms, gender, SES, and race/ethnicity

* Significant at $p < 0.0128$ (Bonferroni-corrected p-value)

Note: All odds ratios and confidence intervals reported for predictors and covariates are from the *adjusted* model

Table 4

Parent-child agreement about service use across sectors

	Specialty Mental Health	Education	Primary Care
Youth: YES, Parent: NO	9.1%	17.9%	8.3%
Youth: YES, Parent: YES	20.1%	25.1%	3.6%
Youth: NO, Parent: NO	63.4%	41.6%	81.0%
Youth: NO, Parent: YES	7.4%	15.4%	7.2%

 $n = 362$